# APPENDIX B – BORING LOGS

# APPENDIX B.1 BACKGROUND SOIL BORINGS

#### **Table of Contents**

| Subsurface Boring Legend | 1  |
|--------------------------|----|
| KIF-BG01                 | 2  |
| KIF-BG02                 | 3  |
| KIF-BG03                 | 5  |
| KIF-BG04                 | 6  |
| KIF-BG05                 | 7  |
| KIF-BG06                 | 9  |
| KIF-BG07                 | 10 |
| KIF-BG08                 | 13 |
| KIF-BG09                 | 15 |
| KIF-BG10                 | 17 |
| KIF-BG11                 | 19 |
| KIF-BG12                 | 21 |

#### **Subsurface Boring Legend**

#### **Lithology Graphics**

| Symbol   | Lithology                              |
|--|--|
|  | Fill                                   |
|  | Top Soil                               |
| 03030303<br>03030303<br>03030303                       | Gravel                                 |
| 0 0 0 0  | Well Graded Gravel (GW)                |
| 0 0 0 0  | Poorly Graded Gravel (GP)              |
|  | Silty Gravel (GM)                      |
|  | Silty, Clayey Gravel (GC-GM)           |
|  | Clayey Gravel (GC)                     |
| ©.   | Well Graded Gravel with Silt (GW-GM)   |
|  | Well Graded Gravel with Clay (GW-GC)   |
|  | Poorly Graded Gravel with Silt (GP-GM) |
|  | Poorly Graded Gravel with Clay (GP-GC) |
| ••••   | Well Graded Sand (SW)                  |
| • • • •  | Poorly Graded Sand (SP)                |
|  | Silty Sand (SM)                        |
|  | Silty, Clayey Sand (SC-SM)             |
|  | Clayey Sand (SC)                       |
| •                | Well Graded Sand with Silt (SW-SM)     |
|  | Well Graded Sand with Clay (SW-SC)     |
|  | Poorly Graded Sand with Silt (SP-SM)   |
|  | Poorly Graded Sand with Clay (SP-SC)   |
|  | Silt (ML)                              |
|  | Silty Clay (CL-ML)                     |
|  | Lean Clay (CL)                         |
|  | Organic Silt (OL)                      |
|  | Elastic Silt (MH)                      |
|  | Fat Clay (CH)                          |
| (////  | Organic Clay (OH)                      |
| <u></u>  | Shale                                  |
| $\begin{array}{ c c c c c c c c c c c c c c c c c c c$ | Siltstone                              |
|  | Coal                                   |
|  | Limestone                              |
|  | Sandstone                              |

#### **Other Graphics**

| Symbol              | Description                                      |
|---------------------|--|
|                     | Denotes environmental analytical sample interval |
|                     | Denotes SS sample interval                       |
|                     | Denotes ST sample interval                       |
|                     | Denotes DP sample interval                       |
|                     | Denotes RS sample interval                       |
|                     | Denotes RC sample interval                       |
| $\overline{\Delta}$ | First water level reading                        |
| Ā                   | Second water level reading                       |

#### **Common Abbreviations**

| Abbreviation | Definition               |
|--------------|--------------------------|
| DP           | Direct Push              |
| НА           | Hand Auger               |
| HSA          | Hollow Stem Auger        |
| N/A          | Not Applicable           |
| NR           | Not Recorded             |
| RC           | Rock Core                |
| RQD          | Rock Quality Designation |
| RS           | Rotary Sonic             |
| SS           | Split Spoon              |
| ST           | Shelby Tube              |
| WH           | Weight of Hammer         |
| WR           | Weight of Rod            |

#### **General Notes**

The boring logs include sample numbering used during drilling. For assigned Environmental Analytical Sample ID numbers, see relevant Environmental Chain-of- Custody forms from the drilling date range listed on each log.

For pH readings and additional field data, see applicable field documentation (e.g., Soil pH Data Form) from the drilling date range listed on each log.



| Client Borehole ID N/A Stantec Boring No. KIF-BG01   | Stantec Boring No. KIF-BG01 |  |  |  |  |  |  |  |
|--|-----------------------------|--|--|--|--|--|--|--|
| Client Tennessee Valley Authority Boring Location 573,590.26 N; 2,404,743.66 E NAD83   |                             |  |  |  |  |  |  |  |
| Project Number 175668043 Surface Elevation 771.7 ft Elevation Datum NGV  | D29                         |  |  |  |  |  |  |  |
| Project Name KIF TDEC Order Date Started 3/28/19 Completed 3/28/19   |                             |  |  |  |  |  |  |  |
| Project Location Harriman, Tennessee Depth to Water N/A Date/Time N/A  |                             |  |  |  |  |  |  |  |
| Inspector J. Andrew Logger D. Mihalek Depth to Water N/A Date/Time N/A   |                             |  |  |  |  |  |  |  |
| Drilling Contractor Hawkston (Subcontractor) Drill Rig Type and ID Geoprobe 3230DT, #3230-02   |                             |  |  |  |  |  |  |  |
| Overburden Drilling and Sampling Tools (Type and Size) DT37 Dual Tube Soil Sampling System w/ 60" PVC liners   |                             |  |  |  |  |  |  |  |
| Rock Drilling and Sampling Tools (Type and Size) N/A   |                             |  |  |  |  |  |  |  |
| Overdrill Tooling (Type and Size) N/A Overdrill Depth N/A  |                             |  |  |  |  |  |  |  |
| Sampler Hammer Type GH70 Direct Push Weight N/A Drop N/A Efficiency N/A  |                             |  |  |  |  |  |  |  |
| Borehole AzimuthN/A (Vertical) Borehole Inclination (from Vertical)N/A   |                             |  |  |  |  |  |  |  |
| Reviewed By A. Blair Approved By L. Price  | -                           |  |  |  |  |  |  |  |
| Lithology Overburden: Sample <sup>1,2</sup> Depth Ft <sup>3</sup> Rec. Ft B  | ows/PSI                     |  |  |  |  |  |  |  |
| Depth Ft <sup>3</sup> Elevation Graphic Description Rock Core: RQD % Run Ft Rec. Ft  | Rec. %                      |  |  |  |  |  |  |  |
| 0.0 771.7 Top of Hole  |                             |  |  |  |  |  |  |  |
| 0.5 771.2 ORGANIC SILT, OL, 10YR 4/6 (dark yellowish   |                             |  |  |  |  |  |  |  |
| brown), loose, dry   | _                           |  |  |  |  |  |  |  |
| FAT CLAY, CH, 10YR 5/6 (yellowish brown), high plasticity, moist   | _                           |  |  |  |  |  |  |  |
| [설명 DP01 0.0 - 5.0 등 기계 3.2  | N/A                         |  |  |  |  |  |  |  |
|  | -                           |  |  |  |  |  |  |  |
| 4 4.0 767.7  | _                           |  |  |  |  |  |  |  |
| CLAYEY SILT, ML, 10YR 4/3 (brown), very dense,   |                             |  |  |  |  |  |  |  |
| 5  | _                           |  |  |  |  |  |  |  |
|  | _                           |  |  |  |  |  |  |  |
| DP02 5.0 - 8.0 S   | N/A                         |  |  |  |  |  |  |  |
| Color change to 2.5Y 6/2 (pale red)  | -                           |  |  |  |  |  |  |  |
| 7.8 763.9  |                             |  |  |  |  |  |  |  |
| Snale  |                             |  |  |  |  |  |  |  |
| Bedrock Refusal / Bottom of Hole at 8.0 Ft.  | -                           |  |  |  |  |  |  |  |
|  |                             |  |  |  |  |  |  |  |
|  | _                           |  |  |  |  |  |  |  |
|  | -                           |  |  |  |  |  |  |  |
| 1 20190  |                             |  |  |  |  |  |  |  |
|  | _                           |  |  |  |  |  |  |  |
|  | -                           |  |  |  |  |  |  |  |
| 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)<br>G = Geotechnical Sample Custody  |                             |  |  |  |  |  |  |  |
| 2: a,b,c denote Split Spoon by the Split Spoon and Samples   | _                           |  |  |  |  |  |  |  |
| 3: Depths are reported in feet below ground surface<br>4: Grab sample (0.0/0.5-20190328) sampled using hand auger  | _                           |  |  |  |  |  |  |  |
|  |                             |  |  |  |  |  |  |  |
| 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)  G = Geotechnical Sample Custody  2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples  3: Depths are reported in feet below ground surface  4: Grab sample (0.0/0.5-20190328) sampled using hand auger |                             |  |  |  |  |  |  |  |
|  | _                           |  |  |  |  |  |  |  |
|  |                             |  |  |  |  |  |  |  |



| (    | Client E            | Borehole   | ID N/A   | <b>A</b>   | Stantec Bori  | ng l    | No. KIF-              | BG02                  |                  |         |            |
|------|---------------------|------------|----------|--|---|---------|-----------------------|-----------------------|------------------|---------|------------|
| (    | Client              |            | Tennes   | see Valley Authority   | Boring Location <u>572,746.20 N; 2,403,194.85 E NAD83</u> |         |                       |                       |                  |         | i <u> </u> |
| F    | Project             | Number     | 175668   | 9043   | Surface Elev  | /atic   | n <u>797.6</u> ft     | Elevation             | on E             | atum_ı  | NGVD29     |
| F    | Project             | Name       | KIF TD   | EC Order   | Date Started  | I       | 3/14/19               | Comple                | ted              | 3/14/   | 19         |
| F    | Project             | Location   | n Hai    | rriman, Tennessee  | Depth to Wa   | ter     | N/A                   | <br>Date/Ti           | me               | N/A     |            |
| ı    | nspect              | or J. Ar   | ndrew    | Logger M. Edmunds  | Depth to Wa   | ter     | N/A                   | <br>Date/Tii          | me               | N/A     |            |
| [    | Drilling            | Contract   |          | wkston (Subcontractor)   | Drill Rig Typ   | e ar    | nd ID Geor            | orobe 3230DT, #       | <del>4</del> 323 | 0-02    |            |
| (    | Overbu              | rden Dril  | ling and | Sampling Tools (Type and Size)   | DT37 Dual Tu  | be S    | oil Sampling          | System w/ 60"         | PVC              | Cliners |            |
| F    | Rock D              | rilling an | d Samp   | ling Tools (Type and Size) N/A   |   |         |                       |                       |                  |         |            |
| (    | Overdri             | II Tooling | (Type    | and Size)N/A   |   |         |                       | Overdrill             | De               | pth _   | N/A        |
|      | Sample              | r Hamm     | er Type  | GH70 Direct Push Weight N/A  | Drop  | N/A     |                       | Efficiency            | 1                | N/A     |            |
| E    | 3oreho              | le Azimu   | th       | N/A (Vertical)   | Borehole Inc  | lina    | tion (from            | Vertical)             | N/               | A       |            |
| F    | Review              | ed By      | A. Bla   | air  | Approved By   | / _     | L. Price              |                       |                  |         |            |
|      | I                   | _ithology  |          |  | Overburder  | 1:      | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |                  | Rec. Ft | Blows/PSI  |
| De   | oth Ft <sup>3</sup> | Elevation  | Graphic  | Description  | Rock Core   |         | RQD %                 | Run Ft                |                  | Rec. Ft | Rec. %     |
|      | 0.0                 | 797.6      |          | Top of Hole  | <b>'</b>  |         |                       |                       |                  |         |            |
| - 0  | 0.1/                | 797.5⁄     |          | Topsoil, roots, and sand   | /   | ∕_ ¥    | HA01                  | 0.0 - 0.5             | 1 11             | 0.5     |            |
|      |                     |            |          | LEAN CLAY WITH SILT, CL, 5YR 3/1   | (very dark  |         |                       |                       | ))               |         |            |
| - 1  |                     |            |          | gray) to 5YR 4/6 (yellowish red), non-p  | lastic to low   | 0.7/2.  |                       |                       |                  |         |            |
|      |                     |            |          | plasticity, firm, moist  |   | 7-2019  |                       |                       | ((               |         |            |
| - 2  |                     |            |          |  |   | )0314   |                       |                       | 0.0              |         | -          |
|      |                     |            |          |  |   |         | DP01                  | 0.0 - 5.0             | - 5.0            | 3.3     | N/A        |
| - 3  |                     |            |          |  |   |         |                       |                       | 1 111            |         | _          |
|      |                     |            |          |  |   |         |                       |                       | ))               |         |            |
| - 4  |                     |            |          |  |   |         |                       |                       | ())              |         | _          |
|      |                     |            |          |  |   |         |                       |                       |                  |         |            |
| - 5  |                     |            |          | Color change to 5YR 5/6 (yellowish red   | d), low   |         |                       |                       | 1 100            |         | _          |
|      |                     |            |          | plasticity, firm to stiff, some manganes                                       | ,,  |         |                       |                       |                  |         |            |
| - 6  |                     |            |          | at 5.0'  |   |         |                       |                       | ((               |         | -          |
|      |                     |            |          |  |   |         |                       |                       | ((               |         |            |
| - 7  |                     |            |          |  |   | 6.5/8.5 |                       |                       | 5.0              |         | _          |
|      |                     |            |          |  |   | -20190  | DP02                  | 5.0 - 10.0            | 10.0             | 5.0     | N/A        |
| - 8  |                     |            |          |  |   | )314    |                       |                       | 1                |         | _          |
|      |                     | 788.6      |          |  |   |         |                       |                       | )))              |         |            |
| - 9  | 9.0                 | 700.0      |          | WELL GRADED SAND WITH CLAY, S  | SW-SC 5YR   | -       |                       |                       |                  |         | _          |
|      | 10.0                | 707.0      | ··//     | 3/3 (dark reddish brown), medium to co   |   |         |                       |                       |                  |         |            |
| - 10 | 10.0                | 787.6      |          | medium dense, moist, with abundant s   | hale gravel   | 41      |                       |                       | 1 #              |         | _          |
|      |                     |            |          | and saprolitic shale clay  |   |         |                       |                       | ((               |         |            |
| - 11 |                     |            |          | SILTY LEAN CLAY, CL, 10YR 5/3 (broplasticity, firm, dry, saprolitic bedrock, s | •   |         |                       |                       | ((               |         | -          |
|      |                     |            |          | historical bedding structure maintained  |   |         |                       |                       | ((               |         |            |
| - 12 |                     |            |          |  |   | 11.0/14 |                       |                       | 3                |         | _          |
|      |                     |            |          |  |   | 1.0-201 | DP03                  | 10.0 - 15.0           | .0 - 15          | 5.0     | N/A        |
| - 13 |                     |            |          |  |   | 90314   |                       |                       | 0                |         | -          |
|      |                     |            |          |  |   |         |                       |                       |                  |         |            |
|      | 1                   | I          | 1///     |  |   |         |                       | l                     | 1 1111           | 1       |            |



|   | Client E            | Borehole  | ID N/A                     |  | Stantec Boring No. KIF-BG02   |                       |                                |         |           |  |  |
|---|---------------------|-----------|----------------------------|--|---|-----------------------|--------------------------------|---------|-----------|--|--|
|   | Client              |           |                            | see Valley Authority   | Boring Locatio  |                       | 746.20 N; 2,403,194.85 E NAD83 |         |           |  |  |
| F   | Project             | Number    | 1756680                    | 043  | Surface Elevat  | tion <u>797.6 ft</u>  | Elevation [                    | Datum_  | NGVD29    |  |  |
|   |                     | Lithology |                            |  | Overburden:   | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>          | Rec. Ft | Blows/PSI |  |  |
| Dep   | oth Ft <sup>3</sup> | Elevation | Graphic                    | Description  | Rock Core:  | RQD %                 | Run Ft                         | Rec. Ft | Rec. %    |  |  |
| - 14<br>- 15  | 15.5                | 782.1     |                            | SILTY LEAN CLAY, CL, 10YR 5/3 (b plasticity, firm, dry, saprolitic bedrock historical bedding structure maintained | , shale gravel,   |                       |                                |         | -         |  |  |
| VA.EIP BORING LOG 175688943_TVA_KIE_TDEC.GPJ. TDEC SUBSUIPF DT 20190830.GDT 1220/19 | 15.5                | 782.1     | G =<br>2: a,b,c<br>3: Dept |  | olit Spoons may be respondent and General |                       |                                |         |           |  |  |
| TVA EIP BORING LOG 1756   |                     |           |                            |  |   |                       |                                |         | -         |  |  |



|      | lient F            | Borehole   | ID N/A        |  | St      | antec Borin    | a N      | o KIF-                | BG03                  |                    |          |           |
|------|--------------------|------------|---------------|--|---------|----------------|----------|-----------------------|-----------------------|--------------------|----------|-----------|
|      | lient              | 001011010  |               | see Valley Authority   |         | oring Location |          |                       | 92 N; 2,405,055       | 07                 | F NAD83  |           |
|      |                    | Number     |               |  |         | urface Eleva   |          |                       | Elevatio              |                    |          |           |
|      | -                  | Name       |               | EC Order   |         | ate Started    |          | 3/13/19               | Comple                |                    |          | -         |
|      | •                  | Location   |               | riman, Tennessee   |         | epth to Wate   | _        | N/A                   | Oomple<br>Date/Tii    |                    | N/A      |           |
|      | •                  | or J. Ar   |               | Logger D. Mihalek  |         | epth to Wate   | _        |                       | Date/Tii              |                    | N/A      |           |
|      | •                  |            |               | vkston (Subcontractor)   |         | •              | _        |                       | <br>probe 3230DT, #   |                    | 0-02     |           |
|      | _                  |            |               | Sampling Tools (Type and Size  |         |                |          |                       |                       |                    |          |           |
|      |                    |            | _             | ing Tools (Type and Size)  | -       |                |          |                       |                       |                    |          |           |
| C    | verdri             | II Tooling | (Type a       | and Size) N/A  |         |                |          |                       | Overdrill             | De                 | pth _    | N/A       |
| S    | ample              | r Hamm     | er Type       | GH70 Direct Push Weight N/A  | ١       | Drop _h        | N/A      |                       | Efficiency            | 1                  | N/A      |           |
| В    | oreho              | le Azimu   | th            | N/A (Vertical)   | В       | orehole Incli  | nati     | on (from              | Vertical)             | N/                 | A        |           |
| F    | Review             | ed By      | A. Bla        | <u>ir                                    </u>  | Αŗ      | oproved By     | _        | L. Price              |                       |                    |          |           |
|      | I                  | _ithology  |               |  |         | Overburden:    | 5        | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |                    | Rec. Ft  | Blows/PSI |
| Dep  | th Ft <sup>3</sup> | Elevation  | Graphic       | Description  |         | Rock Core:     | <u> </u> | RQD %                 | Run Ft                |                    | Rec. Ft  | Rec. %    |
| - 0  | 0.0                | 747.8      |               | Top of Hole  |         |                |          | 11101                 | 0.0.0.5               |                    |          | _         |
| - 1  |                    |            |               | ORGANIC SILT, OL, 7.5YR 5/2 (brown   | wn), fi | irm, moist     | HA4      | HA01                  | 0.0 - 0.5             | 100                | 0.5      | _         |
|      | 1.5                | 746.3      |               | 1 FAN OLAY, OL. 7 FVD F/4 (harren)   | 1       | . 1 41 . 14    | 1.5/3    |                       |                       | 1 111              |          |           |
| - 2  |                    |            |               | LEAN CLAY, CL, 7.5YR 5/4 (brown), firm, moist, chert fragments (coarse)                                |         | •              | 3.5-201  | DP01                  | 0.0 - 5.0             | 0.0 - 5            | 2.7      | N/A       |
| - 3  |                    |            |               | ,  |         | •              | 90313    |                       |                       | o                  |          | -         |
| - 4  |                    |            |               |  |         |                |          |                       |                       |                    |          | -         |
| - 5  |                    |            |               |  |         |                |          |                       |                       | #                  | 1        | _         |
| - 6  |                    |            |               |  |         |                |          |                       |                       | ((                 |          | -         |
| - 7  |                    |            |               | Dry at 6.0'  |         |                | 6.5/8.   |                       |                       | 5                  |          | _         |
|      |                    |            |               | Color change to 7.5YR 6/1 (gray), lov  | w plas  | sticity, very  | 5-2019   | DP02                  | 5.0 - 10.0            | 0-10.              | 4.5      | N/A       |
| - 8  |                    |            |               | hard at 7.0'   |         |                | 0313     |                       |                       |                    |          | _         |
| – 9  |                    |            |               |  |         |                |          |                       |                       |                    |          | _         |
| - 10 |                    |            |               |  |         |                |          |                       |                       | 1                  |          | _         |
| - 11 |                    |            |               |  |         |                | <u> </u> |                       |                       |                    |          | -         |
| - 12 |                    |            |               |  |         |                | .5/13.5  | DP03                  | 10.0 - 14.1           | 0.0 - 1            | 4.1      | N/A -     |
| - 13 | 13.0               | 734.8      |               |  |         |                | -20190   |                       |                       | 1.5                |          | _         |
| - 14 | 14.1               | 733.7      | $\overline{}$ | Shale, dark gray, very hard, laminate<br>weathered, bedrock, some mica (weathered, bedrock, some mica) |         | •              | )313     |                       |                       |                    |          | _         |
|      |                    |            |               | between laminations  | auleit  | su) /          |          |                       |                       |                    |          | _         |
|      |                    |            |               | Bedrock Refusal /  |         |                |          |                       |                       |                    |          |           |
|      |                    |            |               | Bottom of Hole at 14.1 Ft.   |         |                |          |                       |                       |                    |          | _         |
|      |                    |            |               |  |         |                |          |                       |                       |                    |          | _         |
|      |                    |            |               |  |         |                |          |                       |                       |                    |          | -         |
|      |                    |            |               |  |         |                |          |                       |                       |                    |          | -         |
|      |                    |            |               |  |         |                |          |                       |                       |                    |          | _         |
|      |                    |            | 1. ⊑ −        | Environmental Sample Custody (two Sp   | nlit Sr | noone may bo   | requi    | red to obto           | in sufficient com     | nle)               | <b>\</b> | -         |
|      |                    |            | G =           | Geotechnical Sample Custody  |         | •              |          |                       |                       | ihi <del>c</del> ) | •        |           |
|      |                    |            |               | c denote Split Spoon divided between E<br>ths are reported in feet below ground si                     |         |                | eote     | chnical Sa            | mples                 |                    |          |           |
|      |                    |            | 4: Gral       | b sample (0.0/0.5-20190313) sampled ι  | using   | hand auger     |          |                       |                       |                    |          | _         |

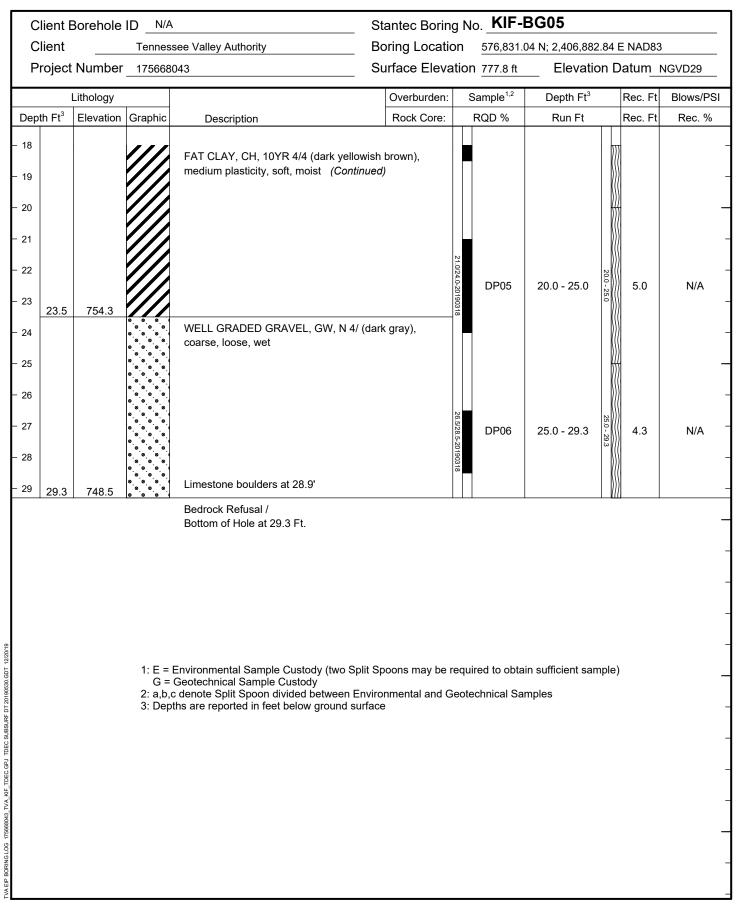


|      | Cliont F                                  | Borehole             | ID N//        | <u> </u>  | Stantec Borin                              | a Na       | . KIF-I  | BG04                  |               |           |  |
|------|---|----------------------|---------------|---|--|------------|--|-----------------------|---------------|-----------|--|
|      |   | oorenole             |               |   |  |            |  |                       | 4 E NAD03     | <u> </u>  |  |
|      | Client                                    |                      |               |   | Boring Location Surface Eleva              |            |  | 41 N; 2,406,622.1     |               |           |  |
|      | -   | Number               |               | <del></del>   |  |            |  | <del></del>           |               |           |  |
|      | •   | Name                 |               | <del></del>   | Date Started 3/19/19 Depth to Water 1.4 ft |            | Completed <u>3/19/19</u> Date/Time 3/19/19 11: |                       |               |           |  |
|      | •   | Location<br>or J. An |               |   | •  |            |  | Date/Tim Date/Tim     |               | 19 11.33  |  |
|      | •   |                      |               |   | Depth to Wate                              | · —        |  | orobe 3230DT, #3      |               |           |  |
|      | •   |                      |               | Sampling Tools (Type and Size)  | 0 ,.                                       |            |  |                       |               |           |  |
|      |   |                      | •             | ling Tools (Type and Size) N/A  | 2.0. 24442                                 |            |  |                       |               |           |  |
|      |   | -                    |               | and Size) N/A   |  |            |  | Overdrill [           | Depth 1       | N/A       |  |
|      |   | _                    |               | GH70 Direct Push Weight N/A   | Drop N                                     | N/A        |  | Efficiency            | N/A           |           |  |
|      | •   | le Azimu             |               |   | Borehole Incli                             | inatio     | on (from                                       | Vertical)             | N/A           |           |  |
| F    | Reviewed By A. Blair Approved By L. Price |                      |               |   |  |            |  |                       |               |           |  |
|      |   | Lithology            |               |   | Overburden:                                | S          | ample <sup>1,2</sup>                           | Depth Ft <sup>3</sup> | Rec. Ft       | Blows/PSI |  |
| De   | pth Ft <sup>3</sup>                       | Elevation            | Graphic       | Description   | Rock Core:                                 | F          | RQD %  | Run Ft                | Rec. Ft       | Rec. %    |  |
| - 0  | 0.0                                       | 791.2                |               | Top of Hole   | •  |            |  |                       |               |           |  |
| _ 0  | 0.5                                       | 790.7                |               | CLAYEY SILT, ML, low plasticity, soft,  | moist, some                                | HA'0.0     | HA01   | 0.0 - 0.5             | 0.5           | _         |  |
| - 1  | $\downarrow$                              |                      |               | \embedded tree roots  |  | /1.9-20    |  |                       | <b>)</b> ))   | _         |  |
| - 2  | Ī   |                      |               | SILT, ML, 7.5YR 4/3 (brown), soft, mois   | st   | )19031     |  |                       | ))            | _         |  |
| _    |   |                      |               |   |  | 9          | DP01   | 0.0 - 5.0             | 1.9           | N/A       |  |
| - 3  |   |                      |               |   |  |            |  |                       | `{{{{}}}      | -         |  |
| - 4  |   |                      |               |   |  |            |  |                       | (((           | _         |  |
|      | 5.0                                       | 786.2                |               |   |  |            |  |                       | <b>((()</b>   |           |  |
| - 5  | 0.0                                       | 700.2                |               | FAT CLAY, CH, 2.5Y 4/2 (dark grayish  | brown), high                               |            |  |                       |               | _         |  |
| - 6  |   |                      |               | plasticity, firm, moist   | ,  | 5.0/7.7-   |  |                       |               | _         |  |
| _    |   |                      |               |   |  | 201903     |  |                       |               |           |  |
| - 7  |   |                      |               |   |  | 119        | DP02   | 5.0 - 10.0            | 2.7           | N/A       |  |
| - 8  |   |                      |               |   |  |            |  |                       | :\(( <u> </u> | _         |  |
| - 9  | 9.0                                       | 782.2                |               | Wet at 8.5'   |  |            |  |                       | <b>((()</b>   | _         |  |
|      | 40.0                                      | 704.0                |               | FAT CLAY, CH, 2.5Y 3/1 (very dark gra   | • /  | 10         |  |                       | K(()          |           |  |
| - 10 | 10.0                                      | 781.2                |               | plasticity, wet, with black shale fragmer   | ıts  | 10.0/11.1  |  | 10.0                  | :W            | _         |  |
| - 11 | 11.1                                      | 780.1                | $\overline{}$ | Shale, black, wet, fissile  |  | 1-20190319 | DP03   | 10.0 - 11.1           | 1.1           | N/A<br>   |  |
|      |   |                      |               | Bedrock Refusal /   |  | 319        |  |                       |               |           |  |
|      |   |                      |               | Bottom of Hole at 11.1 Ft.  |  |            |  |                       |               | _         |  |
|      |   |                      |               |   |  |            |  |                       |               | -         |  |
|      |   |                      |               |   |  |            |  |                       |               | _         |  |
|      |   |                      |               |   |  |            |  |                       |               |           |  |
|      |   |                      |               |   |  |            |  |                       |               | _         |  |
|      |   |                      |               |   |  |            |  |                       |               | _         |  |
|      |   |                      | 1. ⊏ −        | Environmental Sample Custody (two Split   | Snoone may bo                              | requir     | ed to obto                                     | in sufficient camp    | اه)           |           |  |
|      |   |                      | G =           | Geotechnical Sample Custody   |  |            |  |                       | ic)           | _         |  |
|      |   |                      | 3: Dep        | c denote Split Spoon divided between Envoths are reported in feet below ground surf | ace  | eote       | chnical Sa                                     | mples                 |               | -         |  |
|      |   |                      |               | b sample (0.0/0.5-20190319) sampled usi   |  |            |  |                       |               |           |  |



|             |     |           |                   |  | <u> </u>  |                | VIE I                 | DC0E                   |          |         |           |  |
|-------------|-----|-----------|-------------------|--|---|----------------|-----------------------|------------------------|----------|---------|-----------|--|
| l           |     | Borehole  |                   |  | Stantec Boring No. <b>KIF-BG05</b> Boring Location 576,831.04 N; 2,406,882.84 E NAD83 |                |                       |                        |          |         |           |  |
|             | ent |           |                   | see Valley Authority   | _   |                |                       |                        |          |         |           |  |
| l           | -   | Number    |                   |  | Surface Eleva   | atio           | •                     |                        |          |         |           |  |
|             | •   | Name      |                   | EC Order   | Date Started  | _              | 3/18/19               | Comple                 |          |         |           |  |
| ı           | -   | Location  |                   | rriman, Tennessee  | Depth to Water13.0 ft Date/Time3/18/19 14:0   |                |                       |                        |          |         | 19 14:00  |  |
|             | •   | or J. Ar  |                   | LoggerD. Mihalek   | Depth to Wat  | _              |                       | Date/Ti                |          | N/A     |           |  |
|             | _   |           |                   | wkston (Subcontractor)   | Drill Rig Type  |                |                       |                        |          |         |           |  |
| I           |     |           | •                 | Sampling Tools (Type and Size)<br>ling Tools (Type and Size) N/A |   | e Sc           | on Sampling           | System w/ 60           | PVC      | iners   |           |  |
| I           |     | _         |                   | and Size) N/A  |   |                |                       | Overdrill              | De       | nth 1   | N/A       |  |
| ı           |     | -         |                   | GH70 Direct Push Weight N/A                                      | Drop <sup>I</sup>   | N/A            |                       | Cveranii<br>Efficiency |          | ۱/A     |           |  |
| I           | •   | le Azimu  | • •               | N/A (Vertical)   | Borehole Incl   |                | ion (from             | •                      | N/A      | 4       |           |  |
| I           |     | ed By     |                   | nir  | Approved By   |                | •                     | ,                      |          |         |           |  |
|             |     | _ithology |                   |  | Overburden:   | -              | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>  |          | Rec. Ft | Blows/PSI |  |
| Depth       |     | Elevation | Graphic           | Description  | Rock Core:  | -              | RQD %                 | Run Ft                 |          | Rec. Ft | Rec. %    |  |
|             | 0.0 | 777.8     | ,                 | Top of Hole  |   |                |                       |                        |          |         |           |  |
| O           |     |           |                   | ORGANIC SILT, OL, 2.5YR 3/3 (dark ı                              | reddish brown),   | H <sub>A</sub> |                       |                        |          |         | _         |  |
| - 1         | 1.0 | 776.8     |                   | loose, moist   |   | 4              |                       |                        | )))      |         | -         |  |
|             |     |           | \                 | No recovery  |   |                |                       |                        |          |         |           |  |
| - 2         |     |           | $  \setminus /  $ |  |   |                | DP01                  | 0.0 - 5.0              | 0.0      | 0.0     | N/A       |  |
| - 3         |     |           | $  \ \ \  $       |  |   |                | DFUI                  | 0.0 - 3.0              | 5.0      | 0.0     | IN/A      |  |
|             |     |           | $  / \rangle  $   |  |   |                |                       |                        | ((       |         |           |  |
| - 4         |     |           | /                 |  |   |                |                       |                        | 1 111    |         | _         |  |
| - 5 -       | 5.0 | 772.8     |                   |  |   |                |                       |                        |          |         | _         |  |
|             |     |           |                   | FAT CLAY, CH, 10YR 4/4 (dark yellow                              | vish brown),  |                |                       |                        | 1 11     |         |           |  |
| - 6         |     |           |                   | medium plasticity, soft, moist                                   |   |                |                       |                        | 1 1      |         | -         |  |
| - 7         |     |           |                   |  |   | 6.5/           |                       |                        | )))      |         |           |  |
| <b>l</b> ′  |     |           |                   |  |   | 8.5-20         | DP02                  | 5.0 - 10.0             | 5.0 - 1  | 3.4     | N/A       |  |
| - 8         |     |           |                   |  |   | 90318          |                       |                        | 0.0      |         | =         |  |
| - 9         |     |           |                   |  |   |                |                       |                        |          |         |           |  |
|             |     |           |                   |  |   |                |                       |                        | ((       |         |           |  |
| - 10        |     |           |                   | Limestone cobbles embedded at 9.5'                               |   |                |                       |                        | 1 #      |         | _         |  |
|             |     |           |                   |  |   |                |                       |                        | (((      |         |           |  |
| <b>⊢</b> 11 |     |           |                   |  |   | _              |                       |                        | ((       |         |           |  |
| - 12        |     |           |                   |  |   | 1.5/13.        |                       |                        | 10.1     |         | -         |  |
| - 13 ¥      |     |           |                   |  |   | 5-2019         | DP03                  | 10.0 - 15.0            | ) - 15.0 | 5.0     | N/A       |  |
| - 13 +      |     |           |                   | Wet at 13.0'   |   | 0318           |                       |                        |          |         | _         |  |
| - 14        |     |           |                   | 2.1.1.1.1.201.201  |   |                |                       |                        |          |         | -         |  |
| .           |     |           |                   | Color change to 5GY 3/2 (very dark gr 14.0'                      | ayısh green) at   |                |                       |                        | )))      |         |           |  |
| <b>-</b> 15 |     |           |                   | Color change to 10Y 2.5/1 (greenish b                            | lack), wet, with  |                |                       |                        | 1 🕅      |         | _         |  |
| - 16        |     |           |                   | limestone cobbles at 15.0'                                       |   | 16             |                       |                        |          |         | -         |  |
|             |     |           |                   |  |   | 3.5/18.5       |                       |                        |          |         |           |  |
| - 17        |     |           |                   |  |   | -20190         | DP04                  | 15.0 - 20.0            | 15.0 -   | 5.0     | N/A       |  |
| I           |     |           |                   |  |   | 0318           | D1 04                 | 10.0 - 20.0            | 20.      | 0.0     | 13/7      |  |







| С          | lient F            | Borehole  | ID N/A  |   | Stantec Borin     | a N     | o. KIF-I              | 3G06                  |         |         |           |
|------------|--------------------|-----------|---------|---|-------------------|---------|-----------------------|-----------------------|---------|---------|-----------|
| l          | lient              |           |         | see Valley Authority  | Boring Location   |         |                       | 9 N; 2,406,717        | .09     | E NAD83 |           |
| l          |                    | Number    |         |   | Surface Eleva     |         |                       | Elevatio              |         |         |           |
|            | -                  | Name      |         |   | Date Started      |         | -                     |                       |         |         |           |
|            | -                  | Location  |         | riman, Tennessee  |                   |         |                       | N/A                   |         |         |           |
|            | •                  | or C. Se  |         | Logger C. Sexton  | Depth to Wate     | _       |                       | Date/Tii<br>Date/Tii  |         | N/A     |           |
|            | •                  | -         |         | wkston (Subcontractor)  | Drill Rig Type    | _       |                       |                       |         |         |           |
|            | _                  |           |         | Sampling Tools (Type and Size)  |                   |         |                       |                       |         |         |           |
|            |                    |           | -       | ling Tools (Type and Size) N/A  |                   |         | <u>-</u>              | <u> </u>              |         |         |           |
|            |                    | •         | •       | and Size) N/A   |                   |         |                       | Overdrill             | De      | pth N   | N/A       |
| s          | ample              | er Hamme  | er Type | GH70 Direct Push Weight N/A   | Drop _^           | N/A     |                       | Efficiency            | 1       | N/A     |           |
| В          | oreho              | le Azimu  | th      | N/A   | Borehole Incli    | nati    | ion (from             | Vertical)             | N/A     | A       |           |
| R          | eview              | ed By     | A. Bla  | ir  | Approved By       | _       | L. Price              |                       |         |         |           |
|            | ı                  | Lithology |         |   | Overburden:       | 5       | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |         | Rec. Ft | Blows/PSI |
| Dep        | th Ft <sup>3</sup> | Elevation | Graphic | Description   | Rock Core:        |         | RQD %                 | Run Ft                |         | Rec. Ft | Rec. %    |
| - 0        | 0.0                | 776.6     |         | Top of Hole   |                   |         |                       |                       |         |         |           |
|            | 0.6                | 776.0     |         | CLAYEY SILT WITH GRAVEL, MH, 10   | _                 | HA      | HA01                  | 0.0 - 0.5             | 1 11    | 0.5     |           |
| - 1        |                    |           |         | (brown) and 10GY 6/1 (greenish gray), medium plasticity, soft, dry, iron oxide:   | 1                 |         | DP01a                 | 0.0 - 1.5             |         |         | -         |
|            |                    |           |         | SILTY FAT CLAY SOME GRAVEL, CL  |                   | 1.5     |                       |                       | )))     |         |           |
| - 2        |                    |           |         | (olive), medium to high plasticity, soft to                                       |                   | /3.5-20 | DP01bE                | 1.5 - 3.5             | 0.0 -   | 3.9     | N/A       |
| - 3        |                    |           |         | wet, iron oxide staining  | ,                 | )19071  | DI 0102               | 1.0 0.0               | 5.0     | 0.0     | -         |
|            |                    |           |         |   |                   | _       |                       |                       | ((      |         |           |
| - 4        |                    |           |         |   |                   |         | DP01cG                | 3.5 - 5.0             | ((      |         | _         |
| - 5        |                    |           |         |   |                   |         |                       |                       | [4      |         | _         |
|            |                    |           |         |   |                   |         | DP02aG                | 5.0 - 6.0             | 1 11    |         |           |
| - 6        |                    |           |         |   |                   | 6.0     |                       |                       | 1 11    |         | -         |
| <b>-</b> 7 |                    |           |         | Color change to 10BG 5/1 (greenish gr   | ay) from 6.5'     | )/8.0-2 | DP02bE                | 6.0 - 8.0             | 5       |         | _         |
| '          |                    |           |         | to 7.3'   |                   | 019071  | DI OZBE               | 0.0 - 0.0             | 0 - 9.5 | 3.7     | N/A       |
| - 8        | 8.0                | 768.6     | KAAA    | Mg nodules at 7.3'  Highly weathered shale below 7.3'                             |                   | -       |                       |                       |         |         | -         |
|            |                    |           |         | SILT, 2.5Y 5/1 (gray), soft to hard, dry,   | iron ovido        |         | DP02cG                | 8.0 - 9.5             | ((      |         |           |
| - 9<br>    | 9.5                | 767.1     |         | staining, fissured, weathered shale   | IIOII OXIGE       |         |                       |                       |         |         | _         |
|            |                    |           |         | Bedrock Refusal /   |                   |         |                       |                       |         |         | _         |
| ĺ          |                    |           |         | Bottom of Hole at 9.5 Ft.   |                   |         |                       |                       |         |         |           |
|            |                    |           |         | Top of Rock = 9.5 Ft.   |                   |         |                       |                       |         |         | _         |
|            |                    |           |         | Top of Rock Elevation = 767.1 Ft.   |                   |         |                       |                       |         |         | _         |
| ĺ          |                    |           |         |   |                   |         |                       |                       |         |         |           |
|            |                    |           |         |   |                   |         |                       |                       |         |         | _         |
|            |                    |           |         |   |                   |         |                       |                       |         |         | _         |
|            |                    |           |         |   |                   |         |                       |                       |         |         |           |
|            |                    |           |         | Environmental Sample Custody (two Spli  | t Spoons may be i | requi   | ired to obtai         | in sufficient sam     | iple)   | )       | _         |
|            |                    |           | 2: a,b, | Geotechnical Sample Custody c denote Split Spoon divided between En               |                   | eote    | echnical Sar          | mples                 |         |         |           |
|            |                    |           |         | ths are reported in feet below ground surfly sample (0.0/0.5-20190711) sampled us |                   |         |                       |                       |         |         |           |
|            |                    |           | O.a     | (0.0,0.0 20.007 17) outliplod do  |                   |         |                       |                       |         |         | =         |
|            |                    |           |         |   |                   |         |                       |                       |         |         |           |



|      | Client E            | Borehole           | ID N/A  | <b>\</b>                                       | Stantec Borin                                   | g No    | . KIF-               | BG07                  |  |                    |           |
|------|---------------------|--------------------|---------|--|---|---------|----------------------|-----------------------|--|--------------------|-----------|
|      | Client              |                    | Tennes  | see Valley Authority                           | Boring Location                                 | on      | 570,793.             | 51 N; 2,414,941.      | .22 E  | E NAD83            |           |
| F    | roject              | Number             | 175668  | 8043   | Surface Elevation 783.4 ft Elevation Datum NGVD |         |                      |                       |  | IGVD29             |           |
| F    | roject              | Name               | KIF TD  | EC Order                                       | Date Started 3/12/19 Completed 3/12/19          |         |                      |                       |  | 9                  |           |
|      | •                   | Location           |         | rriman, Tennessee                              | Depth to Wate                                   | er _    | 27.0 ft              | Date/Tir              | ne   | 3/27/1             | 9 14:20   |
|      | •                   | or J. Ar           |         | Logger _D. Mihalek                             | Depth to Wate                                   | _       |                      | Date/Tin              |  | N/A                |           |
|      | •                   |                    |         | wkston (Subcontractor)                         | Drill Rig Type                                  |         |                      |                       |  |                    |           |
|      |                     |                    | -       | Sampling Tools (Type and Size)                 |   | e Soi   | I Sampling           | System w/ 60" I       | PVC  | liners             |           |
|      |                     | •                  | •       | ling Tools (Type and Size) N/A                 |   |         |                      | 0 1 111               | _  |                    | 1/A       |
|      |                     | _                  |         | and Size) N/A  GH70 Direct Push Weight N/A     | Dran A  | .1/^    |                      | Overdrill             |  | pth <u>'</u><br>√A | I/A       |
|      |                     | r натт<br>le Azimu |         | GH70 Direct Push Weight N/A  N/A (Vertical)    | Drop <u>N</u><br>Borehole Incli                 |         | on (from             | Efficiency            | N/A  |                    |           |
|      |                     | ed By              |         |  | Approved By                                     |         | Price                | vertical)             | 111/7  | 1                  |           |
|      |                     |                    | 71. Die |  |   |         |                      |                       |  |                    |           |
|      |                     | _ithology          |         |  | Overburden:                                     |         | ample <sup>1,2</sup> | Depth Ft <sup>3</sup> |  | Rec. Ft            | Blows/PSI |
| Dep  | oth Ft <sup>3</sup> | Elevation          | Graphic | Description                                    | Rock Core:                                      | F       | RQD %                | Run Ft                |  | Rec. Ft            | Rec. %    |
| - 0  | 0.0                 | 783.4              |         | Top of Hole SANDY SILT, ML, 5YR 4/6 (yellowish | rod) firm dry                                   | Ŧ       | HA01                 | 0.0 - 0.5             |  | 0.5                | _         |
| - 1  |                     |                    |         | SANDT SILT, INL, STR 4/0 (yellowish            | rea), iiirii, ary                               | 4       |                      | 0.0 0.0               | ((   | 0.0                | _         |
| '    |                     |                    |         |  |   |         |                      |                       |  |                    |           |
| - 2  |                     |                    |         |  |   | 1.5/3.5 |                      |                       | 0.   |                    | _         |
| _    |                     |                    |         |  |   | -20190  | DP01                 | 0.0 - 5.0             | 0 - 5.0  | 5.0                | N/A       |
| - 3  |                     |                    |         |  |   | 312     |                      |                       | 100  |                    | _         |
| - 4  |                     |                    |         |  |   |         |                      |                       | )))  |                    | -         |
| _    |                     |                    |         |  |   |         |                      |                       | )))  |                    |           |
| - 5  |                     |                    |         |  |   |         |                      |                       | l M  |                    | _         |
| - 6  |                     |                    |         |  |   |         |                      |                       | )))  |                    | -         |
| _    |                     |                    |         |  |   | 6.5     |                      |                       | )))  |                    |           |
| - 7  |                     |                    |         |  |   | /8.5-20 | DP02                 | 5.0 - 10.0            | 5.0 - 1  | 5.0                | N/A       |
| - 8  |                     |                    |         |  |   | 190312  |                      |                       | 0.0  |                    | -         |
|      | 9.0                 | 774.4              |         |  |   |         |                      |                       | ((   |                    |           |
| - 9  |                     |                    |         | CLAYEY ELASTIC SILT, MH, 5YR 6/8               | 3 (reddish                                      |         |                      |                       |  |                    | _         |
| - 10 |                     |                    |         | yellow), soft, moist                           | ) -1.40.01                                      |         |                      |                       |  |                    | _         |
| 11   |                     |                    |         | Color change to 7.5YR 5/8 (strong bro          | wn) at 10.0                                     |         |                      |                       |  |                    |           |
| - 11 |                     |                    |         |  |   | _       |                      |                       |  |                    | _         |
| - 12 | 12.5                | 770.9              |         |  |   | 1.5/13. |                      |                       | 10.  |                    | _         |
| 40   | 12.5                | 770.9              |         | CLAYEY SAND, SC, 7.5YR 6/8 (reddi              | sh vellow).                                     | 5-2019  | DP03                 | 10.0 - 15.0           | 0 - 15.0                                       | 5.0                | N/A       |
| – 13 |                     |                    |         | non-plastic, medium dense, moist               | ,,,   | 0312    |                      |                       |  |                    | _         |
| - 14 |                     |                    |         |  |   |         |                      |                       | )))  |                    | -         |
| 45   |                     |                    |         |  |   |         |                      |                       | )))  |                    |           |
| – 15 |                     |                    |         |  |   |         |                      |                       |  |                    | _         |
| - 16 |                     |                    |         |  |   | 16      |                      |                       | $ \hspace{.05cm}\rangle\rangle$                |                    | -         |
| 4-7  |                     |                    |         |  |   | .5/18.5 |                      |                       | $ \hspace{.05cm} \hspace{.05cm}\rangle\rangle$ |                    |           |
| - 17 |                     |                    |         |  |   | -20190: | DP04                 | 15.0 - 20.0           | 15.0 - 2                                       | 5.0                | N/A       |
|      | 1                   | I                  |         |  |   | w       |                      | I                     | ıölli  | i                  |           |



|             | N: 4 F              | l l          | ID N/A  |                                       | Otan ta a Davin | 11   | KIE                   | RC07                  |                       |            |           |  |  |
|-------------|---------------------|--------------|---------|---------------------------------------|-----------------|--|-----------------------|-----------------------|-----------------------|------------|-----------|--|--|
|             |                     | Borehole     |         |                                       |                 | ing No. <b>KIF-BG07</b><br>tion 570,793.51 N; 2,414,941.22 E NAD83 |                       |                       |                       |            |           |  |  |
| 1           | Client              | Ni una la au |         | see Valley Authority                  | Boring Location |  |                       |                       |                       |            |           |  |  |
|             | rojeci              | Number       | 1/5008  |                                       | Surface Eleva   |  |                       | Elevatio              | ים חי                 | alum_      | NGVD29    |  |  |
|             |                     | Lithology    |         |                                       | Overburden:     | <del>                                     </del>                   | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |                       | Rec. Ft    | Blows/PSI |  |  |
| De          | oth Ft <sup>3</sup> | Elevation    | Graphic | Description                           | Rock Core:      |  | RQD %                 | Run Ft                |                       | Rec. Ft    | Rec. %    |  |  |
| - 18        | 10.5                | 704.0        | 111     |                                       |                 |  |                       |                       |                       |            | _         |  |  |
| 1,0         | 18.5                | 764.9        |         | Sandstone, olive, weathered, moist, b | edrock verv     |  |                       |                       | (((                   |            |           |  |  |
| - 19        |                     |              |         | stiff                                 | ,,              |  |                       |                       | (((                   |            | _         |  |  |
| - 20        | 20.0                | 763.4        |         | FAT CLAY, CH, 7.5YR 6/8 (reddish y    | ollow) high     |  |                       |                       | {{}                   |            | _         |  |  |
| - 21        |                     |              |         | plasticity, soft, moist               | ellow), fligh   |  |                       |                       |                       |            | _         |  |  |
| -           |                     |              |         |                                       |                 | 21   |                       |                       |                       |            |           |  |  |
| - 22        |                     |              |         |                                       |                 | .5/23.5  | DDOE                  | 20.0 25.0             | 20.0                  | <b>5</b> 0 | -<br>N/A  |  |  |
| - 23        |                     |              |         |                                       |                 | .201903  | DP05                  | 20.0 - 25.0           | - 25.0                | 5.0        | N/A       |  |  |
|             |                     |              |         |                                       |                 | 812  |                       |                       | (((                   |            |           |  |  |
| - 24        |                     |              |         |                                       |                 |  |                       |                       | (((                   |            | -         |  |  |
| - 25        |                     |              |         |                                       |                 |  |                       |                       |                       |            | _         |  |  |
|             |                     |              |         |                                       |                 |  |                       |                       | (((                   |            |           |  |  |
| - 26        |                     |              |         |                                       |                 | 2  |                       |                       | (((                   |            | _         |  |  |
| - 27        | ¥                   |              |         | Wet at 27.0'                          |                 | 6.5/28.  |                       |                       | 25.0                  |            | -         |  |  |
| - 28        |                     |              |         | vvet at 27.0                          |                 | 5-20190  | DP06                  | 25.0 - 30.0           | ) - 30.0              | 5.0        | N/A       |  |  |
| 20          |                     |              |         |                                       |                 | 0312   |                       |                       | (((                   |            |           |  |  |
| - 29        |                     |              |         |                                       |                 |  |                       |                       | 1 1/1/1               |            | -         |  |  |
| - 30        |                     |              |         |                                       |                 |  |                       |                       | []]                   |            | _         |  |  |
|             |                     |              |         | Very soft at 30.0'                    |                 |  |                       |                       | (((                   |            |           |  |  |
| - 31        |                     |              |         |                                       |                 |  |                       |                       | (((                   |            | -         |  |  |
| - 32        |                     |              |         |                                       |                 | 31.5/33  |                       |                       | 30                    |            | _         |  |  |
|             |                     |              |         |                                       |                 | .5-201903  | DP07                  | 30.0 - 35.0           | .0 - 35.0             | 5.0        | N/A       |  |  |
| - 33        |                     |              |         |                                       |                 | )0312  |                       |                       |                       |            | _         |  |  |
| 34          |                     |              |         |                                       |                 |  |                       |                       |                       |            | -         |  |  |
| 5 – 35      |                     |              |         |                                       |                 |  |                       |                       |                       |            | _         |  |  |
| 1190530.0   |                     |              |         |                                       |                 |  |                       |                       | 1 ((()                |            |           |  |  |
| - 36        |                     |              |         |                                       |                 |  |                       |                       | 1 1/1/1               |            | -         |  |  |
| 37          |                     |              |         |                                       |                 | 36.5/3   |                       |                       | <u>ي</u>              |            | _         |  |  |
| E DE        |                     |              |         |                                       |                 | 8.5-201  | DP08                  | 35.0 - 40.0           | 5.0 - 40.0            | 5.0        | N/A       |  |  |
| 38          |                     |              |         |                                       |                 | 90312  |                       |                       | °                     |            | _         |  |  |
| _ 39        |                     |              |         |                                       |                 |  |                       |                       | $  \rangle \rangle  $ |            | -         |  |  |
| 94          |                     |              |         |                                       |                 |  |                       |                       | $  \rangle \rangle  $ |            |           |  |  |
| 40          |                     |              |         | Color change to 10YR 4/3 (brown) at   | 40.0'           |  |                       |                       |                       |            | _         |  |  |
| - 41        |                     |              |         |                                       |                 |  |                       |                       | $  \rangle \rangle  $ |            | -         |  |  |
| ±<br>5 – 42 |                     |              |         |                                       |                 |  |                       |                       | $  \rangle \rangle  $ |            | _         |  |  |



Page: 3 of 3

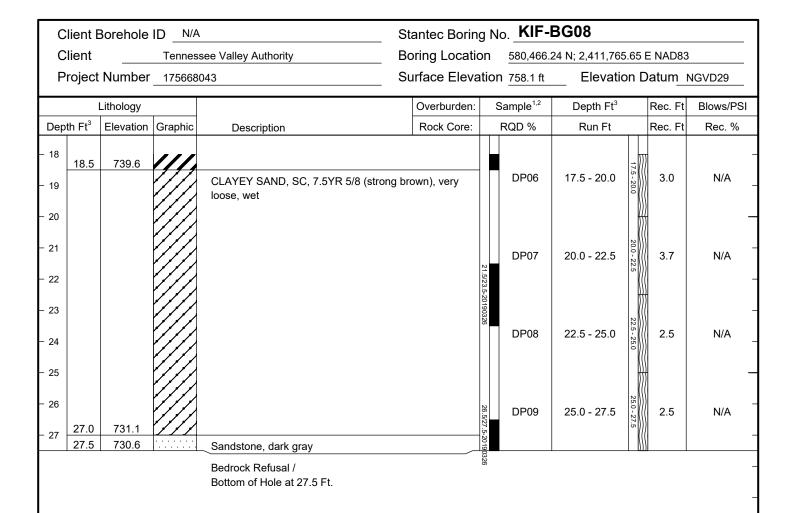
| Client Borehole ID N/A                  |   | Stantec Boring No. KIF-BG07                        |                       |  |         |                            |  |  |  |
|---|---|--|-----------------------|--|---------|----------------------------|--|--|--|
| Client Tenness                          | ee Valley Authority   | Boring Location 570,793.51 N; 2,414,941.22 E NAD83 |                       |  |         |                            |  |  |  |
| Project Number 1756680                  | 43  | Surface Elevat                                     | ion <u>783.4 ft</u>   | Elevation [  | Datum_  | NGVD29                     |  |  |  |
| Lithology                               |   | Overburden:  | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>                              | Rec. Ft | Blows/PSI                  |  |  |  |
| Depth Ft <sup>3</sup> Elevation Graphic | Description   | Rock Core:   | RQD %                 | Run Ft   | Rec. Ft | Rec. %                     |  |  |  |
| - 43<br>- 44<br>- 45                    | FAT CLAY, CH, 7.5YR 6/8 (reddish ye plasticity, soft, moist <i>(Continued)</i> Coarse sandstone fragments from 43   |  | DP09                  | 40.0 - 45.0 do | 5.0     | N/A -                      |  |  |  |
| - 46<br>- 47                            |   | 46.5/48.5-2011                                     | DP10                  | 45.0 - 50.0<br>45.0 - 50.0                         | 5.0     | -<br>N/A                   |  |  |  |
| - 48<br>- 49<br>- 50                    |   | 91/31/2  |                       | 0  |         | -<br>-<br>-                |  |  |  |
| - 51<br>- 52                            |   | 51.5953.   | DP11                  | 50.0 - 53.5  | 3.5     | N/A                        |  |  |  |
| - 53   53.0   730.4   53.5   729.9      | Chert, fragmented to consolidated   | Y 20190312<br>3123                                 |                       |  |         | -                          |  |  |  |
| G = 0<br>2: a,b,c<br>3: Depti           | Bedrock Refusal / Bottom of Hole at 53.5 Ft.  Environmental Sample Custody (two Sp<br>Geotechnical Sample Custody<br>denote Split Spoon divided between Eins are reported in feet below ground su<br>sample (0.0/0.5-20190312) sampled us | nvironmental and Ge                                |                       |  | )       | -<br>-<br>-<br>-<br>-<br>- |  |  |  |



| Depth Ft³ Elevation Graphic Description Rock Core: RQD % Run Ft Rec. F |          |
|--|----------|
| Project Number 175668043 Surface Elevation 758.1 ft Elevation Datum NGVD2 Project Name KIF TDEC Order Date Started 3/26/19 Completed 3/26/19 Project Location Harriman, Tennessee Depth to Water 17.5 ft Date/Time 3/26/19 10:30 Inspector J. Andrew Logger D. Mihalek Depth to Water N/A Date/Time M/A Drilling Contractor Hawkston (Subcontractor) Drill Rig Type and ID Geoprobe 3230DT, #3230-02 Overburden Drilling and Sampling Tools (Type and Size) DT37 Dual Tube Soil Sampling System w/ 60" PVC liners Rock Drilling and Sampling Tools (Type and Size) N/A Overdrill Tooling (Type and Size) N/A Sampler Hammer Type GH70 Direct Push Weight N/A Drop N/A Efficiency N/A Borehole Azimuth N/A (Vertical) Borehole Inclination (from Vertical) N/A Reviewed By A. Blair Approved By L. Price  Lithology Depth Ft³ Elevation Graphic Description Rock Core: RQD % Run Ft Rec. Ft Rec. Pt Rec. Pt Inc. Project Notes and Project Project Notes Project Projec |          |
| Project Name KIF TDEC Order Date Started 3/26/19 Completed 3/26/19 Project Location Harriman, Tennessee Depth to Water 17.5 ft Date/Time 3/26/19 10:30 Inspector J. Andrew Logger D. Mihalek Depth to Water N/A Date/Time N/A Drilling Contractor Hawkston (Subcontractor) Drill Rig Type and ID Geoprobe 3230DT, #3230-02 Overburden Drilling and Sampling Tools (Type and Size) DT37 Dual Tube Soil Sampling System w/ 60" PVC liners Rock Drilling and Sampling Tools (Type and Size) N/A Overdrill Tooling (Type and Size) N/A Sampler Hammer Type GH70 Direct Push Weight N/A Drop N/A Efficiency N/A Sampler Hammer Type GH70 Direct Push Weight N/A Drop N/A Efficiency N/A Reviewed By A. Blair Approved By L. Price  Lithology Overburden: Sample 1.2 Depth Ft3 Rec. Ft Rec. Price Rock Core: RQD % Run Ft Rec. Ft Rec. Price Oxerburden: Sample 1.2 Depth Ft3 Rec. Ft Rec. Price Oxerburden: Sample 1.2 Depth Ft3 Rec. Ft Rec. Price Oxerburden: Sample 1.2 Depth Ft3 Rec. Ft Rec. Price Oxerburden: Sample 1.2 Depth Ft3 Rec. Ft Rec. Price Oxerburden: Sample 1.2 Depth Ft3 Rec. Ft Rec. Price Oxerburden: Sample 1.2 Depth Ft3 Rec. Ft Rec. Price Oxerburden: Sample 1.2 Depth Ft3 Rec. Ft Rec. Price Oxerburden: Sample 1.2 Depth Ft3 Rec. Ft Rec. Price Oxerburden: Sample 1.2 Depth Ft3 Rec. Ft Rec. Price Oxerburden: Sample 1.2 Depth Ft3 Rec. Ft Rec. Price Oxerburden: Sample 1.2 Depth Ft3 Rec. Ft Rec. Price Oxerburden: Sample 1.2 Depth Ft3 Rec. Ft Rec. Price Oxerburden: Sample 1.2 Depth Ft3 Rec. Ft Rec. Price Oxerburden: Sample 1.2 Depth Ft3 Rec. Ft Rec. Price Oxerburden: Sample 1.2 Depth Ft3 Rec. Ft Rec. Price Oxerburden: Sample 1.2 Depth Ft3 Rec. Price Oxerburden: Sample  | <br>29   |
| Project Location Harriman, Tennessee Depth to Water 17.5 ft Date/Time 3/26/19 10:30 Inspector J. Andrew Logger D. Mihalek Depth to Water N/A Date/Time N/A Drilling Contractor Hawkston (Subcontractor) Drill Rig Type and ID Geoprobe 3230DT, #3230-02 Overburden Drilling and Sampling Tools (Type and Size) DT37 Dual Tube Soil Sampling System w/ 60" PVC liners Rock Drilling and Sampling Tools (Type and Size) N/A Overdrill Tooling (Type and Size) N/A Overdrill Tooling (Type and Size) N/A Sampler Hammer Type GH70 Direct Push Weight N/A Drop N/A Efficiency N/A Borehole Azimuth N/A (Vertical) Borehole Inclination (from Vertical) N/A Reviewed By A. Blair Approved By L. Price  Lithology Overburden: Sample¹.2 Depth Ft³ Rec. Ft Rec. Ft Rec. Overburden: Sample¹.2 Depth Ft³ Rec. Ft Rec. Ft Rec. Ft Rec. Ft Rec. Overburden: Sample¹.2 Depth Ft³ Rec. Ft  |          |
| Inspector J. Andrew Logger D. Mihalek Drilling Contractor Hawkston (Subcontractor) Drill Rig Type and ID Geoprobe 3230DT, #3230-02  Overburden Drilling and Sampling Tools (Type and Size) DT37 Dual Tube Soil Sampling System w/ 60" PVC liners  Rock Drilling and Sampling Tools (Type and Size) N/A  Overdrill Tooling (Type and Size) N/A  Sampler Hammer Type GH70 Direct Push Weight N/A Drop N/A Efficiency N/A  Borehole Azimuth N/A (Vertical) Borehole Inclination (from Vertical) N/A  Reviewed By A. Blair Approved By L. Price  Lithology Overburden: Sample 1.2 Depth Ft3 Rec. Ft Blows  Depth Ft3 Elevation Graphic Description Rock Core: RQD % Run Ft Rec. Ft | 80       |
| Drilling Contractor Hawkston (Subcontractor)  Drill Rig Type and ID Geoprobe 3230DT, #3230-02  Overburden Drilling and Sampling Tools (Type and Size)  Rock Drilling and Sampling Tools (Type and Size)  N/A  Overdrill Tooling (Type and Size)  N/A  Sampler Hammer Type GH70 Direct Push Weight N/A Drop N/A Efficiency N/A  Borehole Azimuth N/A (Vertical)  Borehole Inclination (from Vertical)  N/A  Reviewed By A. Blair  Approved By L. Price  Lithology  Depth Ft³ Elevation Graphic Description  Rock Core: RQD % Run Ft Rec. Ft Rec |          |
| Overburden Drilling and Sampling Tools (Type and Size) DT37 Dual Tube Soil Sampling System w/ 60" PVC liners  Rock Drilling and Sampling Tools (Type and Size) N/A  Overdrill Tooling (Type and Size) N/A  Sampler Hammer Type GH70 Direct Push Weight N/A Drop N/A Efficiency N/A  Borehole Azimuth N/A (Vertical) Borehole Inclination (from Vertical) N/A  Reviewed By A. Blair Approved By L. Price  Lithology Overburden: Sample¹¹² Depth Ft³ Rec. Ft Rec |          |
| Overdrill Tooling (Type and Size) N/A Overdrill Depth N/A Sampler Hammer Type GH70 Direct Push Weight N/A Drop N/A Efficiency N/A Drop N/A Drop N/A Efficiency N/A Drop N/A Efficiency N/A Drop N/A Drop N/A Efficiency N/A Drop N/A Efficiency N/A Drop N/A Drop N/A Efficiency N/A Drop N/A Drop N/A Drop N/A Efficiency N/A Drop  |          |
| Sampler Hammer Type GH70 Direct Push Weight N/A Drop N/A Efficiency N/A  Borehole Azimuth N/A (Vertical) Borehole Inclination (from Vertical) N/A  Reviewed By A. Blair Approved By L. Price  Lithology Overburden: Sample 1.2 Depth Ft Rec. Ft Blows  Rock Core: RQD % Run Ft Rec. Ft |          |
| Borehole Azimuth N/A (Vertical) Reviewed By A. Blair Approved By L. Price  Lithology Depth Ft³ Elevation Graphic ORGANIC SILT, OL, 10YR 4/3 (brown), loose, moist, topsoil with organics  OVERBURGE Sample¹² Depth Ft³ Rec. Ft Blows Rock Core: RQD % Run Ft Rec. Ft R |          |
| Reviewed By  A. Blair  Approved By  L. Price  Lithology  Depth Ft³ Elevation Graphic Description  Top of Hole  ORGANIC SILT, OL, 10YR 4/3 (brown), loose, moist, topsoil with organics  CLAYEY SILT, ML, 10YR 5/6 (yellowish brown),  Top of the property of the project proje |          |
| Lithology  Depth Ft³ Elevation Graphic Description  Overburden: Sample¹² Depth Ft³ Rec. Ft Blows  Rock Core: RQD % Run Ft Rec. Ft Rec.  Oncomparison of Hole  ORGANIC SILT, OL, 10YR 4/3 (brown), loose, moist, topsoil with organics  ORGANIC SILT, ML, 10YR 5/6 (yellowish brown), proposition of the moist recomparison of the moist re |          |
| Depth Ft³ Elevation Graphic Description Rock Core: RQD % Run Ft Rec. F |          |
| 0.0 758.1 Top of Hole ORGANIC SILT, OL, 10YR 4/3 (brown), loose, moist, topsoil with organics  1.5 756.6 CLAYEY SILT, ML, 10YR 5/6 (yellowish brown), construction of the moist.   | /s/PSI   |
| ORGANIC SILT, OL, 10YR 4/3 (brown), loose, moist, topsoil with organics  1.5 756.6 CLAYEY SILT, ML, 10YR 5/6 (yellowish brown), construction of the moist.   | c. %     |
| topsoil with organics  1.5 756.6 CLAYEY SILT, ML, 10YR 5/6 (yellowish brown),  |          |
| 1.5 756.6 CLAYEY SILT, ML, 10YR 5/6 (yellowish brown),   |          |
| CLAYEY SILT, ML, 10YR 5/6 (yellowish brown),   | _        |
|  | _        |
|  | /A       |
|  | _        |
|  | _        |
|  |          |
| 5.0 753.1  | _        |
| low plasticity, firm to stiff, moist   | _        |
|  |          |
| - 7  | -        |
|  | /A       |
|  | _        |
| - 9  | -        |
|  |          |
|  | _        |
| - 11   | -<br>I/A |
|  | /A       |
| − 12 Medium plasticity, soft at 12.5'  | -        |
|  | _        |
|  | l/A      |
|  | _        |
| 15 15.0 743.1  | _        |
| FAT CLAY, CH, 10YR 5/6 (yellowish brown), high plasticity, soft, moist   |          |
|  | //A      |
| - 17   | _        |
| Wet at 17.5'   |          |



Page: 2 of 2



DPT runs beyond 10.0 ft are 2.5 ft in length to allow for swelling soils. Recovery greater than run length due to swell

<sup>1:</sup> E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody

<sup>2:</sup> a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples

<sup>3:</sup> Depths are reported in feet below ground surface

<sup>4:</sup> Grab sample (0.0/0.5-20190326) sampled using hand auger



|            | Client E            | Borehole       | ID N/A  | <u> </u>   | Stantec Borin                                | g N      | o. KIF-I              | BG09                    |         |                     |           |  |
|------------|---------------------|----------------|---|--|--|----------|-----------------------|-------------------------|---------|---------------------|-----------|--|
|            | Client              |                | Tennes  | see Valley Authority                             | Boring Location                              | on       | 581,532.              | 93 N; 2,412,635         | .80     | E NAD83             |           |  |
| F          | roject              | Number         | 175668  | 043  | Surface Eleva                                | ation    | 773.6 ft              | Elevatio                | on E    | atum_n              | NGVD29    |  |
| F          | roject              | Name           | KIF TD  | EC Order   | Date Started3/26/19 Completed3/26/19         |          |                       |                         |         |                     |           |  |
| F          | roject              | Location       | n <u>Har</u>  | rriman, Tennessee                                | Depth to Water28.0 ft Date/Time3/26/19 15:05 |          |                       |                         |         |                     |           |  |
|            | -                   |                |   | Logger D. Mihalek                                | Depth to Wat                                 |          |                       | Date/Ti                 |         | N/A                 |           |  |
|            | _                   |                |   | wkston (Subcontractor)                           | Drill Rig Type                               |          |                       |                         |         |                     |           |  |
|            |                     |                | -   | Sampling Tools (Type and Size)                   |  | e So     | il Sampling           | System w/ 60"           | PVC     | Cliners             |           |  |
|            |                     | -              |   | ling Tools (Type and Size) N/A                   |  |          |                       | Overdrill               | Do      | nth N               |           |  |
|            |                     | -              |   | and Size) <u>N/A</u> GH70 Direct Push Weight N/A | Dron I                                       | N/Δ      |                       | Overdrill<br>Efficiency |         | ημη <u>'</u><br>Ν/Α | N/A       |  |
|            | •                   | le Azimu       | • •   |  | Borehole Incl                                |          |                       | •                       | <br>N/, |                     |           |  |
|            |                     | ed By          |   |  | Approved By                                  |          | •                     | vortiour)               |         |                     |           |  |
| •          |                     |                |   |  |  |          |                       | D 11 E13                |         | F.                  |           |  |
| _          |                     | Lithology      |   |  | Overburden:                                  | -        | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>   |         | Rec. Ft             | Blows/PSI |  |
| Dep        | oth Ft <sup>3</sup> | Elevation      | Graphic   | Description Top of Holo                          | Rock Core:                                   | Ш        | RQD %                 | Run Ft                  | П       | Rec. Ft             | Rec. %    |  |
| - 0        | 0.0                 | 773.6<br>773.1 |   | Top of Hole  ORGANIC SILT, OL, 10YR 3/3 (dark b  | rown) soft                                   | HA       | HA01                  | 0.0 - 0.5               |         | 0.5                 | _         |  |
| - 1        | 0.0                 | 170.1          | 17177   | dry, soft with organics                          | 10W11), 301t,                                | - 4      |                       |                         | ((      |                     | _         |  |
| ı.         |                     |                | $\  \cdot \ _1 + \  \cdot $ | SILTY SAND, SM, 10YR 5/6 (yellowish              | n brown),                                    |          |                       |                         | ((      |                     |           |  |
| - 2        |                     |                | <b>  </b>   | medium dense, moist                              |  | 1.5/3.5- |                       |                         | 0.0     |                     | -         |  |
| - 3        |                     |                |   |  |  | 201903   | DP01                  | 0.0 - 5.0               | - 5.0   | 5.0                 | N/A<br>_  |  |
| 3          | 3.8                 | 769.8          | 11 + 1 + 1 + 1  |  |  | 326      |                       |                         | 1 111   |                     |           |  |
| - 4        | 0.0                 |                |   | SILTY LEAN CLAY, CL, 5YR 4/6 (yello              | wish red), low                               |          |                       |                         | 1 111   |                     | -         |  |
| - 5        | 5.0                 | 768.6          |   | plasticity, firm, moist                          |  |          |                       |                         |         |                     |           |  |
| 3          |                     |                |   | SILTY SAND, SM, 10YR 5/6 (yellowish              | n brown),                                    |          |                       |                         | 1 11    |                     |           |  |
| - 6        |                     |                |   | medium dense, moist                              |  |          |                       |                         | 1       |                     | -         |  |
| <b>-</b> 7 |                     |                |   |  |  | 6.5/     |                       |                         | ))      |                     | _         |  |
| ,          | 7.5                 | 766.1          |   |  |  | 8.5-201  | DP02                  | 5.0 - 10.0              | 5.0 - 1 | 4.5                 | N/A       |  |
| - 8        |                     |                |   | SILTY LEAN CLAY, CL, 10YR 5/6 (yel soft, moist   | lowish brown),                               | 90326    |                       |                         | 0.0     |                     | -         |  |
| - 9        |                     |                |   | sort, moist                                      |  |          |                       |                         |         |                     | _         |  |
| 3          |                     |                |   |  |  |          |                       |                         | ((      |                     |           |  |
| - 10       |                     |                |   |  |  |          |                       |                         | 1 #     |                     | _         |  |
| - 11       |                     |                |   |  |  |          |                       |                         | ((      |                     | _         |  |
| ''         |                     |                |   | Wet at 11.0'                                     |  | ÷        |                       |                         | ((      |                     |           |  |
| - 12       |                     |                |   |  |  | 1.5/13.5 |                       |                         | 10.0    |                     | -         |  |
| - 13       |                     |                |   |  |  | 5-2019   | DP03                  | 10.0 - 15.0             | )- 15.0 | 4.1                 | N/A<br>_  |  |
| 13         |                     |                |   |  |  | 0326     |                       |                         | 1 111   |                     |           |  |
| - 14       |                     |                |   |  |  |          |                       |                         | 1 1/1   |                     | -         |  |
| - 15       | 15.0                | 758.6          |   |  |  |          |                       |                         |         |                     | _         |  |
| - 13       |                     |                |   | SILTY SAND, SM, 10YR 6/8 (brownish               | yellow), fine                                |          |                       |                         | 1 110   |                     |           |  |
| - 16       |                     |                |   | to medium, loose, wet                            |  | 16.5/    |                       |                         |         |                     | -         |  |
| - 17       |                     |                | $\  \cdot \  \cdot$   | Weathered conditions at 17.0                     |  | 5/18.5-  |                       |                         |         |                     | _         |  |
| ''         | 17.5                | 756.1          |   | Weathered sandstone at 17.0'                     |  | 201903   | DP04                  | 15.0 - 20.0             | 5.0 - 2 | 4.2                 | N/A       |  |
| 40         |                     |                | レノノ   |  |  | 120      |                       |                         | 1811    | 1 1                 |           |  |



|                      | lient F            | Borehole       | ID N/A                   | <u> </u>   | Stantec Borin      | na N            | o. KIF-I              | BG09                  |             |      |             |
|----------------------|--------------------|----------------|--------------------------|--|--------------------|-----------------|-----------------------|-----------------------|-------------|------|-------------|
|                      | lient              | 201011010      |                          | ssee Valley Authority  | Boring Location    |                 |                       | 93 N; 2,412,635.      | .80 E NA    | D83  | 3           |
|                      |                    | Number         |                          | <u> </u>   | Surface Eleva      |                 |                       | Elevatio              |             |      |             |
|                      |                    | Lithology      |                          |  | Overburden:        | 5               | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> | Rec         | . Ft | Blows/PSI   |
| Dep                  | th Ft <sup>3</sup> | Elevation      | Graphic                  | Description  | Rock Core:         |                 | RQD %                 | Run Ft                | Rec         | . Ft | Rec. %      |
| - 18<br>- 19         |                    |                |                          | SILTY LEAN CLAY, CL, 10YR 5/6 (yel soft, wet (Continued)   | llowish brown),    |                 |                       |                       |             |      | -           |
| - 20<br>- 21         | 20.0               | 753.6          |                          | SILTY SAND, SM, 10YR 6/8 (brownish to medium, loose  | າ yellow), fine    | 21.             |                       |                       |             |      | -           |
| - 22<br>- 23         |                    |                |                          |  |                    | 5/23.5-20190326 | DP05                  | 20.0 - 25.0           | 4.          | 3    | N/A         |
| - 24<br>- 25<br>- 26 |                    |                |                          | Wet at 25.0'   |                    |                 |                       |                       |             |      | _<br>_<br>_ |
| - 27                 | 728.0              | 745.6          |                          | Sandstone boulder embedded at 27.0'  |                    | 26.5/28.5-2019  | DP06                  | 25.0 - 30.0           | 25.0 - 30.0 | 0    | N/A         |
| - 29<br>- 30         |                    |                |                          | LEAN CLAY, CL, 7.5YR 4/6 (strong br plasticity, firm, moist  | own), low          | 0326            |                       |                       |             |      | -           |
| - 31                 | 30.7               | 742.9<br>741.8 |                          | Shale, dark gray, weathered, dry   |                    |                 | DP07                  | 30.0 - 31.8           | 30.0 - 31.8 | 8    | N/A _       |
|                      |                    |                |                          | Bedrock Refusal /<br>Bottom of Hole at 31.8 Ft.  |                    |                 |                       |                       |             |      | -           |
|                      |                    |                |                          |  |                    |                 |                       |                       |             |      | -           |
|                      |                    |                |                          |  |                    |                 |                       |                       |             |      | -           |
|                      |                    |                | G =<br>2: a,b,<br>3: Dep | Environmental Sample Custody (two Spli<br>Geotechnical Sample Custody<br>c denote Split Spoon divided between En<br>oths are reported in feet below ground sur<br>b sample (0.0/0.5-20190326) sampled us | nvironmental and G |                 |                       |                       | ple)        |      | -<br>-<br>- |
|                      |                    |                |                          |  |                    |                 |                       |                       |             |      | -           |



|  | OLIVE DC10  |            |
|--|---|------------|
| Client Borehole ID N/A   | Stantec Boring No. KIF-BG10   |            |
| Client Tennessee Valley Authority  | Boring Location 582,011.89 N; 2,407,288.66 E NAD83                                |            |
| Project Number 175668043   | Surface Elevation 763.2 ft Elevation Datum NGVD29                                 | 9          |
| Project Name KIF TDEC Order  | Date Started 3/25/19 Completed 3/25/19  |            |
| Project Location Harriman, Tennessee  Inspector J. Andrew Logger D. Mihalek                      | Depth to Water N/A Date/Time N/A  Depth to Water N/A Date/Time N/A                |            |
| Inspector <u>J. Andrew</u> Logger <u>D. Mihalek</u> Drilling Contractor Hawkston (Subcontractor) | Depth to Water N/A Date/Time N/A  Drill Rig Type and ID Geoprobe 3230DT, #3230-02 |            |
| Overburden Drilling and Sampling Tools (Type and Size  |   |            |
| Rock Drilling and Sampling Tools (Type and Size)   |   |            |
| Overdrill Tooling (Type and Size) N/A  | Overdrill Depth N/A   |            |
| Sampler Hammer Type GH70 Direct Push Weight N/A  | Drop N/A Efficiency N/A   |            |
| Borehole AzimuthN/A (Vertical)   | Borehole Inclination (from Vertical)N/A   |            |
| Reviewed By A. Blair   | Approved By L. Price  |            |
| Lithology  | Overburden: Sample <sup>1,2</sup> Depth Ft <sup>3</sup> Rec. Ft Blows             | /PSI       |
| Depth Ft <sup>3</sup> Elevation Graphic Description  | Rock Core: RQD % Run Ft Rec. Ft Rec.  | %          |
| 0 0.0 763.2 Top of Hole  |   |            |
| 0.5 762.7 SILT, OL, 7.5YR 3/2 (dark brown), lo   | pose, dry to F HA01 0.0 - 0.5 0.5   |            |
|  | high placticity   | -          |
| FAT CLAY, CH, 7.5YR 5/4 (brown), I   | nigh plasticity,  | _          |
|  | DP01 0.0 - 5.0  | 4          |
| - 3  |   | -          |
|  |   | _          |
|  |   |            |
| 5  |   | _          |
|  |   | _          |
|  | 6   |            |
| 7  | 5.0 DP02 5.0 - 10.0 5.0 N/A   | _          |
| - 8  | bi DP02 5.0 - 10.0 5.0 N/A  | <b>`</b> – |
|  | 86  |            |
| 9  |   | -          |
| - 10   |   | _          |
|  |   |            |
|  |   | _          |
| Coarse chert fragments embedded in   | n clay matrix   | _          |
| from 11.5' to 15.0'  | DP03 10.0 - 15.0 5.0 N/A  | 4          |
|  | 000000000000000000000000000000000000000   | _          |
| - 14   |   | _          |
|  |   |            |
| T 15   |   |            |
| - 16 Chart fragments and weathered shou  | rt from 15.0' to 🗒 DP04 15.0 - 17.5   | Δ -        |
| Chert fragments and weathered chert 17.5'  | 15. I I I I I I I I I I I I I I I I I I I   | •          |
|  | 190   |            |
| Stiff, with gravel in clay matrix at 17.5  | 5'  |            |



Page: 2 of 2

| Client E              | Borehole I | D N/A   | \  | Stantec Boring No. KIF-BG10                        |                       |                       |         |           |  |  |
|-----------------------|------------|---------|--|--|-----------------------|-----------------------|---------|-----------|--|--|
| Client                |            | Tennes  | see Valley Authority   | Boring Location 582,011.89 N; 2,407,288.66 E NAD83 |                       |                       |         |           |  |  |
| Project               | Number_    | 175668  | 043  | Surface Elevation 763.2 ft Elevation Datum_N       |                       |                       |         |           |  |  |
|                       | Lithology  |         |  | Overburden:  | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> | Rec. Ft | Blows/PSI |  |  |
| Depth Ft <sup>3</sup> | Elevation  | Graphic | Description  | Rock Core:   | RQD %                 | Run Ft                | Rec. Ft | Rec. %    |  |  |
| - 18<br>- 19<br>- 20  |            |         | FAT CLAY, CH, 7.5YR 5/4 (brown), hig firm, moist (Continued) | jh plasticity,                                     | DP05                  | 17.5 - 20.0           | 2.5     | N/A _     |  |  |
| - 21<br>- 22   22.2   | 741.0      |         |  |  | DP06                  | 20.0 - 22.2           | 2.2     | N/A =     |  |  |
|                       |            |         | Bedrock Refusal / Bottom of Hole at 22.2 Ft.                 |  |                       |                       |         | -<br>-    |  |  |

DPT runs beyond 15.0 ft are 2.5 ft in length to allow for swelling soils. Recovery greater than run length due to swell

<sup>1:</sup> E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody

<sup>2:</sup> a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples

<sup>3:</sup> Depths are reported in feet below ground surface

<sup>4:</sup> Grab sample (0.0/0.5-20190325) sampled using hand auger



| Client   Tennessee Valley Authority   Soring Location   S83,551.79 N; 2.410.057.63 E NAD32   |      | Niont F             | Porobolo    | ID N/A    |   | Stantoe Borin | a N      | . KIF-                | BG11                  |          |          |           |  |
|--|------|---------------------|-------------|-----------|---|---------------|----------|-----------------------|-----------------------|----------|----------|-----------|--|
| Project Number   |      |                     | ooi en loie |           |   |               |          |                       |                       |          |          |           |  |
| Project Name   |      |                     | Number      |           |   | Ü             |          |                       |                       |          |          |           |  |
| Project   Location   |      | -                   |             |           | -C Order                                      |               |          | -                     |                       |          |          |           |  |
| Depth to Water   Dilling Contractor   Hawkston (Subcontractor)   Hawkston (Subcontractor)   Hawkston (Subcontractor)   Hawkston (Subcontractor)   Depth to Water   N/A   Drop   M/A   Dro           |      | ,                   |             |           |   |               |          |                       |                       |          |          |           |  |
| Drilling Contractor  |      | •                   |             |           |   |               |          |                       |                       |          |          |           |  |
| Overburden Drilling and Sampling Tools (Type and Size)   |      | •                   | -           |           |   | <u> </u>      |          |                       |                       |          |          |           |  |
| Overdrill Tooling (Type and Size)   N/A   Sampler Hammer Type   GH70 Direct Push   Weight   N/A   Drop   N/A   Efficiency   N/A   Drop   N/A   Efficiency   N/A   Drop   N/A   Efficiency   N/A   Drop   N/A   Efficiency   N/A   Drop   N/A   Drop   N/A   Efficiency   N/A   Drop   Drop   N/A   Drop   Drop   Drop   N/A   Drop   N/A   Drop   N/A   Drop           |      | •                   |             |           |   |               |          |                       |                       |          |          |           |  |
| Sampler Hammer Type   GH70 Direct Push   Weight   N/A   Drop   N/A   Efficiency   N/A   N/A   Certification   N/A   Certification   N/A            | F    | Rock D              | rilling an  | d Sampl   | ing Tools (Type and Size) N/A                 |               |          |                       |                       |          |          |           |  |
| Borehole Azimuth Reviewed By   | (    | Overdr              | ill Tooling | g (Type a | and Size) N/A                                 |               |          |                       | Overdrill             | De       | pth _    | 1/A       |  |
| Reviewed By   A. Blair   Approved By   L. Price  |      |                     |             | • •       |   |               |          |                       | -                     | _        |          |           |  |
| Depth Ft <sup>2</sup>   Elevation   Graphic   Description   Description   Rock Core:   RQD %   Run Ft   Rec. Ft   Rec. %   Rec. %   RQD %   Run Ft   Rec. Ft   Rec. %   Rec. %   RQD %   Run Ft   Rec. Ft   Rec. %   Run Ft   Rec. Ft   Rec. %   RQD %   Run Ft   Rec. Ft   Rec. %   Rec. Ft   Rec. %   RQD %   Run Ft   RQD %   RQD % |      |                     |             |           |   |               |          | •                     | Vertical)             | N/       | A        |           |  |
| Depth   Ft   Zero   Description   Rock Core:   ROD %   Run   Rec.   Ft   Rec. %  | -    | Review              | ed By       | A. Bla    | <u>ir                                    </u> | Approved By   |          | L. Price              |                       |          |          |           |  |
| Top of Hole  SILT, ML, 7.5YR 5/4 (brown), very dense, dry, 90% fines  FAT CLAY, CH, 7.5YR 5/4 (brown), medium plasticity, stiff, moist  FAT CLAY, CH, 7.5YR 5/4 (brown), medium plasticity, stiff, moist  DP01  DP02  5.0 - 7.5  DP02  5.0 - 7.5  DP03  7.5 - 9.0  DP04  DP04  DP05  12.5 - 15.0  DP06  15.0 - 17.5  3.1  N/A  DP06  DP07  17.5 - 20.0  DP08  DP09  17.5 - 20.0  DP09          |      |                     | Lithology   |           |   | Overburden:   | S        | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |          | Rec. Ft  | Blows/PSI |  |
| SLT, ML, 7.5YR 5/4 (brown), very dense, dry, 90% fines  SLT, ML, 7.5YR 5/4 (brown), very dense, dry, 90% fines  FAT CLAY, CH, 7.5YR 5/4 (brown), medium plasticity, stiff, moist  Coarse sand embedded from 6.5' to 7.5'  DP02  5.0 - 7.5  5.0  N/A  DP02  5.0 - 7.5  5.0  N/A  DP02  5.0 - 7.5  5.0  N/A  DP03  7.5 - 9.0  5.0  DP04  10.0 - 12.5  5.0  N/A  DP05  12.5 - 15.0  5.0  N/A  DP06  DP07  17.5 - 20.0  5.0  N/A  DP07  17.5 - 20.0  | De   | oth Ft <sup>3</sup> | Elevation   | Graphic   | ,   | Rock Core:    |          | RQD %                 | Run Ft                |          | Rec. Ft  | Rec. %    |  |
| 1  | - 0  | 0.0                 | 792.1       |           | <b>'</b>                                      |               | I        | 11004                 | 00.05                 |          | ١ ٥ ٦    |           |  |
| 2 2 5 789.6  | _ 1  |                     |             |           |   | se, dry, 90%  | P4       | HAUT                  | 0.0 - 0.5             | ((       | 0.5      | _         |  |
| FAT CLAY, CH, 7.5YR 5/4 (brown), medium plasticity, stiff, moist  FAT CLAY, CH, 7.5YR 5/4 (brown), medium plasticity, stiff, moist  DP01  0.0 - 5.0  DP02  5.0 - 7.5  DP02  5.0 - 7.5  DP03  7.5 - 9.0  DP03  7.5 - 9.0  DP04  DP04  DP05  12.5 - 15.0  DP06  DP06  15.0 - 17.5  DP06  15.0 - 17.5  DP07  17.5 - 20.0  DP07           | _ '  |                     |             |           |   |               | :        |                       |                       | ((       |          |           |  |
| FAT CLAY, CH, 7.5YR 5/4 (brown), medium plasticity, stiff, moist  DP02 5.0 - 7.5   5   3.1 N/A    DP03 7.5 - 9.0   5   2.8 N/A    DP04 10.0 - 12.5   5   3.5 N/A    DP05 12.5 - 15.0   5   3.9 N/A    Chert lens from 16.0' to 16.4'  Color change to 7.5YR 5/6 (strong brown) at 17.5'  DP07 17.5 - 20.0   6   3.6 N/A    DP07 17.5 - 20.0   7   3   3.6 N/A    DP08 15.0 - 17.5   7   3   3.6 N/A    DP09 17.5 - 20.0   7   3   3.6 N/A    DP09 17.5 - 20.0   7   3   3.6 N/A    DP09 17.5 - 20.0   7   3   3    DP09 17.5 - 20.0   7    D         | - 2  | 2.5                 | 789.6       |           |   |               | 5/3.5-20 | DP01                  | 00-50                 | 0.0-     | 5.0      | N/A       |  |
| - 4   - 5   - 6   - 7   Coarse sand embedded from 6.5' to 7.5'   - 8   - 9   - 10   - 11   - 12   - 13   - 14   - 15   - 16   - 16   - 17   Color change to 7.5YR 5/6 (strong brown) at 17.5'   - 18   - 19   - 20           | - 3  |                     |             |           |   | edium         | )19032   | D1 01                 | 0.0 0.0               | 5.0      | 0.0      | -         |  |
| Coarse sand embedded from 6.5' to 7.5'  Coarse sand embedded from 6.5' to 7.5'  DP02 5.0 - 7.5   | - 4  |                     |             |           | plasticity, stiff, moist                      |               | _        |                       |                       |          |          | _         |  |
| Coarse sand embedded from 6.5' to 7.5'  DP02  DP02  DP03  DP03  DP03  DP03  DP04  DP03  DP04  DP04  DP05  DP06  DP06  DP06  DP07  DP06  DP07  DP         |      |                     |             |           |   |               |          |                       |                       | ))       |          |           |  |
| Coarse sand embedded from 6.5' to 7.5'    Solution   DP02   S.0 - 7.5   Solution   S.0 - 7.5   S.0 - 7.5   Solution   S.0 - 7.5   S.0         | - 5  |                     |             |           |   |               |          |                       |                       | 1 1      |          | _         |  |
| DP03 7.5 - 9.0   | - 6  |                     |             |           |   |               |          | DP02                  | 5.0 - 7.5             | 5.0 - 7  | 3.1      | N/A       |  |
| DP03 7.5 - 9.0   | - 7  |                     |             |           | Coarse sand embedded from 6.5' to 7.          | 5'            | 6.5/8.5  |                       |                       | 55       |          | _         |  |
| DP03 7.5 - 9.0   | _ 8  |                     |             |           |   |               | -20190   |                       |                       | 7.5      |          | _         |  |
| - 10   |      |                     |             |           |   |               | 321      | DP03                  | 7.5 - 9.0             | 5 - 9.0  | 2.8      | N/A       |  |
| DP04 10.0 - 12.5   0   0   0   0   0   0   0   0   0   | - 9  |                     |             |           |   |               |          |                       |                       | "        |          | -         |  |
| DP04 10.0 - 12.5 12 3.5 N/A - 13   | - 10 |                     |             |           |   |               |          |                       |                       |          | )        | _         |  |
| - 12   - 13   - 14   - 15   - 16   - 16   - 17   - 18   - 19   - 19   - 20   -          | - 11 |                     |             |           |   |               |          | DD04                  | 400 405               | 10.0     | 2.5      | N//A -    |  |
| - 13   | _ 12 |                     |             |           |   |               | 11.5/    | DP04                  | 10.0 - 12.5           | - 12.5   | 3.5      | N/A       |  |
| DP05 12.5 - 15.0   3.9   N/A   - 15   - 16   DP06   15.0 - 17.5   - 17   Color change to 7.5YR 5/6 (strong brown) at 17.5'   DP07   17.5 - 20.0   3.6   N/A   - 20   DP07   17.5 - 20.0   3.6   N/A   - 20   DP07   17.5 - 20.0   N/A   - 20   DP07   17.5 - 20.0   N/A   - 20   DP07   DP07   17.5 - 20.0   N/A   - 20   DP07   DP07   DP07   17.5 - 20.0   N/A   - 20   DP07         | - 12 |                     |             |           |   |               | 13.5-20  |                       |                       |          | 4        |           |  |
| Chert lens from 16.0' to 16.4'  Color change to 7.5YR 5/6 (strong brown) at 17.5'  DP06  15.0 - 17.5  DP07  17.5 - 20.0  | - 13 |                     |             |           |   |               | 190321   |                       |                       | 12.5     |          | -         |  |
| Chert lens from 16.0' to 16.4'  Color change to 7.5YR 5/6 (strong brown) at 17.5'  DP06  15.0 - 17.5  DP07  17.5 - 20.0  N/A  DP07  17.5 - 20.0  | - 14 |                     |             |           |   |               |          | DP05                  | 12.5 - 15.0           | 5 - 15.0 | 3.9      | N/A _     |  |
| Chert lens from 16.0' to 16.4'  Color change to 7.5YR 5/6 (strong brown) at 17.5'  DP06  15.0 - 17.5  DP07  17.5 - 20.0  N/A  DP07  17.5 - 20.0  | - 15 |                     |             |           |   |               |          |                       |                       |          | 4        | _         |  |
| Chert lens from 16.0' to 16.4'  Color change to 7.5YR 5/6 (strong brown) at 17.5'  DP06  15.0 - 17.5  Tolor change to 7.5YR 5/6 (strong brown) at 17.5'  DP07  17.5 - 20.0  Tolor change to 7.5YR 5/6 (strong brown) at 17.5'  DP07  17.5 - 20.0  Tolor change to 7.5YR 5/6 (strong brown) at 17.5'  DP07  17.5 - 20.0   | 40   |                     |             |           |   |               |          |                       |                       | 15       |          |           |  |
| Color change to 7.5YR 5/6 (strong brown) at 17.5'  DP07 17.5 - 20.0 3.6 N/A  | - 16 |                     |             |           | Chert lens from 16.0' to 16.4'                |               | 16.      | DP06                  | 15.0 - 17.5           | .0 - 17. | 3.6      | N/A       |  |
| - 18<br>- 19<br>- 20   | - 17 |                     |             |           | Color change to 7 5YR 5/6 (strong brow        | wn) at 17 5'  | 5/18.5-  |                       |                       | 0,       |          | -         |  |
|  | - 18 |                     |             |           |   | ,             | 201903   |                       |                       | _ ((     |          | -         |  |
|  | – 19 |                     |             |           |   |               | 21       | DP07                  | 17.5 - 20.0           | 7.5 - 20 | 3.6      | N/A _     |  |
|  |      |                     |             |           |   |               |          |                       |                       | Ö        |          |           |  |
|  | - 20 |                     |             |           | Color change to 7.5YR 4/6 (strong brown       | wn) at 20.0'  |          |                       |                       |          | <b>]</b> | _         |  |



| С                         | lient E  | Borehole       | ID N/A  | <u> </u>  | Stantec Boring No. KIF-BG11 |               |                       |                       |                |               |           |  |
|---------------------------|--|----------------|---------|---|-----------------------------|---------------|-----------------------|-----------------------|----------------|---------------|-----------|--|
| С                         | lient  |                | Tennes  | see Valley Authority  | Boring Locati               |               |                       | 79 N; 2,410,057       | 7.63           | E NAD83       |           |  |
| Pi                        | roject   | Number         | 175668  | 043   | Surface Eleva               | atior         | 792.1 ft              | Elevatio              | on E           | atum <u>r</u> | NGVD29    |  |
|                           | L  | ithology       |         |   | Overburden:                 | 5             | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |                | Rec. Ft       | Blows/PSI |  |
| Dept                      | th Ft <sup>3</sup>   | Elevation      | Graphic | Description   | Rock Core:                  |               | RQD %                 | Run Ft                |                | Rec. Ft       | Rec. %    |  |
| - 21<br>- 22              |  |                |         | FAT CLAY, CH, 7.5YR 5/4 (brown), m plasticity, stiff, moist (Continued)   | edium                       | 21.5/23       | DP08                  | 20.0 - 22.5           | 20.0 - 22.5    | 4.2           | N/A _     |  |
| - 23                      |  |                |         | Wet at 22.5'  |                             | 3.5-201903    |                       |                       | 23             |               | _         |  |
| - 24                      |  |                |         |   |                             | 21            | DP09                  | 22.5 - 25.0           | .5 - 25.0      | 4.1           | N/A _     |  |
| - 25<br>- 26              |  |                |         |   |                             |               | DP10                  | 25.0 - 27.5           | 25.0 - :       | 4.1           | <br>N/A   |  |
| - 27                      |  |                |         |   |                             | 26.5/28.5-20  |                       |                       | 27.5           |               | _         |  |
| - 28<br>- 29              |  |                |         | Weathered chert lens from 28.5' to 29   | .3'                         | 90321         | DP11                  | 27.5 - 30.0           | 27.5 - 30.0    | 2.8           | N/A _     |  |
| - 30                      |  |                |         | No chert observed from 30.0' to 32.5'   |                             |               |                       |                       | ω <sub>ω</sub> |               | _         |  |
| - 31<br>- 32              |  |                |         |   |                             | 31.5/33       | DP12                  | 30.0 - 32.5           | 0.0 - 32.5     | 4.5           | N/A -     |  |
| - 33 <del>-</del><br>- 34 | 7_   |                |         |   |                             | .5-20190322   | DP13                  | 32.5 - 35.0           | 32.5 - 35.0    | 3.7           | N/A       |  |
| - 35<br>- 36              | 37.0   | 755.1          |         |   |                             | 36.5/         | DP14                  | 35.0 - 37.5           | 35.0 - 37.5    | 2.8           | N/A -     |  |
| - 37<br>- 38<br>- 39      |  |                |         | CLAYEY GRAVEL, GC, 7.5YR 5/4 (br<br>cobbles, loose, wet, chert and limesto<br>Interbedded clay lenses from 37.5' to | ne gravel                   | 38.5-20190322 | DP15                  | 37.5 - 40.0           | 37.5 - 40.0    | 2.9           | <br>N/A   |  |
| - 40                      | 40.0<br>40.4   | 752.1<br>751.7 |         | ─ Shale bedrock, refusal at 40.4'   |                             |               | DP16                  | 40.0 - 40.4           | 40.0           | 0.0           | N/A       |  |
|                           |  |                |         | Bedrock Refusal / Bottom of Hole at 40.4 Ft.  |                             |               |                       |                       | - 40.4         |               | -         |  |
|                           |  |                |         |   |                             |               |                       |                       |                |               |           |  |
|                           | DPT runs beyond 5.0 ft are 2.5 ft in length to allow for swelling soils. Recovery greater than run length due to swell |                |         |   |                             |               |                       |                       |                |               |           |  |
|                           |  |                | G =     | Environmental Sample Custody (two Spl<br>Geotechnical Sample Custody<br>c denote Split Spoon divided between Er     |                             |               |                       |                       | mple)          | )             | =         |  |
|                           |  |                | 3: Dep  | ths are reported in feet below ground sulb<br>b sample (0.0/0.5-20190322) sampled us                                | rface                       | Jeule         | John Hoal Gal         | πρισο                 |                |               |           |  |



| C    | Client E            | Borehole  | ID N/A       |  | Stantec Borin                                | g N            | o. KIF-               | BG12                    |           |         |           |  |
|------|---------------------|-----------|--------------|--|--|----------------|-----------------------|-------------------------|-----------|---------|-----------|--|
| C    | lient               |           | Tennes       | see Valley Authority   | Boring Location                              | on             | 584,398.              | 52 N; 2,411,876         | .07 I     | E NAD83 |           |  |
| F    | roject              | Number    | 175668       | 043  | Surface Eleva                                | atio           | 798.6 ft              | Elevatio                | n D       | atum_n  | NGVD29    |  |
| F    | roject              | Name      | KIF TDI      | EC Order   | Date Started                                 | _              | 3/27/19               | Comple                  | ted       | 3/27/1  | 9         |  |
| F    | roject              | Location  | n <u>Har</u> | riman, Tennessee   | Depth to Water23.5 ft Date/Time3/27/19 12:57 |                |                       |                         |           |         |           |  |
|      | -                   |           |              |  | Depth to Wate                                |                |                       | Date/Ti                 |           | N/A     |           |  |
|      | _                   |           |              |  | Drill Rig Type                               |                |                       |                         |           |         |           |  |
|      |                     |           | -            | Sampling Tools (Type and Size)_  | DT37 Dual Tub                                | e Sc           | oil Sampling          | System w/ 60"           | PVC       | liners  |           |  |
|      |                     | _         | -            | ling Tools (Type and Size) <u> </u>  |  |                |                       | Overdrill               | Do        | nth N   |           |  |
|      |                     | _         |              | GH70 Direct Push Weight N/A  | Drop N                                       | N/A            |                       | Overdilli<br>Efficiency |           | V/A     | <u> </u>  |  |
|      | •                   | le Azimu  | • •          |  | Borehole Incli                               |                | _                     | •                       | N//       |         |           |  |
|      |                     | ed By     |              |  | Approved By                                  |                | L. Price              |                         |           |         |           |  |
|      |                     | Lithology |              |  | Overburden:                                  | _              | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>   |           | Rec. Ft | Blows/PSI |  |
| Der  | oth Ft <sup>3</sup> | Elevation | Granhic      | Description  | Rock Core:                                   | <u> </u>       | RQD %                 | Run Ft                  |           | Rec. Ft | Rec. %    |  |
|      | 0.0                 | 798.6     | Огартно      | Top of Hole  | 1 took oore.                                 |                | 1100 70               | ranre                   |           | 1100.11 | 1100. 70  |  |
| - 0  | 0.5                 | 798.1     | ЩЩ           | SILT, ML, 7.5YR 4/6 (strong brown), sof                                      | t, dry                                       | H <sub>A</sub> | HA01                  | 0.0 - 0.5               |           | 0.5     |           |  |
| - 1  |                     |           |              | SILTY LEAN CLAY, CL, 2.5YR 4/6 (red)   | ), low                                       |                |                       |                         |           |         | -         |  |
| - 2  |                     |           |              | plasticity, firm, moist  |  | 1.5/3          |                       |                         |           |         | _         |  |
|      |                     |           |              |  |  | .5-2019        | DP01                  | 0.0 - 5.0               | 0.0 - 5.  | 5.0     | N/A       |  |
| - 3  |                     |           |              |  |  | 90327          |                       |                         |           |         | -         |  |
| - 4  |                     |           |              |  |  |                |                       |                         | (((       |         | _         |  |
| - 5  | 5.0                 | 793.6     |              |  |  |                |                       |                         | 1 (((     |         | _         |  |
|      |                     |           |              | SILTY LEAN CLAY, CL, 5YR 4/6 (yellow   | vish red),                                   |                |                       |                         | 1         |         |           |  |
| - 6  |                     |           |              | firm, moist  |  |                | DP02                  | 5.0 - 7.5               | 5.0 - 7.5 | 3.8     | N/A       |  |
| - 7  |                     |           |              |  |  | 5.5/8.5-       |                       |                         | 15.       |         | -         |  |
| - 8  |                     |           |              |  |  | 201903         |                       |                         |           |         | _         |  |
|      |                     |           |              |  |  | 827            | DP03                  | 7.5 - 10.0              | 7.5-1     | 2.7     | N/A       |  |
| - 9  |                     |           |              |  |  |                | 2.00                  | 7.0 .0.0                | 0.0       |         |           |  |
| - 10 |                     |           |              |  |  |                |                       |                         |           |         | _         |  |
| - 11 |                     |           |              |  |  |                |                       |                         | 10.0      |         |           |  |
|      |                     |           |              |  |  | 11.5           | DP04                  | 10.0 - 12.5             | - 12.5    | 3.0     | N/A       |  |
| - 12 |                     |           |              | Soft at 12.0'  |  | /13.5-2        |                       |                         |           |         | _         |  |
| - 13 |                     |           |              |  |  | 019032         |                       |                         | <u></u>   |         | -         |  |
| - 14 |                     |           |              |  |  | 27             | DP05                  | 12.5 - 15.0             | 2.5 - 15  | 2.5     | N/A       |  |
|      |                     |           |              | Wet at 14.5'   |  |                |                       |                         | O         |         |           |  |
| – 15 |                     |           |              | Wet at 14.5  |  |                |                       |                         | 1 🕅       |         | _         |  |
| - 16 |                     |           |              |  |  |                | DP06                  | 15.0 - 17.5             | 15.0 - 1  | 3.0     | N/A       |  |
| - 17 | 17.0                | 781.6     |              |  |  | 16.5/18        |                       |                         | 7.5       |         | -         |  |
| 40   |                     |           |              | SILTY LEAN CLAY WITH SAND, CL, 7. (strong brown), medium plasticity, soft, v |  | :5-2019        |                       |                         |           |         |           |  |
| - 18 | 18.5                | 780.1     |              |  |  | 90327          | DD07                  | 17.5 00.0               | 17.5      |         |           |  |
| - 19 |                     |           |              | SILTY SAND, SM, 5YR 5/6 (yellowish rewet                                     | ed), loose,                                  |                | DP07                  | 17.5 - 20.0             | - 20.0    | 2.4     | N/A _     |  |
| 20   |                     |           |              | ***************************************                                      |  |                |                       |                         | 1 (((     |         |           |  |



| Client Borehole ID N/A Stantec Boring No. KIF-BG12 |                    |           |         |  |                     |                |                       |                       |             |           |            |
|--|--------------------|-----------|---------|--|---------------------|----------------|-----------------------|-----------------------|-------------|-----------|------------|
| c  | lient              |           | Tennes  | ssee Valley Authority  | Boring Location     |                |                       | 52 N; 2,411,876       | 3.07        | E NAD83   | 3          |
| P  | roject             | Number    | 175668  | 043  | Surface Eleva       | atio           | n <u>798.6 ft</u>     | Elevatio              | on D        | atum_     | NGVD29     |
|  |                    | _ithology |         |  | Overburden:         | ,              | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |             | Rec. Ft   | Blows/PSI  |
| Dep  | th Ft <sup>3</sup> | Elevation | Graphic | Description  | Rock Core:          |                | RQD %                 | Run Ft                |             | Rec. Ft   | Rec. %     |
| - 20<br>- 21                                       | 21.5               | 777.1     |         | SILTY SAND, SM, 5YR 5/6 (yellowish wet <i>(Continued)</i> Fragmented shale from 20.0' to 21.5'                                 | red), loose,        |                | DP08                  | 20.0 - 22.5           | 20.0 - 2:   | 3.2       |            |
| - 22<br>- 23                                       |                    |           |         | CLAYEY SAND, SC, 10YR 3/3 (dark to plasticity, loose, wet, sand/clay mix, so   | ,                   | 1.5/23.5-2019  |                       |                       | 2.5         |           | -          |
| - 23<br>- 24                                       | <u> </u>           |           |         | Color change to 10YR 6/6 (brownish y   | vellow) at 23.5'    | 0327           | DP09                  | 22.5 - 25.0           | 22.5 - 25.0 | 3.0       | N/A _      |
| - 25<br>- 26                                       |                    |           |         |  |                     |                | 22.0                  |                       | 25.0        |           | -          |
| - 27   |                    |           |         |  |                     | 26.5/28.5-2    | DP10                  | 25.0 - 27.5           | - 27.5      | 4.0       | N/A<br>-   |
| - 28<br>- 29                                       |                    |           |         | Color change to 10YR 5/6 (yellowish but With weathered sandstone and shale 32.5'   |                     | 0190327        | DP11                  | 27.5 - 30.0           | 27.5 - 30.0 | 2.8       | N/A        |
| - 30   |                    |           |         |  |                     |                |                       |                       |             | 1         |            |
| - 31<br>- 32                                       |                    |           |         |  |                     | 31.5/33        | DP12                  | 30.0 - 32.5           | 30.0 - 32.5 | 3.8       | N/A        |
| - 33   |                    |           |         | With sandstone and shale cobbles fro   | m 32.5' to 36.5'    | 1.5-20190327   | DP13                  | 32.5 - 35.0           | 32.5 -      | 3.0       | -<br>N/A   |
| - 34<br>- 35                                       |                    |           |         |  |                     | 35             | DF 13                 | 32.3 - 33.0           | . 35.0      | 3.0       | - IV/A -   |
| - 36   | 36.5               | 762.1     |         |  |                     | .0/37.0-20190: | DP14                  | 35.0 - 37.0           | 35.0 - 37.0 | 3.0       | N/A -      |
| <del>- 37</del>                                    | 37.0               | 761.6     |         | Limestone and Shale  |                     | 327            |                       |                       | 1 1)))      |           |            |
| 9/2//20  |                    |           |         | Bedrock Refusal /<br>Bottom of Hole at 37.0 Ft.  |                     |                |                       |                       |             |           | _          |
| URF D1 20190530                                    |                    |           |         |  |                     |                |                       |                       |             |           | _          |
| I IDEC SORE  |                    |           | DPT r   | uns beyond 5.0 ft are 2.5 ft in length to al   | low for swelling so | ils. I         | Recovery g            | reater than run       | lengi       | th due to | -<br>swell |
| DEC. G.  |                    |           |         | . •  | J                   |                | , ,                   |                       | J           |           | _          |
| NA NA  |                    |           | G =     | Environmental Sample Custody (two Spl<br>Geotechnical Sample Custody   |                     |                |                       |                       | nple)       |           | _          |
| 175668043  |                    |           | 3: Dep  | c denote Split Spoon divided between Er<br>oths are reported in feet below ground su<br>b sample (0.0/0.5-20190327) sampled us | rface               | eote           | ecnnical Sai          | mpies                 |             |           | -          |
| A EIP BORING LOG                                   |                    |           |         |  |                     |                |                       |                       |             |           | _          |

# APPENDIX B.2 GEOTECHNICAL BORINGS

#### **Table of Contents**

| Subsurface Boring Legend | 1  |
|--------------------------|----|
| KIF-B05                  | 2  |
| KIF-B06                  | 5  |
| KIF-B07                  | 7  |
| KIF-B08                  | 9  |
| KIF-B09                  | 11 |
| KIF-B10                  | 14 |
| KIF-B11                  | 16 |
| KIF-B12                  | 18 |
| KIF-B13                  | 20 |
| KIF-B14                  | 23 |
| KIF-B15                  | 25 |
| KIF-B16                  | 27 |

#### **Subsurface Boring Legend**

#### **Lithology Graphics**

| Symbol             | Lithology                              |
|--------------------|--|
|                    | Fill                                   |
|                    | Top Soil                               |
| 03030303           | Gravel                                 |
| 0 0 0 0<br>0 0 0 0 | Well Graded Gravel (GW)                |
| 0 0 0 0            | Poorly Graded Gravel (GP)              |
|                    | Silty Gravel (GM)                      |
|                    | Silty, Clayey Gravel (GC-GM)           |
|                    | Clayey Gravel (GC)                     |
| © .                | Well Graded Gravel with Silt (GW-GM)   |
|                    | Well Graded Gravel with Clay (GW-GC)   |
|                    | Poorly Graded Gravel with Silt (GP-GM) |
|                    | Poorly Graded Gravel with Clay (GP-GC) |
|                    | Well Graded Sand (SW)                  |
| • • • •            | Poorly Graded Sand (SP)                |
|                    | Silty Sand (SM)                        |
|                    | Silty, Clayey Sand (SC-SM)             |
|                    | Clayey Sand (SC)                       |
|                    | Well Graded Sand with Silt (SW-SM)     |
|                    | Well Graded Sand with Clay (SW-SC)     |
|                    | Poorly Graded Sand with Silt (SP-SM)   |
|                    | Poorly Graded Sand with Clay (SP-SC)   |
|                    | Silt (ML)                              |
|                    | Silty Clay (CL-ML)                     |
|                    | Lean Clay (CL)                         |
|                    | Organic Silt (OL)                      |
|                    | Elastic Silt (MH)                      |
|                    | Fat Clay (CH)                          |
| /////              | Organic Clay (OH)                      |
|                    | Non-Durable Shale                      |
|                    | Durable Shale                          |
|                    | Coal                                   |
|                    | Limestone                              |
|                    | Sandstone                              |

#### **Other Graphics**

| Symbol              | Description                                      |
|---------------------|--|
|                     | Denotes environmental analytical sample interval |
|                     | Denotes SS sample interval                       |
|                     | Denotes ST sample interval                       |
|                     | Denotes DP sample interval                       |
|                     | Denotes RS sample interval                       |
|                     | Denotes RC sample interval                       |
| $\overline{\Delta}$ | First water level reading                        |
| Ā                   | Second water level reading                       |

#### **Common Abbreviations**

| Abbreviation | Definition               |
|--------------|--------------------------|
| DP           | Direct Push              |
| НА           | Hand Auger               |
| HSA          | Hollow Stem Auger        |
| N/A          | Not Applicable           |
| NR           | Not Recorded             |
| RC           | Rock Core                |
| RQD          | Rock Quality Designation |
| RS           | Rotary Sonic             |
| SS           | Split Spoon              |
| ST           | Shelby Tube              |
| WH           | Weight of Hammer         |
| WR           | Weight of Rod            |

#### **General Notes**

The boring logs include sample numbering used during drilling. For assigned Environmental Analytical Sample ID numbers, see relevant Environmental Chain-of- Custody forms from the drilling date range listed on each log.

For pH readings and additional field data, see applicable field documentation (e.g., Soil pH Data Form) from the drilling date range listed on each log.



| medium, medium dense, dry to moist, slight organic odor, iron oxide staining, minor lean clay intermixed, [CCR]  SANDY LEAN CLAY, CL, 7.5YR 5/4 (brown) to 7.5YR 3/1 (very dark gray), low to medium plasticity, soft to hard, moist, fine to medium sand, trace black gravelly sand ccr layers intermixed (<5" thick), [FILL]  SS03aG 5.0 - 5.5   | 1                                     |         |          |                               |  |                   |      |                  |                        |           |         |           |
|--|---------------------------------------|---------|----------|-------------------------------|--|-------------------|------|------------------|------------------------|-----------|---------|-----------|
| Project Number   | С                                     | lient E | Borehole | ID N/A                        | <u> </u>   | Stantec Boring    | g N  | o. <b>KIF-</b> I | B05                    |           |         |           |
| Project Name   | С                                     | lient   |          | Tennes                        | see Valley Authority   | Boring Location   | on   | 574,498.8        | 36 N; 2,408,062        | 2.70      | E NAD83 |           |
| Project Location   | Р                                     | roject  | Number   | 175668                        | 043  | Surface Eleva     | tior | 756.5 ft         | Elevation              | on E      | atum_r  | IGVD29    |
| Depth   Depth   Depth   Depth   Description   Descriptio   | Р                                     | roject  | Name     |                               |  |                   |      |                  |                        |           |         |           |
| Drilling Contractor  |                                       | •       |          |                               |  |                   |      |                  |                        |           |         |           |
| Overburden Drilling and Sampling Tools (Type and Size)   |                                       | •       |          |                               |  | •                 | _    |                  |                        | me        | N/A     |           |
| Note   |                                       | _       |          |                               |  | • • • •           |      |                  |                        |           |         |           |
| Overdrill Tooling (Type and Size)  |                                       |         |          |                               |  |                   |      |                  |                        |           |         |           |
| Sampler Hammer Type  |                                       |         | _        | •                             | · · · · · · · · · · · · · · · · · · ·  | •                 |      |                  | Overdril               | l Do      | nth N   | .Ι/Δ      |
| Borehole Azimuth Reviewed By   | · · · · · · · · · · · · · · · · · · · |         |          |                               |  |                   |      |                  |                        |           | W/A     |           |
| Reviewed By   J. Musselman   Approved By   A. Welshans   |                                       |         |          | • •                           |  |                   |      | ion (from        | •                      |           |         |           |
| Lithology   Depth Ft <sup>2</sup>   Elevation   Graphic   Description   Description   Rock Core:   ROD %   Run Ft   Rec. Ft   Blows/PSI  |                                       |         |          |                               |  |                   |      | •                | · —                    |           |         |           |
| Depth FI 3   Elevation   Graphic   Description   Rock Core: RQ0 % Run Ft   Rec. Ft   Rec. %  |                                       |         |          |                               |  |                   |      |                  |                        |           | Dag 54  | Diama/DCI |
| Trace clay below 1.0 feet, dry    SS01G   0.0 - 1.5  | Don                                   |         |          | Cranbia                       | December 1   |                   |      |                  | •                      |           |         | *         |
| Crushed stone Trace clay below 1.0 feet, dry  SS01G 0.0 - 1.5  | Бер                                   |         |          | Grapnic                       | ·  | Rock Core:        |      | RQD %            | Run Ft                 |           | Rec. Ft | Rec. %    |
| Trace clay below 1.0 feet, dry    SS01G   SS01 | - 0                                   | 0.0     | 730.3    | 0303030                       | •  |                   |      |                  |                        |           |         |           |
| Trace clay below 1.0 feet, dry  SS02aG  SS02aG  SS02bG  3.0 - 4.0  SS02bG  5.5 - 6.5  SS03bG  7.5 - 9.0  SS02bG  1.3  1.4  1.5-9  | – 1                                   |         |          | 0000000<br>0000000<br>0000000 | Crashed stone  |                   |      | SS01G            | 0.0 - 1.5              | 0.0 - 1.5 | 1.3     | 11-10-15  |
| 3 3.0 753.5 SILTY SAND TRACE GRAVEL, SM, 2.5Y 2.5/1 (black) to 2.5Y 5/4 (light olive brown), very fine to medium, medium dense, dry to moist, slight organic odor, iron oxide staining, minor lean clay intermixed, [CCR]  SANDY LEAN CLAY, CL, 7.5YR 5/4 (brown) to 7.5YR 3/1 (very dark gray), fine to medium palasticity, soft to hard, moist, fine to medium sand, trace black gravelly sand ccr layers intermixed (<5" thick), [FILL]  CLAYEY SAND, SC, 7.5YR 5/4 (brown) to 7.5YR 3/1 (very dark gray), fine to coarse, low plasticity, loose to dense, moist, iron oxide staining, [FILL]  SS03aG  SS03bG  5.0 - 5.5  SS03bG  5.5 - 6.5  1.3  1-2-1  SS04G  7.5 - 9.0  SS04G  |                                       |         |          |                               | Trace clay below 1.0 feet, dry   |                   |      |                  |                        |           |         |           |
| SILTY SAND TRACE GRAVEL, SM, 2.5Y 2.5/1 (black) to 2.5Y 5/4 (light olive brown), very fine to medium, medium medium, medium dense, dry to moist, slight organic odd, ricon oxide staining, minor lean clay intermixed, [CCR]  SANDY LEAN CLAY, CL, 7.5YR 5/4 (brown) to 7.5YR 3/1 (very dark gray), low to medium plasticity, soft to hard, moist, fine to medium sand, trace black gravelly sand ccr layers intermixed (<5" thick), [FILL]  CLAYEY SAND, SC, 7.5YR 5/4 (brown) to 7.5YR 3/1 (very dark gray), fine to coarse, low plasticity, loose to dense, moist, iron oxide staining, [FILL]  SS03bG  3.0 - 4.0  SS03bG  3.0 - 4.0  SS03bG  3.0 - 4.0  SS03bG  5.5 - 6.5  SS03bG  5.5 - 6.5  1.3  1-2-1  SS04G  7.5 - 9.0  SS05G  10.0 - 11.5  SS05G  11.1  8-15-16  SS06G  12.5 - 14.0  SS06G  15.0 - 16.5  SS07G  15.0 - 16.5  O7  2-3-16   | - 2                                   |         |          |                               |  |                   |      |                  |                        |           |         | _         |
| SILTY SAND TRACE GRAVEL, SM, 2-SY 2-5/1 (black) to 2.5Y 5/4 (light olive brown), very fine to medium, medium, medium dense, dry to moist, slight organic odor, iron oxide staining, minor lean clay intermixed, [CCR]  SANDY LEAN CLAY, CL, 7.5YR 5/4 (brown) to 7.5YR 3/1 (very dark gray), low to medium plasticity, soft to hard, moist, fine to medium sand, trace black gravelly sand ccr layers intermixed (<5" thick), [FILL]  SS03bG   | _ 3                                   | 3.0     | 753.5    |                               |  |                   |      | SS02aG           | 2.5 - 3.0              | 2         | 1       | _         |
| medium, medium dense, dry to moist, slight organic odor, iron oxide staining, minor lean clay intermixed, [CCR]  SANDY LEAN CLAY, CL, 7.5YR 5/4 (brown) to 7.5YR 3/1 (very dark gray), low to medium plasticity, soft to hard, moist, fine to medium sand, trace black gravelly sand ccr layers intermixed (<5" thick), [FiLL]  CLAYEY SAND, SC, 7.5YR 5/4 (brown) to 7.5YR 3/1 (very dark gray), fine to coarse, low plasticity, loose to dense, moist, iron oxide staining, [FiLL]  SS03aG  S.0 - 5.5  SS03bG  5.5 - 6.5  SS03bG  7.5 - 9.0  Table 1.3  1.4  1-5-9  SS04G  SS05G  10.0 - 11.5  SS05G  10.0 - 11.5  SS05G  10.0 - 11.5  SS06G  12.5 - 14.0  SS06G  12.5 - 14.0  SS07G  15.0 - 16.5  |                                       |         |          |                               |  |                   |      | SS02bG           | 3.0 - 4.0              | 5-4.0     | 1.5     | 9-10-8    |
| odor, iron oxide staining, minor lean clay intermixed, [CCR]  SANDY LEAN CLAY, CL, 7.5YR 5/4 (brown) to 7.5YR 3/1 (very dark gray), low to medium plasticity, soft to hard, moist, fine to medium sand, trace black gravelly sand ccr layers intermixed (<5" thick), [FILL]  CLAYEY SAND, SC, 7.5YR 5/4 (brown) to 7.5YR 3/1 (very dark gray), fine to coarse, low plasticity, loose to dense, moist, iron oxide staining, [FILL]  SS03aG  5.0 - 5.5  SS03bG  5.5 - 6.5  SS03aG  5.0 - 5.5  SS03bG  5.5 - 6.5  SS03bG  5.5  | - 4                                   |         |          |                               |  | -                 |      |                  |                        |           |         | _         |
| 5.5 751.0  | - 5                                   |         |          |                               | odor, iron oxide staining, minor lean cl   | -                 |      |                  |                        |           |         | _         |
| SS03bG 5.5 - 6.5   |                                       | 5.5     | 751.0    |                               |  |                   |      | SS03aG           | 5.0 - 5.5              | 5.0       | 12      | 101       |
| soft to hard, moist, fine to medium sand, trace black gravelly sand ccr layers intermixed (<5" thick), [FILL]  SS04G  7.5 - 9.0  SS04G  7.5 - 9.0  SS05G  1.4  1-5-9  SS05G  1.0 - 11.5  SS06G  12.5 - 14.0  SS07G  SS07G  SS07G  15.0 - 16.5  | - 6                                   |         |          |                               | The state of the s | ·                 |      | SS03bG           | 5.5 - 6.5              | 6.5       | 1.5     | 1-2-1     |
| gravelly sand ccr layers intermixed (<5" thick), [FILL]  9 9.5 747.0  CLAYEY SAND, SC, 7.5YR 5/4 (brown) to 7.5YR 3/1 (very dark gray), fine to coarse, low plasticity, loose to dense, moist, iron oxide staining, [FILL]  SS05G 10.0 - 11.5  | - 7                                   |         |          |                               | soft to hard, moist, fine to medium san  | d, trace black    |      |                  |                        |           | 1       | _         |
| SS04G 7.5 - 9.0  |                                       |         |          |                               | gravelly sand ccr layers intermixed (<5  | 5" thick), [FILL] |      |                  |                        |           | -       |           |
| 9.5 747.0  CLAYEY SAND, SC, 7.5YR 5/4 (brown) to 7.5YR 3/1 (very dark gray), fine to coarse, low plasticity, loose to dense, moist, iron oxide staining, [FILL]  SS05G 10.0 - 11.5   | - 8                                   |         |          |                               |  |                   |      | SS04G            | 7.5 - 9.0              | 7.5 - 9   | 1.4     | 1-5-9     |
| 9.5 747.0  CLAYEY SAND, SC, 7.5YR 5/4 (brown) to 7.5YR 3/1 (very dark gray), fine to coarse, low plasticity, loose to dense, moist, iron oxide staining, [FILL]  SS05G 10.0 - 11.5   | – 9                                   |         |          |                               |  |                   |      |                  |                        | ō         |         | _         |
| (very dark gray), fine to coarse, low plasticity, loose to dense, moist, iron oxide staining, [FILL]  (very dark gray), fine to coarse, low plasticity, loose to dense, moist, iron oxide staining, [FILL]  SS05G  10.0 - 11.5  SS06G  12.5 - 14.0  SS07G  15.0 - 16.5   |                                       | 9.5     | 747.0    |                               |  |                   |      |                  |                        |           |         |           |
| to dense, moist, iron oxide staining, [FILL]  SS05G  10.0 - 11.5  SS05G  10.0 - 11.5  SS06G  12.5 - 14.0  SS06G  12.5 - 14.0  SS07G  15.0 - 16.5  SS07G  10.0 - 11.5   | - 10                                  |         |          |                               | ,  | ,                 |      |                  |                        | 10        | 1       | _         |
| - 12<br>- 13<br>- 14<br>- 15<br>- 16   | - 11                                  |         |          |                               |  | -                 |      | SS05G            | 10.0 - 11.5            | .0 - 11.  | 1.4     | 1-2-6     |
| SS06G 12.5 - 14.0   1.1   8-15-16   - 15   - 16  |                                       |         |          |                               |  |                   |      |                  |                        | 55        | -       |           |
| - 14<br>- 15<br>- 16<br>SS06G 12.5 - 14.0   1.1   8-15-16   -  | - 12                                  |         |          |                               |  |                   |      |                  |                        |           |         | -         |
| - 14<br>- 15<br>- 16<br>SS06G   12.5 - 14.0  | - 13                                  |         |          |                               |  |                   |      |                  |                        | 12.5      |         | _         |
| - 15<br>- 16 SS07G 15.0 - 16.5   |                                       |         |          |                               |  |                   |      | SS06G            | 12.5 - 14.0            | 5-14.0    | 1.1     | 8-15-16   |
| - 16 SS07G 15.0 - 16.5 SS07G 0.7 2-3-16  | - 14                                  |         |          |                               |  |                   |      |                  |                        |           |         | -         |
| - 16 SS07G 15.0 - 16.5 SS07G 0.7 2-3-16 _  | - 15                                  |         |          |                               |  |                   |      |                  |                        |           | .       | _         |
|  | "-                                    |         |          |                               |  |                   |      | SS07G            | 15 N <sub>-</sub> 16 5 | 15.0 -    | 07      | 2-3-16    |
| - 17   | - 16                                  |         |          |                               |  |                   |      | 00070            | 10.0 - 10.0            | 16.5      | ".'     | 2-0-10 -  |
|  | - 17                                  |         |          |                               |  |                   |      |                  |                        |           | ]       | _         |
|  |                                       |         |          |                               |  |                   |      |                  |                        |           |         |           |



| Clie   | ent Borehole              | ID N/A  |   | Stantec Boring No. KIF-B05 |                       |                               |         |                    |  |  |
|--|---------------------------|---------|---|----------------------------|-----------------------|-------------------------------|---------|--------------------|--|--|
| Clie   | ent                       | Tennes  | see Valley Authority  | Boring Locatio             |                       | s.86 N; 2,408,062.70 E NAD83  |         |                    |  |  |
| Proj   | ject Number               | 175668  | 043   | Surface Elevat             | Datum_ NGVD29         |                               |         |                    |  |  |
|  | Lithology                 |         |   | Overburden:                | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>         | Rec. Ft | Blows/PSI          |  |  |
| Depth I                                      | Ft <sup>3</sup> Elevation | Graphic | Description   | Rock Core:                 | RQD %                 | Run Ft                        | Rec. Ft | Rec. %             |  |  |
| - 18<br>- 19                                 |                           |         | CLAYEY SAND, SC, 7.5YR 5/4 (brow<br>(very dark gray), fine to coarse, low pl  |                            | SS08                  | 17.5 - 19.0 17.5<br>19.0 17.5 | 0.9     | 5-6-7<br>_         |  |  |
| - 20   |                           |         | to dense, moist, iron oxide staining, [F (Continued)  | TILL]                      | SS09                  | 19.0 - 20.5                   | 1.1     | WH-2-4             |  |  |
| - 21<br>- 22                                 |                           |         |   |                            | SS10                  | 20.5 - 22.0                   | 1.0     | 2-3-4              |  |  |
| - 23<br>- 24<br>- 25                         | 22.5 734.0                |         | SILTY SAND, SM, 7.5YR 5/4 (brown) (dark gray), low to medium plasticity, moist to wet, iron oxide staining, fine t sand, [FILL]                   | very loose,                | SS11G                 | 23.0 - 24.5                   | 0.5     | WH-WH-2 _          |  |  |
| - 26<br>- 27                                 |                           |         |   |                            | SS12G                 | 25.5 - 27.0 25.5 - 27.0       | 0.7     | WH-WH-WH           |  |  |
| - 28<br>- 29                                 |                           |         |   |                            | SS13G                 | 28.0 - 29.5                   | 0.9     | 1-1-2 <sub>_</sub> |  |  |
| - 30<br>- 31<br>- 32                         | 20.5                      |         |   |                            | SS14G                 | 30.5 - 32.0                   | 1.3     | 1-2-3              |  |  |
| - 33<br>- 34                                 | 32.5 724.0<br>34.5 722.0  |         | SANDY LEAN CLAY, CL, 10YR 3/2 (v<br>grayish brown), medium plasticity, ver<br>slight organic odor, fine to medium sa<br>weathered shale fragments | y soft, wet,               | SS15G                 | 33.0 - 34.5                   | 0.7     | WH-WH-WH_          |  |  |
| - 35 – 36 – 37 – 37 – 37 – 37 – 37 – 37 – 37 |                           |         | LEAN CLAY, CL, 7.5YR 5/6 (strong be 6/2 (pinkish gray), very fine to fine, low plasticity, hard to soft, moist                                    |                            | ST01G                 | 35.5 - 37.2                   | 1.6     | –<br>NR            |  |  |
| 38043_TVA_KIF_TDEC.GPJ                       |                           |         |   |                            | SS16aG<br>SS16b       | 38.0 - 38.5<br>38.5 - 39.5    | 1.5     | -<br>4-5-9 _       |  |  |
| - 40<br>- 41<br>- 41<br>- 42                 |                           |         |   |                            | SS17a<br>SS17bG       | 40.5 - 41.5<br>41.5 - 42.0    | 1.3     | WH-WH-4 =          |  |  |



Page: 3 of 3

| Depth Ft <sup>1</sup> Elevation Graphic Description Rock Core: RQD % Run Ft Re  LEAN CLAY, CL, 7.5YR 5/6 (strong brown) to 7.5YR 6/2 (pinkish gray), very fine to fine, low to medium plasticity, hard to soft, moist (Continued) Color change to 7.5YR 6/8 (reddish yellow) to 7.5YR 6/1 (gray), increased sand content at 42.5'  Color change to 10YR 4/2 (dark grayish brown) to 7.5YR 48  48.6 707.9  Weathered sandstone  Refusal / Bottom of Hole at 49.0 Ft.  Top of Rock = 48.6 Ft. Top of Rock Elevation = 707.9 Ft.  Mud rotary began at 12.0' bgs. Vibrating wire piezometer installed. See KIF-B05 installation detail for backfill information.  Overburden Drilling and Sampling Tools (Type and Size): 4-1/4" HSA (from 0.0' to 12.0' bgs), 3-Wing Up (from 12.0' bgs), 2" SS w/o liners, 3" Shelby Tubes.  1: E = Environmental Sample Custody 2: a,b,c denote Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody 2: a,b,c denote Split Spoons for word surface   |                |  |             | D0E                   | . VIE I               | _ | <u> </u>                           |  | 15 N/A  |                |                     |     |  |
|--|----------------|--|-------------|-----------------------|-----------------------|---|------------------------------------|--|---------|----------------|---------------------|-----|--|
| Project Number 175668043 Surface Elevation 756.5 ft Elevation Date   Lithology   Depth Ft <sup>3</sup>   Elevation   Graphic   Description   Rock Core:   ROD %   Run Ft   Re   Re   Rock Core:   ROD %   Run Ft   Re   Re   Rock Core:   ROD %   Run Ft   Re   Re   Rock Core:   ROD %   Run Ft   Rock Core:   Rock Core:   Rod %   Run Ft   Rock Core:    |                | E NADOC  | 20.5        |                       |                       |   |                                    |  |         | Borehole       |                     | l   |  |
| Lithology  Depth Ft <sup>2</sup> Elevation Graphic Description Rock Core: RQD % Run Ft Re  LEAN CLAY, CL, 7.5YR 5/6 (strong brown) to 7.5YR 6/2 (pinkish gray), very fine to fine, low to medium plasticity, hard to soft, moist (Continued)  Color change to 7.5YR 6/8 (reddish yellow) to 7.5YR 6/1 (gray), increased sand content at 42.5'  A6  Color change to 10YR 4/2 (dark grayish brown) to 7.5YR 8/1 (yery dark gray) at 46.0'  SS19aG 45.5 - 46.0 SS19bG 46.0 - 47.0 SS19bG 46.0 - 47 |                |  |             |                       |                       |   | -                                  |  |         |                |                     |     |  |
| Depth Ft³ Elevation Graphic Description Rock Core: RQD % Run Ft Re  LEAN CLAY, CL, 7.5YR 5/6 (strong brown) to 7.5YR 6/2 (pinkish gray), very fine to fine, low to medium plasticity, hard to soft, moist (Continued) Color change to 7.5YR 6/8 (reddish yellow) to 7.5YR 6/1 (gray), increased sand content at 42.5'  Color change to 10YR 4/2 (dark grayish brown) to 7.5YR 8S19aG 45.5 - 46.0  Color change to 10YR 4/2 (dark grayish brown) to 7.5YR 3/1 (very dark gray) at 46.0'  Weathered sandstone  Refusal / Bottom of Hole at 49.0 Ft.  Top of Rock = 48.6 Ft. Top of Rock Elevation = 707.9 Ft.  Mud rotary began at 12.0' bgs.  Vibrating wire piezometer installed. See KIF-B05 installation detail for backfill information.  Overburden Drilling and Sampling Tools (Type and Size): 4-1/4" HSA (from 0.0' to 12.0' bgs), 3-Wing Up (from 12.0' bgs), 2' SS w/o liners, 3' Shelby Tubes.  1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody 2: a,b,c denote Split Spoon wided between Environmental and Geotechnical Samples 3: Depths are reported in feet below ground surface  | m_NGVD29       | bullace Elevation /56.5 π Elevation Datum_No   |             |                       |                       |   |                                    | 3043   | 1/5668  | Number         | rojeci              |     |  |
| LEAN CLAY, CL, 7.5YR 5/6 (strong brown) to 7.5YR 6/2 (pinkish gray), very fine to fine, low to medium plasticity, hard to soft, moist (Continued) Color change to 7.5YR 6/8 (reddish yellow) to 7.5YR 6/1 (gray), increased sand content at 42.5'  Color change to 10YR 4/2 (dark grayish brown) to 7.5YR 3/1 (very dark gray) at 46.0'  SS19aG 45.5 - 46.0  SS19bG 46.0 - 47.0  SS20G 48.0 - 48.7  Weathered sandstone Refusal / Bottom of Hole at 49.0 Ft. Top of Rock = 48.6 Ft. Top of Rock Elevation = 707.9 Ft.  Mud rotary began at 12.0' bgs. Vibrating wire piezometer installed. See KIF-805 installation detail for backfill information. Overburden Drilling and Sampling Tools (Type and Size): 4-1/4" HSA (from 0.0' to 12.0' bgs), 3-Wing Up (from 12.0' bgs), 2" SS w/o liners, 3" Shelby Tubes.  1: E = Environmental Sample Custody 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples 3: Depths are reported in feet below ground surface   | . Ft Blows/PSI | Rec. Ft  |             | Depth Ft <sup>3</sup> | Sample <sup>1,2</sup> |   | Overburden:                        |  |         | Lithology      |                     |     |  |
| 6/2 (pinkish gray), very fine to fine, low to medium plasticity, hard to soft, moist (Continued) Color change to 7.5YR 6/8 (reddish yellow) to 7.5YR 6/1 (gray), increased sand content at 42.5'  Color change to 10YR 4/2 (dark grayish brown) to 7.5YR 3/1 (very dark gray) at 46.0'  SS19bG 45.5 - 46.0  SS19bG 46.0 - 47.0  SS20G 48.0 - 48.7  Weathered sandstone  Refusal / Bottom of Hole at 49.0 Ft.  Top of Rock = 48.6 Ft. Top of Rock Elevation = 707.9 Ft.  Mud rotary began at 12.0' bgs. Vibrating wire piezometer installed. See KIF-805 installation detail for backfill information.  Overburden Drilling and Sampling Tools (Type and Size): 4-1/4" HSA (from 0.0' to 12.0' bgs), 3-Wing Up (from 12.0' bgs), 2" SS w/o liners, 3" Shelby Tubes.  1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples 3: Depths are reported in feet below ground surface  | . Ft Rec. %    | Rec. Ft  |             | Run Ft                | RQD %                 | _ | Rock Core:                         | Description  | Graphic | Elevation      | pth Ft <sup>3</sup> | Dep |  |
| Color change to 10YR 4/2 (dark grayish brown) to 7.5YR 3/1 (very dark gray) at 46.0'  Weathered sandstone  Refusal / Bottom of Hole at 49.0 Ft.  Top of Rock = 48.6 Ft. Top of Rock Elevation = 707.9 Ft.  Mud rotary began at 12.0' bgs.  Vibrating wire piezometer installed. See KIF-B05 installation detail for backfill information.  Overburden Drilling and Sampling Tools (Type and Size): 4-1/4" HSA (from 0.0' to 12.0' bgs), 3-Wing Up (from 12.0' bgs), 2" SS w/o liners, 3" Shelby Tubes.  1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples 3: Depths are reported in feet below ground surface  | 4 5-7-8        | 1.4  | 43.0 - 44.5 | 43.0 - 44.5           | SS18G                 |   | to medium<br>ed)<br>llow) to 7.5YR | 6/2 (pinkish gray), very fine to fine, plasticity, hard to soft, moist ( <i>Coni</i> Color change to 7.5YR 6/8 (reddish 6/1 (gray), increased sand content |         |                |                     |     |  |
| 48.6 707.9   Weathered sandstone   Refusal / Bottom of Hole at 49.0 Ft.  Top of Rock = 48.6 Ft. Top of Rock Elevation = 707.9 Ft.  Mud rotary began at 12.0' bgs.  Vibrating wire piezometer installed. See KIF-B05 installation detail for backfill information.  Overburden Drilling and Sampling Tools (Type and Size): 4-1/4" HSA (from 0.0' to 12.0' bgs), 3-Wing Up (from 12.0' bgs), 2" SS w/o liners, 3" Shelby Tubes.  1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples 3: Depths are reported in feet below ground surface  | 5 WH-WH-5      | 1.5  | 45.5 - 47.0 |                       |                       |   | h brown) to                        | Color change to 10YR 4/2 (dark gr. 7.5YR 3/1 (very dark gray) at 46.0'   |         |                |                     |     |  |
| Refusal / Bottom of Hole at 49.0 Ft.  Top of Rock = 48.6 Ft. Top of Rock Elevation = 707.9 Ft.  Mud rotary began at 12.0' bgs.  Vibrating wire piezometer installed. See KIF-B05 installation detail for backfill information.  Overburden Drilling and Sampling Tools (Type and Size): 4-1/4" HSA (from 0.0' to 12.0' bgs), 3-Wing Up (from 12.0' bgs), 2" SS w/o liners, 3" Shelby Tubes.  1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples 3: Depths are reported in feet below ground surface   | 6 WH-50/2"     | 0.6  | 48.0 - 48   | 48.0 - 48.7           | SS20G                 |   |                                    |  |         | 707.9<br>707.5 |                     |     |  |
|  | raft Bit _     | Weathered sandstone  Refusal / Bottom of Hole at 49.0 Ft.  Top of Rock = 48.6 Ft. Top of Rock Elevation = 707.9 Ft.  Mud rotary began at 12.0' bgs.  Vibrating wire piezometer installed. See KIF-B05 installation detail for backfill information.  Overburden Drilling and Sampling Tools (Type and Size): 4-1/4" HSA (from 0.0' to 12.0' bgs), 3-Wing Updraft Bit (from 12.0' bgs), 2" SS w/o liners, 3" Shelby Tubes.  1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples |             |                       |                       |   |                                    |  |         |                |                     |     |  |



|      |                     |           |                      |  |                 |      | 1/15                  |                       |         |          |                    |
|------|---------------------|-----------|----------------------|--|-----------------|------|-----------------------|-----------------------|---------|----------|--------------------|
|      |                     | Borehole  |                      |  | Stantec Boring  |      |                       |                       |         |          |                    |
|      | Client              |           |                      | see Valley Authority   | Boring Location |      |                       | 30 N; 2,408,131       |         |          | -                  |
| F    | Project             | Number    | 175668               | 3043   | Surface Eleva   | itio | -                     | Elevatio              | n E     | )atum_   | NGVD29             |
|      | -                   | Name      |                      | EC Order   | Date Started    | _    | 2/8/21                | Comple                |         |          | 1                  |
|      | -                   | Location  |                      | rriman, Tennessee  | Depth to Wate   | er _ | N/A                   | Date/Ti               | me      | N/A      |                    |
|      |                     | or T. G   |                      | Logger _T. Greenwell   | Depth to Wate   | _    |                       | Date/Ti               | me      | N/A      |                    |
|      | •                   |           |                      | ntec Consulting Services Inc.  | Drill Rig Type  |      |                       |                       |         |          |                    |
|      |                     |           | _                    | Sampling Tools (Type and Size  | · <del></del>   | Jpdr | aft Bit, 2" S         | S w/o liners          |         |          |                    |
|      |                     | _         |                      | ling Tools (Type and Size) <u>N/</u>                                   | 4               |      |                       |                       |         |          |                    |
|      |                     | _         |                      | and Size) <u>N/A</u>   |                 |      |                       | Overdrill             |         |          | N/A                |
|      | •                   |           |                      | Automatic Weight 140   |                 |      |                       | Efficiency            | _       | 89.8%    |                    |
|      |                     | le Azimu  |                      | N/A  | Borehole Incli  |      | •                     | · —                   | N/      | <u>A</u> |                    |
| F    | Review              | ed By _   | J. Mu                | sselman  | Approved By     |      | A. Welshar            | is                    |         |          |                    |
|      | I                   | Lithology |                      |  | Overburden:     | ;    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |         | Rec. Ft  | Blows/PSI          |
| De   | pth Ft <sup>3</sup> | Elevation | Graphic              | Description  | Rock Core:      |      | RQD %                 | Run Ft                |         | Rec. Ft  | Rec. %             |
| - 0  | 0.0                 | 739.6     |                      | Top of Hole  |                 |      |                       |                       |         |          |                    |
| - 0  |                     |           |                      | Casing stickup   |                 |      |                       |                       |         |          |                    |
| - 1  |                     |           |                      |  |                 |      |                       |                       |         |          | -                  |
| - 2  |                     |           |                      |  |                 |      |                       |                       |         |          | _                  |
|      | 2.0                 | 726.7     |                      |  |                 |      |                       |                       |         |          |                    |
| - 3  | 2.9                 | 736.7     |                      | Water  |                 |      |                       |                       |         |          | -                  |
| - 4  |                     |           |                      | Water  |                 |      |                       |                       |         |          | _                  |
| - 4  |                     |           |                      |  |                 |      |                       |                       |         |          | _                  |
| - 5  |                     |           |                      |  |                 |      |                       |                       |         |          | _                  |
| - 6  | 5.7                 | 733.9     |                      | N  |                 |      |                       |                       |         |          |                    |
| - 0  |                     |           | N /I                 | No recovery, likely sediment   |                 |      | SS01                  | 5.7 - 7.2             | 5.7 - 7 | 0.0      | WR-WR-WR           |
| - 7  |                     |           | \ /                  |  |                 |      |                       |                       | 2       | 4        | -                  |
| - 8  |                     |           | $  \setminus /  $    |  |                 |      |                       |                       |         |          | _                  |
| - 0  |                     |           | $  \setminus / \mid$ |  |                 |      |                       |                       |         |          |                    |
| - 9  |                     |           | $  \ \  $            |  |                 |      | SS02                  | 8.2 - 9.7             | 2 - 9.7 | 0.0      | WR-WH-WH-          |
| _ 10 |                     |           |                      |  |                 |      |                       |                       |         |          |                    |
| - 10 |                     |           | $  \ / \setminus  $  |  |                 |      |                       |                       |         |          |                    |
| - 11 |                     |           | /                    |  |                 |      | 0000                  | 407 406               | 10.7    |          | -                  |
| - 12 |                     |           | /                    |  |                 |      | SS03                  | 10.7 - 12.2           | - 12.2  | 0.0      | WR-WR-WR           |
| - 12 |                     |           | / \                  |  |                 |      |                       |                       |         |          | _                  |
| - 13 | 13.2                | 726.4     | <u> </u>             |  |                 |      |                       |                       | IL      | <u> </u> | -                  |
| - 14 |                     |           |                      | SILTY SAND, SM, 7.5YR 4/3 (brown)                                      |                 |      | SS04G                 | 13.2 - 14.7           | 13.2-   | 0.4      | WR-WH-WH-          |
| - 14 |                     |           |                      | plasticity, loose, wet, fine to medium scoarse sand and gravel, [FILL] | sand, trace     |      | 00040                 | 10.2 - 14.7           | 14.7    | 0.4      | VVI (-VVI I-VVI I- |
| - 15 |                     |           | $\ \cdot\ _{1}$      | 9· · · [· ·1   |                 |      |                       |                       |         |          | _                  |
| _ 10 |                     |           | ; ; ;                |  |                 |      |                       |                       |         | -        |                    |
| - 16 |                     |           |                      |  |                 |      | SS05                  | 15.7 - 17.2           | 5.7 - 1 | 0.0      | WR-WR-WR           |
| - 17 |                     |           | ; ; ; ;              |  |                 |      |                       |                       | 7.2     |          | -                  |
| - 18 | 17.7                | 721.9     |                      |  |                 |      |                       |                       |         |          | _                  |
| 10   |                     |           |                      |  |                 |      |                       |                       |         | 1        |                    |



| Client Borehole ID N/A |   |                |         |   |         | Stantec Boring No. KIF-B06 |      |                       |                            |             |         |                       |  |
|------------------------|---|----------------|---------|---|---------|----------------------------|------|-----------------------|----------------------------|-------------|---------|-----------------------|--|
| CI                     | ient  |                | Tennes  | see Valley Authority  |         | ring Locatio               |      |                       | 30 N; 2,408,13             | 1.50        | E NAD83 | 3                     |  |
| Pr                     | oject   | Number         | 175668  | 043   | Su      | rface Eleva                | tior | 739.6 ft              | Elevation                  | on E        | oatum_  | NGVD29                |  |
|                        | L   | ithology       |         |   |         | Overburden:                | 5    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>      |             | Rec. Ft | Blows/PSI             |  |
| Dept                   | h Ft³   | Elevation      | Graphic | Description   |         | Rock Core:                 |      | RQD %                 | Run Ft                     |             | Rec. Ft | Rec. %                |  |
| - 19<br>- 20           | 20.2  | 719.4          |         | LEAN CLAY, CL, 7.5YR 3/2 (dark bro to medium plasticity, very soft, wet, m  |         |                            |      | SS06G                 | 18.2 - 19.7                | 18.2 - 19.7 | 0.9     | WH-WH-WH <sup>-</sup> |  |
| - 21<br>- 22           | 22.7  | 716.9          |         | odor, trace roots (Continued)  SANDY LEAN CLAY TRACE GRAVE 5/2 (grayish brown), very fine to fine, ivery soft, moist, slight organic odor |         |                            |      | SS07G                 | 20.7 - 22.2                | 20.7 - 22.2 | 1.3     | _<br>WH-WH-WH<br>_    |  |
| - 23<br>- 24           | <i>ZZ.1</i>   | 7 10.3         |         | SANDY LEAN CLAY, CL, 7.5YR 5/1 (7.5YR 6/8 (reddish yellow), low plastic to wet, fine to medium sand                                       |         |                            |      | SS08G                 | 23.2 - 24.7                | 23.2 - 24.7 | 1.4     | 1-1-2 –               |  |
| - 25<br>- 26<br>- 27   | 07.7  | 744.0          |         |   |         |                            |      | SS09G                 | 25.7 - 27.2                | 25.7 - 27.2 | 1.4     | <br>_<br>2-2-3<br>_   |  |
| - 28<br>- 29<br>- 30   | 27.7  | 711.9          |         | SANDY SILT, ML, 7.5YR 5/1 (gray), f non-plastic to low plasticity, very loose   |         |                            |      | SS10G                 | 28.2 - 29.7                | 28.2 - 29.7 | 1.4     | -<br>1-1-1 –          |  |
| - 31<br>- 32           | 31.4  | 708.2          |         | Trace fine gravel below 30.7'  LEAN CLAY WITH SAND, CL, 5YR 3 gray), medium plasticity, soft to very s                                    |         | -                          |      | SS11aG<br>SS11bG      | 30.7 - 31.4<br>31.4 - 32.2 | 30.7 - 32.2 | 1.3     | –<br>WH-2-2<br>–      |  |
| - 33<br>- 34           | 33.7  | 705.9<br>704.9 |         | Shale, dark gray to gray, very soft to s<br>weathered, damp, 45° bedding angle  | soft, h |                            |      | SS12aG<br>SS12bG      | 33.2 - 33.7<br>33.7 - 34.7 | 33.2 - 34.7 | 1.4     | –<br>WH-10-34 –       |  |
|                        |   |                |         | No Refusal / Bottom of Hole at 34.7 Ft.  Top of Rock = 33.7 Ft.  Top of Rock Elevation = 705.9 Ft.  |         |                            |      |                       |                            |             |         | -                     |  |
|                        | Horizontal coordinates collected at time of drilling using Trimble Geo7x handheld unit. Surface elevation shown reflects the top of steel casing. Top of casing elevation was measured using automatic level and level rod referenced from temporary benchmark established by TVA. The temporary benchmark referenced for KIF-B06 was set at the SW corner of the KIF-106 concrete pad. |                |         |   |         |                            |      |                       |                            |             |         |                       |  |
|                        | 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples 3: Depths are reported in feet below ground surface  -  |                |         |   |         |                            |      |                       |                            |             |         |                       |  |



| С    | lient E            | Borehole  | IDN/A   | 4  | Stantec Boring                   | g N  | o. KIF-I              | B07                   |          |            |                   |
|------|--------------------|-----------|---|--|----------------------------------|------|-----------------------|-----------------------|----------|------------|-------------------|
| С    | lient              |           | Tennes  | ssee Valley Authority  | Boring Location                  | on   | 574,401.9             | 90 N; 2,408,144       | .80      | E NAD83    | <u> </u>          |
| P    | roject             | Number    |   |  | Surface Eleva                    | tior |                       | Elevatio              | n C      | atum_      | NGVD29            |
|      | -                  | Name      |   | EC Order   | Date Started                     | _    | 2/9/21                | Comple                |          |            | 1                 |
|      | •                  | Location  |   | rriman, Tennessee  | Depth to Water N/A Date/Time N/A |      |                       |                       |          |            |                   |
|      | •                  | or T. Gr  |   | Logger _T. Greenwell   | Depth to Wate                    | _    |                       | Date/Ti               | me       | N/A        |                   |
|      | _                  |           |   | Intec Consulting Services Inc.   | Drill Rig Type                   |      |                       |                       | Oh al    | h T h. a . |                   |
|      |                    |           | _   | l Sampling Tools (Type and Size)<br>ling Tools (Type and Size) N/A       |                                  | par  | art Bit, 2" S         | 5 W/o liners, 3"      | Snei     | by Tubes   | <u> </u>          |
|      |                    | •         | •   | ling Tools (Type and Size) <u>     N/A                              </u> |                                  |      |                       | Overdrill             | De       | nth        | <br>N/A           |
|      |                    | _         |   | Automatic Weight 140 ll  | b Drop 3                         | 0"   |                       | Gverann<br>Efficiency |          | 9.8%       |                   |
|      |                    | le Azimu  | • •   | N/A  | Borehole Incli                   |      | ion (from             | •                     | N/A      |            |                   |
|      |                    | ed By     |   | sselman  | Approved By                      |      | A. Welshan            | · —                   |          |            |                   |
|      |                    | Lithology |   |  | Overburden:                      | _    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |          | Rec. Ft    | Blows/PSI         |
| Den  | th Ft <sup>3</sup> | Elevation | Granhic   | Description  | Rock Core:                       |      | RQD %                 | Run Ft                |          | Rec. Ft    | Rec. %            |
| Бер  | 0.0                | 739.9     | Grapino   | Top of Hole  | Nock Core.                       |      | TQD 70                | Ruitt                 | П        | IXEC. I t  | 1160. 70          |
| - 0  | 0.0                |           |   | Steel Casing   |                                  |      |                       |                       |          |            | _                 |
| - 1  |                    |           |   | C  |                                  |      |                       |                       |          |            | -                 |
|      |                    |           |   |  |                                  |      |                       |                       |          |            |                   |
| - 2  |                    |           |   |  |                                  |      |                       |                       |          |            | _                 |
| - 3  | 3.0                | 736.9     |   | Water  |                                  |      |                       |                       |          |            | _                 |
| - 4  |                    |           |   | Water  |                                  |      |                       |                       |          |            |                   |
| - 4  |                    |           |   |  |                                  |      |                       |                       |          |            |                   |
| - 5  |                    |           |   |  |                                  |      |                       |                       |          |            | _                 |
| - 6  |                    |           |   |  |                                  |      |                       |                       |          |            | _                 |
|      |                    |           |   |  |                                  |      |                       |                       |          |            |                   |
| - 7  |                    |           |   |  |                                  |      |                       |                       |          |            | _                 |
| - 8  | 8.3                | 731.6     |   |  |                                  |      |                       |                       |          |            | =                 |
|      |                    |           |   | SANDY LEAN CLAY WITH GRAVEL,   |                                  |      |                       |                       | 8.3      |            |                   |
| - 9  |                    |           |   | (gray) to 7.5YR 4/2 (brown), non-plasti                                  |                                  |      | SS01                  | 8.3 - 9.8             | .3 - 9.8 | 0.0        | WR-WH-WH          |
| - 10 |                    |           |   | plasticity, very soft, wet, fine to mediur<br>coarse gravel              | n sand, line to                  |      |                       |                       |          |            | _                 |
| - 11 |                    |           |   | -  |                                  |      |                       |                       |          |            |                   |
| ''   |                    |           |   |  |                                  |      | SS02G                 | 11.0 - 12.5           | 11.0-    | 0.4        | WH-WH-WH          |
| - 12 |                    |           |   |  |                                  |      | 3302G                 | 11.0 - 12.5           | - 12.5   | 0.4        | vvn-vvn-vvn_      |
| - 13 |                    |           |   |  |                                  |      |                       |                       |          |            | _                 |
|      |                    |           |   |  |                                  |      |                       |                       | Н        |            |                   |
| - 14 |                    |           |   |  |                                  |      | SS03G                 | 13.5 - 15.5           | 13.5 -   | 0.4        | WR-WR-WR          |
| - 15 |                    |           |   |  |                                  |      | 33030                 | 13.3 - 13.3           | 15.5     | 0.4        | -                 |
|      |                    |           |   |  |                                  |      |                       |                       |          |            |                   |
| – 16 |                    |           |   |  |                                  |      |                       |                       |          |            | =                 |
| - 17 |                    |           |   |  |                                  |      | SS04                  | 16.5 - 18.0           | 16.5 -   | 0.0        | WR-WR-WH          |
| – 18 |                    |           |   |  |                                  |      | 5504                  | 10.0 10.0             | 18.0     | "          | . VI V VVI V-VVII |
| 10   | 18.5               | 721.4     |   |  |                                  |      |                       |                       |          |            |                   |
| 40   |                    |           | $\prime$ $\prime$ $\parallel$ $\parallel$ $\parallel$ |  |                                  |      |                       |                       |          |            |                   |



Page: 2 of 2

| Client l              | Borehole ID | ) N/A  | ١                    | Stantec Boring No. KIF-B07                         |             |                       |                       |        |           |  |  |  |
|-----------------------|-------------|--|----------------------|--|-------------|-----------------------|-----------------------|--------|-----------|--|--|--|
| Client                |             | Tennes   | see Valley Authority | Boring Location 574,401.90 N; 2,408,144.80 E NAD83 |             |                       |                       |        |           |  |  |  |
| Project               | t Number _  | Surface Elevation 739.9 ft Elevation Datum NGV |                      |  |             |                       |                       |        | NGVD29    |  |  |  |
|                       | Lithology   |  |                      |  | Overburden: | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> | Rec. F | Blows/PSI |  |  |  |
| Depth Ft <sup>3</sup> | Elevation G | Braphic  | Description          |  | Rock Core:  | RQD %                 | Run Ft                | Rec. F | Rec. %    |  |  |  |
| 40                    |             |  |                      |  | ·           |                       |                       |        |           |  |  |  |

|   | Littlology     |         |   | Overburden. | Samp | ле Бериі                       | ΓL          | Rec. Ft | DIOWS/F31 |
|---|----------------|---------|---|-------------|------|--------------------------------|-------------|---------|-----------|
| Depth Ft <sup>3</sup> Elevation Graphic |                | Graphic | Description   | Rock Core:  | RQD  | ) % Run                        | Ft          | Rec. Ft | Rec. %    |
| 20 21.0                                 | 718.9          |         | SILTY CLAY WITH SAND, CL-ML, 10YR 5 brown), low plasticity, very soft to soft, wet fine sand <i>(Continued)</i> | ίο ,        | SS   | 505G 19.0 - 2                  | 19.0 - 20.5 | 1.1     | WH-WH-2   |
| 22 23                                   |                |         | LEAN CLAY WITH SAND, CL, 7.5YR 5/1 (7.5YR 6/8 (reddish yellow), low plasticity, f fine sand                     |             | ss   | 506G 21.5 - 2                  | 3.0         | 1.5     | 3-3-4     |
| 24                                      |                |         |   |             | ST   | 701G 24.0 - 2                  | 6.0         | 1.5     | NR -      |
| 27                                      | 744.0          |         |   |             | SS   | 507G 26.0 - 2                  | 7.5         | 1.5     | 4-4-4     |
| 28   28.0<br>29  <br>30                 | 711.9          |         | SILTY CLAYEY SAND, SC-SM, 7.5YR 5/1 fine to medium, low plasticity, loose, moist gravel                         |             | ss   | 508G 28.5 - 3                  | 0.0         | 1.2     | 1-2-2     |
| 31 31.9                                 | 708.0          |         | SANDY SILTY CLAY, CL-ML, 5YR 3/1 (ve<br>gray), low plasticity, hard, moist                                      | ry dark     |      | 09aG 31.0 - 3                  | įω          | 1.5     | 6-7-7     |
| 34 34.0<br>35 35.0                      | 705.9<br>704.9 |         | Shale, dark gray to gray, very soft to soft, I<br>weathered, damp, 45° bedding angle                            | nighly      |      | 10aG 33.5 - 3<br>10bG 34.0 - 3 | 5           | 1.5     | 6-11-41   |

No Refusal /

Bottom of Hole at 35.0 Ft.

Top of Rock = 34.0 Ft.

Top of Rock Elevation = 705.9 Ft.

Horizontal coordinates collected at time of drilling using Trimble Geo7x handheld unit. Surface elevation shown reflects the top of steel casing. Top of casing elevation was measured using automatic level and level rod referenced from temporary benchmark established by TVA. The temporary benchmark referenced for KIF-B07 was set at the SW corner of the KIF-106 concrete pad.

<sup>1:</sup> E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody

<sup>2:</sup> a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples

<sup>3:</sup> Depths are reported in feet below ground surface



|  | Client E           | Borehole  | IDN/A   | 4  | Stantec Boring                   | g N  | o. KIF-               | B08                   |           |          |            |
|--|--------------------|-----------|---------|--|----------------------------------|------|-----------------------|-----------------------|-----------|----------|------------|
|  | lient              |           | Tennes  | ssee Valley Authority  | Boring Location                  | on   | 574,378.              | 30 N; 2,408,167       | .50       | E NAD83  | 3          |
| F  | roject             | Number    | 175668  | 3043   | Surface Eleva                    | tior | 739.3 ft              | Elevation             | n C       | atum_    | NGVD29     |
|  | -                  | Name      |         | EC Order   | Date Started                     | _    | 2/10/21               | Comple                |           |          | 21         |
|  | -                  | Location  |         | rriman, Tennessee  | Depth to Water N/A Date/Time N/A |      |                       |                       |           |          |            |
|  | •                  | tor T. Gr |         | Logger T. Greenwell  | Depth to Wate                    |      |                       | Date/Tii              | me        | N/A      |            |
|  | _                  |           |         | antec Consulting Services Inc.<br>I Sampling Tools (Type and Size)       | Drill Rig Type                   |      |                       |                       | Shal      | by Tubos | <u> </u>   |
|  |                    |           | •       | ling Tools (Type and Size) N/A   |                                  | ipui | all Dil, 2 S          | S W/O IIIIers, S      | SHE       | by Tubes | <u> </u>   |
|  |                    | •         |         | and Size) N/A  |                                  |      |                       | Overdrill             | De        | pth      | N/A        |
|  |                    | _         |         | Automatic Weight 140 II  | b Drop 3                         | 0"   |                       | Efficiency            |           | 39.8%    |            |
|  |                    | le Azimu  | • •     | N/A  | Borehole Inclin                  |      | ion (from             | •                     | N/A       | Ą        |            |
| Reviewed By J. Musselman Approved By A. Welshans |                    |           |         |  |                                  |      |                       |                       |           |          |            |
|  |                    | Lithology |         |  | Overburden:                      | 5    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |           | Rec. Ft  | Blows/PSI  |
| Dep  | th Ft <sup>3</sup> | Elevation | Graphic | Description  | Rock Core:                       |      | RQD %                 | Run Ft                |           | Rec. Ft  | Rec. %     |
| - 0  | 0.0                | 739.3     |         | Top of Hole  | •                                |      |                       |                       |           |          |            |
| - 0  |                    |           |         | Steel casing   |                                  |      |                       |                       |           |          |            |
| - 1  |                    |           |         |  |                                  |      |                       |                       |           |          | -          |
| - 2  |                    |           |         |  |                                  |      |                       |                       |           |          | _          |
|  | 3.0                | 736.3     |         |  |                                  |      |                       |                       |           |          |            |
| - 3  |                    |           |         | Water  |                                  |      |                       |                       |           |          | _          |
| - 4  |                    |           |         |  |                                  |      |                       |                       |           |          | -          |
| - 5  |                    |           |         |  |                                  |      |                       |                       |           |          | _          |
|  |                    |           |         |  |                                  |      |                       |                       |           |          |            |
| - 6  |                    |           |         |  |                                  |      |                       |                       |           |          | _          |
| - 7  |                    |           |         |  |                                  |      |                       |                       |           |          | _          |
| - 8  |                    |           |         |  |                                  |      |                       |                       |           |          | _          |
| 0  | 8.5                | 730.8     |         |  |                                  |      |                       |                       |           | .        |            |
| - 9  |                    |           |         | CLAYEY SILT WITH GRAVEL, ML, 7. non-plastic to medium plasticity, very s |                                  |      | SS01                  | 8.5 - 10.0            | 8.5 - 10. | 0.0      | WR-WR-WR   |
| - 10   |                    |           |         | , , .  |                                  |      |                       |                       | 0.0       | .        | _          |
| 44   |                    |           |         |  |                                  |      |                       |                       |           |          |            |
| - 11   |                    |           |         |  |                                  |      | SS02G                 | 11.0 - 12.5           | 11.0-     | 0.3      | 1-1-1      |
| - 12   |                    |           |         |  |                                  |      | 00020                 | 11.0 12.0             | 12.5      |          |            |
| - 13   |                    |           |         |  |                                  |      |                       |                       |           |          | -          |
| - 14   |                    |           |         |  |                                  |      |                       |                       | 13.5      |          | _          |
| - 15   |                    |           |         |  |                                  |      | SS03G                 | 13.5 - 15.5           | - 15.5    | 0.2      | 1-1-1<br>— |
| - 16   |                    |           |         |  |                                  |      |                       |                       |           |          | _          |
| - 17   |                    |           |         |  |                                  |      |                       |                       | 16.5      |          |            |
|  |                    |           |         |  |                                  |      | SS04                  | 16.5 - 18.0           | 5-18.0    | 0.0      | WH-WH-WH   |
| - 18<br>- 10                                     |                    |           |         |  |                                  |      |                       |                       |           |          | _          |



Page: 2 of 2

|              | lient F            | Borehole  | ID N/A              |  | Stantec B                                   | orina N | No. KIF-E             | 308                        |             |          |                   |
|--------------|--------------------|-----------|---------------------|--|---|---------|-----------------------|----------------------------|-------------|----------|-------------------|
|              | lient              | orenoie   |                     | see Valley Authority   | Boring Lo                                   |         |                       | 30 N; 2,408,167            | 7 50 I      | = NAD83  | <br>}             |
|              |                    | Number    |                     |  | Surface E                                   |         |                       | Elevation                  |             |          |                   |
|              | -                  |           | 173000              |  |   |         |                       |                            | JII D       | _        |                   |
|              |                    | Lithology |                     |  | Overbur                                     |         | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>      |             | Rec. Ft  | Blows/PSI         |
| Dep          | th Ft <sup>3</sup> | Elevation | Graphic             | Description  | Rock Co                                     | ore:    | RQD %                 | Run Ft                     |             | Rec. Ft  | Rec. %            |
| - 19<br>- 20 | 21.0               | 718.3     |                     | CLAYEY SILT WITH GRAVEL, ML, 7.: non-plastic to medium plasticity, very s (Continued)  |   | r),     | SS05                  | 19.0 - 20.5                | 19.0 - 20.5 | 0.0      | –<br>WH-WH-WH_    |
| - 21<br>- 22 | 21.0               | 7 10.0    |                     | SILTY SAND WITH GRAVEL, SM, 7.5 fine to medium, low plasticity, loose, m   |   | ,       | ST01G                 | 21.5 - 22.0                | 21.5 - 22.0 | 0.4      | NR _              |
| - 23<br>- 24 |                    |           |                     |  |   |         | ST02G                 | 22.5 - 24.5                | 22.5 - 24.5 | 1.9      | -<br>NR -         |
| - 25         | 25.0               | 714.3     |                     |  |   |         | SS06aG                | 24.5 - 25.0                | 24.         |          |                   |
| - 26         |                    |           |                     | SILTY CLAY WITH SAND, CL-ML, 7.5 with 7.5YR 6/8 (reddish yellow), fine, n low plasticity, firm, moist, iron oxide sta  | on-plastic to                               |         | SS06bG                | 25.0 - 26.0                | 5 - 26.0    | 1.2      | 2-6-8<br>-        |
| - 27         |                    |           |                     |  | rasticity, firm, moist, from oxide stailing |         |                       |                            |             |          | -                 |
| - 28         |                    |           |                     | Color change to 7.5YR 6/2 (pinkish gra   | ay) at 27.7'                                |         | SS07aG<br>SS07bG      | 27.0 - 27.7<br>27.7 - 28.5 | 7.0 - 28.5  | 1.2      | 2-1-1 _           |
| - 29<br>- 30 | 30.3               | 709.0     |                     |  |   |         | SS08aG                | 29.5 - 30.3                | 29.5 - :    | 1.5      | -<br>             |
| - 31         |                    |           |                     | SILTY SAND, SM, 7.5YR 5/1 (gray) to grayish green), fine to medium, loose, fine gravel   |   | k       | SS08bG                | 30.3 - 31.0                | 31.0        |          | -                 |
| - 32         | 32.6               | 706.7     |                     |  |   |         | SS09aG                | 32.0 - 32.6                | 32.0        |          |                   |
| - 33         | 34.0               | 705.3     |                     | SILTY SAND WITH GRAVEL, SM, 5Y dark gray), non-plastic, medium dense   | ٠   |         | SS09bG                | 32.6 - 33.5                | 33.5        | 1.0      | 4-5-8 _           |
| - 34<br>- 35 | 35.3               | 704.0     |                     | medium grained sandstone fragments  Shale, dark gray to gray, very soft to so weathered, damp, 45° bedding angle   | oft, highly                                 |         | SS10G                 | 34.5 - 35.3                | 34.5-       | 0.7      | 33-50/4" <u> </u> |
|              |                    | ,         |                     | Refusal / Bottom of Hole at 35.3 Ft.  Top of Rock = 34.0 Ft. Top of Rock Elevation = 705.3 Ft.   |   |         |                       |                            | 5.3         |          | -                 |
|              |                    |           | reflects<br>from te | ntal coordinates collected at time of drillir<br>s the top of steel casing. Top of casing elemporary benchmark established by TVA<br>rner of the KIF-106 concrete pad. | evation was n                               | neasure | d using autor         | natic level and            | level       | rod refe | renced            |

E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
 G = Geotechnical Sample Custody
 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
 3: Depths are reported in feet below ground surface



Page: 1 of 3

|      | Ni 1 -              | ) and to 1          | ID 11/1  |  | Otalista D. 1   |                        | ı. KIC                | RN9                   |           |           |           |
|------|---------------------|---------------------|--|--|-----------------|------------------------|-----------------------|-----------------------|-----------|-----------|-----------|
|      |                     | Borehole            |  |  | Stantec Borin   |                        |                       |                       | 7 70      |           |           |
|      | Client              | Mumba-              |  | see Valley Authority   | Boring Location |                        |                       | 91 N; 2,408,217       |           |           |           |
|      | -                   | Number              | -  | EC Order   | Surface Eleva   | สแด                    | -                     | Elevatio              |           |           |           |
|      | -                   | Name                |  | rriman, Tennessee  | Date Started    | _<br>or                | 2/24/21<br>N/A        | Comple                |           |           | 21        |
|      | -                   | Location<br>or T. G |  | Logger T. Greenwell  | Depth to Wat    | _                      |                       | Date/Ti<br>Date/Ti    |           |           |           |
|      | •                   |                     |  | ntec Consulting Services Inc.  | Drill Rig Type  | _                      |                       |                       | ше        |           |           |
|      | _                   |                     |  | Sampling Tools (Type and Size  |                 |                        |                       |                       | ST        |           |           |
|      |                     |                     | _  | ling Tools (Type and Size)   | •               | - p - u.               |                       | - 11/0 1111010, 0     | -         |           |           |
|      |                     | •                   | •  | and Size) N/A  |                 |                        |                       | Overdrill             | De        | epth !    | N/A       |
|      |                     | -                   |  | Automatic Weight 140   | ) lb Drop 3     | 30"                    |                       | Efficiency            |           | <br>89.8% |           |
|      | •                   | le Azimu            | • •  | N/A  | Borehole Incl   |                        |                       | •                     | N/        | A         |           |
| F    | Review              | ed By               | J. Mu  | sselman  | Approved By     |                        | A. Welshar            | ns                    |           |           |           |
|      |                     | Lithology           |  |  | Overburden:     |                        | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |           | Rec. Ft   | Blows/PSI |
| Der  | oth Ft <sup>3</sup> | Elevation           | Graphic  | Description  | Rock Core:      |                        | RQD %                 | Run Ft                |           | Rec. Ft   | Rec. %    |
|      | 0.0                 | 754.5               | '  | Top of Hole  |                 | П                      |                       |                       |           |           |           |
| - 0  |                     |                     | 0303030  | Crushed stone, trace clay  |                 |                        |                       |                       | 0.0       |           | -         |
| - 1  |                     |                     |  |  |                 |                        | SS01G                 | 0.0 - 1.5             | 0.0 - 1.5 | 1.0       | 4-4-13    |
|      | 2.0                 | 752.5               |  |  |                 |                        |                       |                       |           | 1         |           |
| - 2  | 2.0                 | 732.3               |  | SILTY SAND, SM, 7.5YR 2.5/1 (blace   | k), fine to     | 1                      |                       |                       |           |           | -         |
| - 3  | 2.9                 | 751.6               | <del>                                     </del> | medium, medium dense, dry, [CCR]   | ,.<br>          | $\left  \cdot \right $ | SS02aG                | 2.5 - 2.9             | 2.5       |           |           |
|      |                     |                     | 1   1   1   1                                    | SILTY SAND WITH GRAVEL, SM, 7  |                 |                        | SS02bG                | 2.9 - 4.0             | 4.0       | 1.5       | 8-17-9    |
| - 4  |                     |                     | 11 + 1 + 1 + 1                                   | (pinkish gray) to 7.5YR 4/4 (brown),   |                 |                        |                       |                       | H         | 1 1       | -         |
| - 5  |                     |                     |  | low plasticity, hard to very hard, dry, graded gravel layers (<4" thick) throu |                 |                        |                       |                       |           |           | _         |
| Ü    |                     |                     |  | Increased sand content at 5.0'   |                 |                        | 00000                 | 50.05                 | 5.0       |           | 4.44.0    |
| - 6  |                     |                     |  |  |                 |                        | SS03G                 | 5.0 - 6.5             | 5.0 - 6.5 | 0.9       | 4-14-8    |
| - 7  |                     |                     |  |  |                 |                        |                       |                       |           | 1         |           |
| - /  |                     |                     |  |  |                 |                        |                       |                       |           |           |           |
| - 8  |                     |                     | 11 + 1 + 1 + 1                                   |  |                 |                        | SS04G                 | 7.5 - 9.0             | 7.5-      | 0.8       | 6-7-4     |
| •    |                     |                     |  |  |                 |                        | 00040                 | 7.5 - 5.0             | 9.0       | 0.0       | 0-7-4     |
| - 9  | 9.5                 | 745.0               | <u>[[+]+]+</u>                                   |  |                 | 1                      |                       |                       |           |           | -         |
| - 10 |                     |                     |  | SILTY GRAVEL WITH SAND, GM, 2  |                 |                        |                       |                       |           |           | -         |
|      |                     |                     |  | gray), fine to coarse, dense, dry, [FIL  | -L]             |                        | SS05G                 | 10.0 - 11.5           | 10.0 - 1  | 0.8       | 23-24-13  |
| - 11 |                     |                     |  |  |                 |                        |                       |                       | 1.5       |           |           |
| - 12 | 12.0                | 742.5               | <u> </u>   |  |                 |                        |                       |                       |           |           | -         |
|      |                     |                     |  | LEAN CLAY WITH GRAVEL, CL, 7.5 gray) and 7.5YR 4/4 (brown), coarse             | , <del>-</del>  |                        |                       |                       |           |           |           |
| - 13 |                     |                     |  | hard to very hard, dry, with poorly gra  |                 |                        | SS06G                 | 12.5 - 14.0           | 2.5 - 1.  | 0.8       | 13-16-17  |
| - 14 |                     |                     |  | layers (<4" thick), [FILL]   |                 |                        |                       |                       | 4.0       |           | -         |
|      |                     |                     |  |  |                 |                        |                       |                       |           |           |           |
| - 15 | 15.5                | 739.0               |  |  |                 |                        |                       |                       | 1.5       |           | -         |
| - 16 |                     |                     |  | CLAYEY SAND, SC, 7.5YR 4/4 (brown)   | wn), fine to    | 1                      | SS07G                 | 15.0 - 16.5           | 5.0 - 16  | 1.4       | 7-8-9     |
| .0   | 1                   |                     |  | coarse, medium plasticity, medium d  | •               |                        |                       |                       | 5.5       |           |           |
| - 17 | 17.0                | 737.5               |  |  |                 | $\left  \cdot \right $ |                       |                       |           |           | -         |
| _40  |                     |                     |  |  |                 |                        |                       |                       |           |           |           |

Stantec Consulting Services Inc.



| С  | lient E            | Borehole  | ID N/   | Ą  | Stantec Boring   | oN p | KIF-I                | 309                        |             |         |                |
|--|--------------------|-----------|---------|--|------------------|------|----------------------|----------------------------|-------------|---------|----------------|
| c  | lient              |           | Tenne   | ssee Valley Authority  | Boring Locatio   |      |                      | 91 N; 2,408,217            | .76 E       | E NAD83 | 3              |
| P  | roject             | Number    | 175668  | 8043   | Surface Elevat   | tion | 754.5 ft             | Elevatio                   | n D         | atum_   | NGVD29         |
|  |                    | Lithology |         |  | Overburden:      | Sa   | ample <sup>1,2</sup> | Depth Ft <sup>3</sup>      |             | Rec. Ft | Blows/PSI      |
| Dep  | th Ft <sup>3</sup> | Elevation | Graphic | Description  | Rock Core:       | F    | RQD %                | Run Ft                     |             | Rec. Ft | Rec. %         |
| - 18<br>- 19   |                    |           |         | SANDY SILT, ML, 7.5YR 5/4 (brown) (dark brown), low to medium plasticity       | , very soft,     |      | SS08G                | 17.5 - 19.0                | 17.5 - 19.0 | 0.5     | WH-WH-WH       |
| - 20   |                    |           |         | moist to wet, iron oxide staining, with sandstone fragments, [FILL] (Continu   |                  |      | SS09aG               | 20.0 - 20.5                | 20.0 - 2    | 1.1     | <br>WH-WH-WH   |
| - 21<br>- 22   |                    |           |         |  |                  |      | SS09b                | 20.5 - 21.5                | 1.5         |         | _              |
| - 23<br>- 24   |                    |           |         |  |                  |      | SS10                 | 22.5 - 24.0                | 22.5 - 24.0 | 1.5     | WH-WH-WH       |
| - 25   |                    |           |         |  |                  |      | SS11a                | 25.0 - 25.5                | 25.0 -      | 0.8     |                |
| - 26   |                    |           |         |  |                  |      | SS11bG               | 25.5 - 26.5                | 26.5        | 0.0     |                |
| - 27   |                    |           |         |  |                  |      |                      |                            |             |         | -              |
| - 28<br>- 29   |                    |           |         |  |                  |      | SS12G                | 27.5 - 29.0                | 27.5 - 29.0 | 1.1     | WH-WH-WH       |
| - 30<br>- 31   |                    |           |         |  |                  |      | SS13G                | 30.0 - 31.5                | 30.0 - 31.5 | 0.6     | —<br>WH-WH-1 _ |
| - 32<br>- 33<br>- 34   | 32.0               | 722.5     |         | SILT, ML, 10YR 3/1 (very dark gray), low plasticity, very soft, wet            | non-plastic to   |      | SS14aG<br>SS14b      | 32.5 - 33.0<br>33.0 - 34.0 | 32.5 - 34.0 | 1.3     | WH-WH-WH       |
| 8/4/21   | 34.5               | 720.0     |         | LEAN CLAY, CL, 7.5YR 5/1 (gray) to   | 7 5YR 4/6        |      |                      |                            |             |         |                |
| трес subsure рт 20190830.6рт — 36 — 37 — 37 — 37 — 37 — 37 — 37 — 37 |                    |           |         | (strong brown), low to medium plastici trace fine sand, trace black iron oxide | ty, hard, moist, |      | SS15                 | 35.0 - 36.5                | 35.0 - 36.5 | 1.5     | WH-WH-WH_      |
| - 37<br>- 38<br>- 38<br>- 39   |                    |           |         |  |                  |      | ST01G                | 37.5 - 39.5                | 37.5 - 39.5 | 1.7     | -<br>NR -      |
| - 40 - 41  |                    |           |         | Increased sand content from 39.5' to 4   | 11.0'            |      | SS16G                | 39.5 - 41.0                | 39.5 - 41.0 | 1.3     | 5-7-9<br>-     |
| <sup>8</sup> – 42  |                    |           |         |  |                  |      |                      |                            |             |         | _              |



Page: 3 of 3

| Clie                 | nt Borehole               | ID N/A         |   | Stantec Boring  | <sub>3 No.</sub> KIF-I | 309                                       |           |                    |
|----------------------|---------------------------|----------------|---|-----------------|------------------------|---|-----------|--------------------|
| Clie                 | nt                        | Tennes         | see Valley Authority  | Boring Locatio  | n <u>574,620.9</u>     | 91 N; 2,408,217.7                         | 6 E NAD83 | 3                  |
| Proj                 | ect Number                | 175668         | 043   | Surface Elevat  | tion <u>754.5 ft</u>   | Elevation                                 | Datum_    | NGVD29             |
|                      | Lithology                 |                |   | Overburden:     | Sample <sup>1,2</sup>  | Depth Ft <sup>3</sup>                     | Rec. Ft   | Blows/PSI          |
| Depth F              | Ft <sup>3</sup> Elevation | Graphic        | Description   | Rock Core:      | RQD %                  | Run Ft                                    | Rec. Ft   | Rec. %             |
| - 43<br>- 44         | 4.7 709.8                 |                | LEAN CLAY, CL, 7.5YR 5/1 (gray) to 7 (strong brown), low to medium plasticity trace fine sand, trace black iron oxide s (Continued) | y, hard, moist, | ST02G<br>SS17aG        | 42.0 - 44.0<br>44.0 - 44.5<br>44.5 - 45.5 | 1.9       | NR -<br>-<br>4-5-3 |
| - 45<br>- 46<br>- 47 |                           |                | SILT WITH SAND, ML, 7.5YR 4/1 (dark fine to fine, non-plastic to low plasticity, wet, decreasing clay content with depth            | soft, moist to  | SS17bG                 |   |           | -<br>-             |
| - 48<br>48           | 8.5 706.0                 |                |   |                 | SS18                   | 46.5 - 48.0                               | 1.5       | WH-1-1             |
| - 49<br>- 50         |                           |                | POORLY GRADED SAND WITH SILT, 7.5YR 4/1 (dark gray), very fine to med dense, wet  | ,               | SS19a                  | 49.0 - 50.0                               |           | 3-6-12             |
|                      | 0.7 703.8                 | ·:·   <b> </b> |   |                 | SS19bG                 | 50.0 - 50.5                               |           |                    |
| - 51 5               | 1.8 702.7                 |                | Sandstone, dark gray to tan, medium g completely weathered to highly weathe   |                 | SS20G                  | 51.2 - 51.8 🖟                             | 0.6       | 20-50/1"           |
|                      |                           |                | Pofusal /   |                 |                        | 0   |           | -                  |

Refusal /

Bottom of Hole at 51.8 Ft.

Top of Rock = 50.7 Ft.

Top of Rock Elevation = 703.8 Ft.

Mud Rotary began at 17.0' bgs.

Vibrating wire piezometer installed. See KIF-B09 installation detail for backfill information.

Overburden Drilling and Sampling Tools (Type and Size): 4-1/4" HSA (from 0.0' to 17.0' bgs), 4-5/8" 3-Wing Updraft Bit (from 17.0' bgs), 2" SS w/o liners, 3" Shelby Tubes.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

LEGG HOUSENEY\_INA\_NII\_IDEC.OF3 IDEC SOBSOIN DI 201805505.GDI 0/4



| C           | lient E            | Borehole  | ID N/A                |  | Stantec Borin    |      |                       | B10                   |           |         |              |
|-------------|--------------------|-----------|-----------------------|--|------------------|------|-----------------------|-----------------------|-----------|---------|--------------|
|             | lient              |           |                       | <u> </u>   | Boring Location  |      |                       | 60 N; 2,408,280       | ).40      | E NAD83 | 3            |
| P           | roject             | Number    |                       |  | Surface Eleva    | tio  | •                     | Elevatio              | n E       | atum_   | NGVD29       |
|             | •                  | Name      |                       |  | Date Started     | _    | 1/31/21               | Comple                |           |         | 1            |
|             | •                  | Location  |                       |  | Depth to Wate    | _    |                       | Date/Ti               |           | N/A     |              |
|             | •                  | or T. Gr  |                       |  | Depth to Wate    |      |                       | Date/Ti               | me        | N/A     |              |
|             | -                  |           |                       | Intec Consulting Services Inc.  Sampling Tools (Type and Size) | Drill Rig Type   |      |                       |                       |           |         |              |
|             |                    |           | -                     | ling Tools (Type and Size) N/A                                 | 3-770 3-Willig O | pura | ait Dit, Z Oc         | W/O IIIIEIS           |           |         |              |
|             |                    | •         |                       | and Size) N/A  |                  |      |                       | Overdrill             | De        | pth     | N/A          |
|             |                    | _         |                       | Automatic Weight 140 lb  | Drop 3           | 0"   |                       | —<br>Efficiency       |           | 39.8%   |              |
| В           | oreho              | le Azimu  | th                    | N/A  | Borehole Incli   | nat  | ion (from             | Vertical)             | N/        | A       |              |
| F           | Review             | ed By _   | J. Mu                 | sselman  | Approved By      | _    | A. Welshar            | ns                    |           |         |              |
|             |                    | Lithology |                       |  | Overburden:      | ;    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |           | Rec. Ft | Blows/PSI    |
| Dep         | th Ft <sup>3</sup> | Elevation | Graphic               | Description  | Rock Core:       |      | RQD %                 | Run Ft                |           | Rec. Ft | Rec. %       |
| - 0         | 0.0                | 739.0     |                       | Top of Hole  |                  |      |                       |                       |           |         | _            |
|             |                    |           |                       | Steel casing   |                  |      |                       |                       |           |         |              |
| - 1         |                    |           |                       |  |                  |      |                       |                       |           |         | _            |
| - 2         |                    |           |                       |  |                  |      |                       |                       |           |         | -            |
| - 3         | 2.8                | 736.2     |                       | Water  |                  |      |                       |                       |           |         | _            |
|             |                    |           |                       | vvater   |                  |      |                       |                       |           |         |              |
| - 4         |                    |           |                       |  |                  |      |                       |                       |           |         | _            |
| - 5         |                    |           |                       |  |                  |      |                       |                       |           |         | _            |
| - 6         |                    |           |                       |  |                  |      |                       |                       |           |         | _            |
| - 7         | 7.0                | 732.0     |                       |  |                  |      |                       |                       |           |         | _            |
| , '         |                    |           | \ /                   | No recovery  |                  |      | SS01                  | 7.0 - 8.5             | 7.0 -     | 0.0     | WR-1-2       |
| - 8         |                    |           | $  \setminus   /  $   |  |                  |      | 0001                  | 7.0 - 0.0             | 8.5       | 0.0     | VVIX-1-Z _   |
| - 9         |                    |           | $  \setminus /  $     |  |                  |      |                       |                       |           |         | -            |
| <b>–</b> 10 |                    |           | $  \cdot   / \cdot  $ |  |                  |      |                       |                       | 9.5       | 1       | <del>.</del> |
|             |                    |           |                       |  |                  |      | SS02                  | 9.5 - 11.0            | - 11.0    | 0.0     | WH-WH-WH     |
| - 11        |                    |           | $  \ / \setminus  $   |  |                  |      |                       |                       |           |         | _            |
| - 12        |                    |           | $ \ /\ \setminus  $   |  |                  |      |                       |                       | 12        |         | _            |
| - 13        |                    |           | /                     |  |                  |      | SS03                  | 12.0 - 13.5           | .0 - 13.5 | 0.0     | WR-WR-WH_    |
| _ 11        | 14.0               | 725.0     | /                     |  |                  |      |                       |                       | 01        |         | _            |
| - 14        |                    |           |                       | SILT, ML, 10YR 4/2 (dark grayish brown                         | n), non-plastic  |      |                       |                       |           |         | _            |
| - 15        |                    |           |                       | to low plasticity, very soft, wet                              |                  |      | SS04G                 | 14.5 - 16.0           | 4.5 - 1   | 0.8     | WH-WH-WH     |
| - 16        | 16.5               | 722.5     |                       |  |                  |      |                       |                       | 3.0       | -       | -            |
| – 17        | 10.5               | 122.0     |                       | SILT WITH SAND, ML, 5YR 6/6 (reddis                            | h yellow) to     |      |                       |                       |           |         | _            |
|             |                    |           |                       | 5YR 6/1 (gray), fine, non-plastic to low p                     |                  |      | SS05G                 | 17.0 - 18.5           | 17.0-     | 0.5     | WH-WH-WH     |
| – 18        |                    |           |                       | loose to loose, moist  |                  |      |                       | 0.0                   | 18.5      |         | <u>-</u> -   |
| - 19        |                    |           |                       |  |                  |      |                       |                       |           |         | -            |
| -00         |                    |           |                       |  |                  |      |                       |                       |           |         |              |



| CI                   | ient E  | Borehole       | ID N/A              |   | Sta     | antec Borinç | g N  | o. KIF-E              | 310                        |                |            |               |
|----------------------|---|----------------|---------------------|---|---------|--------------|------|-----------------------|----------------------------|----------------|------------|---------------|
| CI                   | ient  |                | Tennes              | see Valley Authority  |         | ring Locatio |      |                       | 60 N; 2,408,280            | 0.40           | E NAD83    | 3             |
| Pr                   | oject   | Number         | 175668              | 043   | Su      | rface Eleva  | tior | 739.0 ft              | Elevatio                   | on E           | Datum_     | NGVD29        |
|                      | l   | ithology       |                     |   | $\Box$  | Overburden:  | 5    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>      |                | Rec. Ft    | Blows/PSI     |
| Dept                 | h Ft <sup>3</sup>   | Elevation      | Graphic             | Description   |         | Rock Core:   |      | RQD %                 | Run Ft                     |                | Rec. Ft    | Rec. %        |
| - 20                 |   |                |                     |   |         |              |      | SS06G                 | 19.5 - 21.0                | 19.5 - 21      | 0.4        | WH-4-4        |
| - 22<br>- 23         | 21.5  | 717.5          |                     | LEAN CLAY, CL, 7.5YR 5/1 (gray) to 7 (strong brown), medium plasticity, firm trace fine sand  |         |              |      | SS07G                 | 22.0 - 23.5                | .0 22.0 - 23.5 | 1.3        | -<br>3-4-7 _  |
| - 24<br>- 25<br>- 26 | 26.5  | 712.5          |                     |   |         |              |      | SS08G                 | 24.5 - 26.0                | 24.5 - 26.0    | 1.3        | 3-3-5         |
| - 27<br>- 28<br>- 29 |   |                |                     | CLAYEY SILTY SAND, SM, 7.5YR 4/1 very fine to fine, non-plastic to low plast loose, moist to wet, decreasing clay codepth   | sticity | y, very      |      | SS09G                 | 27.0 - 28.5                | 27.0 - 28.5    | 1.3        | WH-WH-WH_     |
| - 30<br>- 31         | 31.5  | 707.5          |                     |   |         |              |      | SS10aG<br>SS10bG      | 29.5 - 30.0<br>30.0 - 31.0 | 29.5 - 31.0    | 1.4        | WH-WH-WH<br>- |
| - 32<br>- 33         |   |                |                     | POORLY GRADED SAND WITH SILT 7.5YR 4/1 (dark gray), very fine to med loose, wet   |         |              |      | SS11G                 | 32.0 - 33.5                | 32.0 - 33.5    | 0.8        | WH-WH-1 _     |
| - 34<br>- 35 -       | 35.0  | 704.0          |                     | Sandstone, dark gray to tan, medium of completely weathered to highly weather   | -       | ed, soft,    |      | SS12a<br>SS12bG       | 34.5 - 35.0<br>35.0 - 36.0 | 34.5 - 36.0    | 1.2        | 10-15-24      |
| - 36<br>- 37         | 36.5<br>37.2  | 702.5<br>701.8 |                     | Shale, dark brown to gray, very soft, hi  |         |              |      | SS13G                 | 37.0 - 37.2                | 37.            | 0.2        | 50/2" =       |
|                      |   |                |                     | Refusal / Bottom of Hole at 37.2 Ft.  |         | /            |      |                       |                            | )-37.2         |            | -             |
|                      |   |                |                     | Top of Rock = 35.0 Ft. Top of Rock Elevation = 704.0 Ft.  |         |              |      |                       |                            |                |            | _             |
|                      |   |                | reflects<br>from te | ntal coordinates collected at time of drillir<br>s the top of steel casing. Top of casing elemporary benchmark established by TVA<br>rner of the KIF-AD-2 concrete pad. | evati   | on was measu | ıred | using autor           | matic level and            | leve           | I rod refe | renced        |
|                      | 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples 3: Depths are reported in feet below ground surface |                |                     |   |         |              |      |                       |                            |                |            |               |



| C           | lient E             | Borehole   | ID _N/A  | 4  | Stantec Boring   | g N       | lo. KIF-I             | B11                   |          |          |  |
|-------------|---------------------|------------|----------|--|------------------|-----------|-----------------------|-----------------------|----------|----------|--|
| C           | Client              |            | Tennes   | ssee Valley Authority                          | Boring Location  |           |                       | 20 N; 2,408,302       | .40 F    | <u> </u> | <u>;                                    </u> |
| F           | 'roject             | Number     | 175668   | 5043   | Surface Eleva    | ıtioı     | n <u>739.2 ft</u>     | Elevatio              | n D      | atum_r   | NGVD29                                       |
| F           | 'roject             | Name       | KIF TD   | EC Order                                       | Date Started     | _         | 2/1/21                | Comple                | ted      | 2/2/21   | 1  |
|             | •                   | Location   |          | rriman, Tennessee                              | Depth to Wate    | er _      | N/A                   | Date/Tir              | me       | N/A      |  |
|             | •                   | tor T. Gr  |          | Logger T. Greenwell                            | Depth to Wate    |           |                       | Date/Tir              | me       | N/A      |  |
|             | •                   |            |          | antec Consulting Services Inc.                 | Drill Rig Type   |           |                       |                       |          |          |  |
|             |                     |            | •        | I Sampling Tools (Type and Size)               |                  | Jpdr      | aft Bit, 2" S         | S w/o liners, 3"      | ST       |          |  |
|             |                     | _          | •        | ling Tools (Type and Size) N/A                 |                  |           |                       |                       |          |          |  |
|             |                     | _          |          | and Size) N/A                                  |                  |           |                       | Overdrill             |          |          | N/A  |
|             |                     |            |          | Automatic Weight 140 lb                        |                  |           |                       | Efficiency            |          | 39.8%    |  |
|             |                     | ole Azimut |          | N/A  | Borehole Incli   |           | •                     | · —                   | N/A      | 4        |  |
| r           | leview              | ed By _    | J. Mus   | sselman  | Approved By      | _         | A. Welshan            | IS                    | _        |          |  |
|             |                     | Lithology  |          |  | Overburden:      |           | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |          | Rec. Ft  | Blows/PSI                                    |
| Dep         | oth Ft <sup>3</sup> | Elevation  | Graphic  | Description                                    | Rock Core:       | Ļ         | RQD %                 | Run Ft                |          | Rec. Ft  | Rec. %                                       |
| - 0         | 0.0                 | 739.2      |          | Top of Hole                                    |                  | $\coprod$ |                       |                       | 1        |          | _  |
|             |                     | '          |          | Steel casing                                   |                  |           |                       |                       |          |          |  |
| - 1         |                     | '          |          | I  |                  |           |                       |                       |          |          | 7  |
| - 2         |                     | '          |          | I  |                  |           |                       |                       |          |          | _  |
| - 3         | 2.8                 | 736.4      | <u> </u> |  |                  |           |                       |                       |          |          | _  |
| - s         |                     | '          |          | Water  |                  |           |                       |                       |          |          |  |
| - 4         |                     | '          |          | I  |                  |           |                       |                       |          |          | . 4  |
| - 5         |                     | '          |          | I  |                  |           |                       |                       |          |          | _  |
|             |                     | '          |          | I  |                  |           |                       |                       |          |          |  |
| - 6         |                     | '          |          | I  |                  |           |                       |                       |          |          | -  |
| - 7         |                     | '          |          | I  |                  |           |                       |                       |          |          | <u> </u>                                     |
| 6           |                     | '          |          | I  |                  |           |                       |                       |          |          | <br> -                                       |
| - 8         |                     | '          |          | I  |                  |           |                       |                       |          |          | _  |
| - 9         |                     | '          |          | I  |                  |           |                       |                       |          |          | _  |
| <b>–</b> 10 |                     | '          |          | I  |                  |           |                       |                       |          |          | . <u> </u>                                   |
|             |                     | '          |          | I  |                  |           |                       |                       |          |          | ŀ  |
| - 11        |                     |            |          | I  |                  |           |                       |                       |          |          | , -  |
| - 12        | 11.9                | 727.3      |          | SILT WITH SAND, ML, 10YR 4/2 (dark             | k gravish        |           |                       |                       | =        |          |  |
| - 13        |                     | '          |          | brown), non-plastic, very soft, wet            | K grayisii       |           | SS01G                 | 11.9 - 13.4           | .9-13    | 0.2      | WR-WR-WR                                     |
| - 15        | 13.9                | 725.3      |          | ,  |                  |           |                       |                       | 4        |          |  |
| - 14        | 10.0                | 720.0      |          | LEAN CLAY, CL, 10YR 4/2 (dark grayi            | ish brown), low  |           |                       |                       |          |          | 4  |
| - 15        |                     | '          |          | to medium plasticity, very soft, wet           | ,,               |           | 22222                 |                       | 14.5     |          | · · · · · · · · · · · · · · · · · · ·        |
|             |                     | '          |          | l  |                  |           | SS02G                 | 14.5 - 16.0           | 16.0     | 1.1      | WH-WH-WH                                     |
| – 16        | 16.5                | 722.7      | ///      |  |                  |           |                       |                       |          |          | <del>-</del>                                 |
| - 17        |                     | '          |          | LEAN CLAY, CL, 5YR 6/6 (reddish yel            | ·                |           |                       |                       |          | 1        | _  |
| – 18        |                     | '          |          | 6/1 (gray), low to medium plasticity, ve moist | ry soft to firm, |           | SS03G                 | 17.0 - 18.5           | 7.0 - 18 | 0.7      | WH-1-2                                       |
|             |                     | '          |          |  |                  |           |                       |                       | 3.5      | 4        |  |
| - 19        |                     | '          |          | I  |                  |           |                       |                       |          |          |  |
|             |                     | 1          | V/I      | ı  |                  |           |                       |                       | 12       | الا      |  |



Page: 2 of 2

|              | liont E            | Borehole               | ID N/A              |   | Stor      | ntec Borinç      | , N   | 。KIF-F                | 311                        |             |          |                     |
|--------------|--------------------|------------------------|---------------------|---|-----------|------------------|-------|-----------------------|----------------------------|-------------|----------|---------------------|
| l            | lient              | oorenole               |                     | see Valley Authority  |           | ing Locatio      |       |                       | 20 N; 2,408,302            | <br>2 40 I  | = NAD8:  | 3                   |
|              |                    | Number                 |                     | -   |           | face Eleva       |       |                       | Elevation                  |             |          | -                   |
|              | -                  |                        |                     |   |           | Overburden:      |       | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>      |             | Rec. Ft  | Blows/PSI           |
| Den          | th Ft <sup>3</sup> | _ithology<br>Elevation | Graphic             | Description   | -         | Rock Core:       |       | RQD %                 | Run Ft                     |             | Rec. Ft  | Rec. %              |
|              |                    | Liovation              | Grapino             | Везеприон   |           | rtook ooro.      |       | 1102 70               | ranit                      | $\top$      | 1100.11  | 1100. 70            |
| - 20<br>- 21 |                    |                        |                     | LEAN CLAY, CL, 5YR 6/6 (reddish ye 6/1 (gray), low to medium plasticity, ve moist (Continued)   |           |                  |       | ST01G                 | 19.5 - 21.5                | 19.5 - 21.5 | 1.2      | NR -                |
| - 22         | 22.5               | 716.7                  |                     |   |           |                  |       | ST02G                 | 21.5 - 23.5                | 21.5-2      | 0.9      | -<br>NR             |
| - 23         |                    |                        |                     | LEAN CLAY WITH SAND, CL, 7.5YR 7.5YR 4/6 (strong brown), medium pla   |           | - /              |       |                       |                            | 23.5        |          | -                   |
| - 24         |                    |                        |                     | moist   | asticity, | , 111111,        |       | SS04G                 | 23.5 - 25.0                | 23.5 - 2    | 1.5      | 5-5-6               |
| - 25         | 25.5               | 713.7                  |                     |   |           |                  |       |                       |                            | 5.0         |          | _                   |
| - 26<br>- 27 | 20.0               | 7 10.7                 |                     | SANDY LEAN CLAY, CL, 7.5YR 4/1 (<br>low plasticity, very soft, moist to wet, c<br>content with depth  |           |                  |       | SS05G                 | 26.0 - 27.5                | 26.0 - 27   | 1.5      | -<br>WH-WH-WH_      |
|              |                    |                        |                     |   |           |                  |       |                       |                            | 7.5         |          |                     |
| - 28<br>- 29 |                    |                        |                     |   |           |                  |       | SS06G                 | 28.5 - 30.0                | 28.5 - 30   | 1.5      | WR-WR-WH            |
| - 30         |                    |                        |                     |   |           |                  |       |                       |                            | 0.0         |          | _                   |
| - 31         |                    |                        |                     |   |           |                  | SS07G |                       | ų                          |             | -        |                     |
| - 32         |                    |                        |                     |   |           |                  |       | SS07G                 | 31.0 - 32.5                | 1.0 - 32.5  | 0.9      | WR-WH-1 _           |
| - 33         |                    |                        |                     |   |           |                  |       |                       |                            | 1           |          | -                   |
| - 34         | 34.6               | 704.6                  |                     | Color change to 2.5 Y 6/2 (light brown 33.5'  | nish gra  | ay) at           |       | SS08aG                | 33.5 - 34.6                | 33.5 - 35.0 | 1.2      | 1-4-13 <sup>–</sup> |
| - 35         |                    |                        |                     | Sandstone, dark gray to tan, medium   | graine    | d, soft,         |       | SS08bG<br>SS09G       | 34.6 - 35.0<br>35.0 - 35.8 | 5.0 35.0    | 0.5      | —<br>19-50/4"       |
|              | 35.8               | 703.4                  |                     | completely weathered to highly weath  | nered     |                  |       | 3309G                 | 35.0 - 35.6                | 35.8        | 0.5      | 19-50/4             |
|              |                    |                        |                     | Refusal /<br>Bottom of Hole at 35.8 Ft.   |           |                  |       |                       |                            |             |          | -                   |
|              |                    |                        |                     | Top of Rock = 34.6 Ft. Top of Rock Elevation = 704.6 Ft.  |           |                  |       |                       |                            |             |          | _                   |
|              |                    |                        |                     |   |           |                  |       |                       |                            |             |          | =                   |
|              |                    |                        | Overb               | urden Drilling and Sampling Tools (Type   | and Si    | ize): 3-7/8" (to | o 21  | .5' below to          | p of casing) ar            | nd 5-       | 7/8" Mud | _<br>i              |
|              |                    |                        |                     | , 2" SS w/o liners, 3" Shelby Tubes.  |           | , (              |       |                       | . 37                       |             |          | -                   |
|              |                    |                        | reflects<br>from te | ntal coordinates collected at time of drillings the top of steel casing. Top of casing elemporary benchmark established by TVA priner of the KIF-AD-2 concrete pad. | levatio   | n was measu      | ıred  | using autor           | natic level and            | level       | rod refe | renced              |
|              |                    |                        | G =                 | Environmental Sample Custody (two Spl<br>Geotechnical Sample Custody<br>c denote Split Spoon divided between Er   | ·         | •                | •     |                       |                            | nple)       |          | -                   |

3: Depths are reported in feet below ground surface



|      |                    |           |         |   |                  |       | 1715                  |                       |          |          |           |
|------|--------------------|-----------|---------|---|------------------|-------|-----------------------|-----------------------|----------|----------|-----------|
|      |                    | Borehole  |         |   | Stantec Borir    |       |                       |                       |          |          |           |
|      | lient              |           |         | ssee Valley Authority   | Boring Locat     |       |                       | 10 N; 2,408,318       |          |          |           |
|      | -                  | Number    |         |   | Surface Elev     |       |                       | Elevatio              |          | -        |           |
|      | -                  | Name      |         | EC Order  | Date Started     | _     | 2/2/21                | Comple                |          |          | 1         |
|      | -                  | Location  |         | rriman, Tennessee   | Depth to Wat     | _     | N/A                   | Date/Tii              |          | N/A      |           |
|      | •                  | or T. Gr  |         | Logger T. Greenwell   | Depth to Wat     | _     |                       | Date/Tii              | me       | N/A      |           |
|      | -                  |           |         | antec Consulting Services Inc.<br>I Sampling Tools (Type and Size             | Drill Rig Type   |       |                       |                       | Shal     | by Tubos |           |
|      |                    |           | -       | ling Tools (Type and Size) N//  | ·                | Opui  | alt Dit, Z O          | 5 W/O lillers, 5      | Onei     | by Tubes | <u> </u>  |
|      |                    | •         | •       | and Size) N/A   |                  |       |                       | Overdrill             | De       | pth      | N/A       |
|      |                    | _         |         | Automatic Weight 140  | lb Drop          | 30"   |                       | Efficiency            |          | 9.8%     |           |
|      |                    | le Azimu  |         | N/A   | Borehole Inc     |       | tion (from            | •                     | N/A      | 4        |           |
| F    | Review             | ed By     | J. Mu   | sselman   | Approved By      |       | A. Welshan            | is                    |          |          |           |
|      |                    | Lithology |         |   | Overburden       | :   - | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |          | Rec. Ft  | Blows/PSI |
| Dep  | th Ft <sup>3</sup> | Elevation | Graphic | Description   | Rock Core:       |       | RQD %                 | Run Ft                |          | Rec. Ft  | Rec. %    |
|      | 0.0                | 739.2     |         | Top of Hole   | '                |       |                       |                       |          |          |           |
| - 0  |                    |           |         | Steel casing  |                  |       |                       |                       |          |          | _         |
| - 1  |                    |           |         |   |                  |       |                       |                       |          |          | -         |
| - 2  |                    |           |         |   |                  |       |                       |                       |          |          | -         |
|      | 2.8                | 736.4     |         |   |                  |       |                       |                       |          |          |           |
| - 3  |                    |           |         | Water   |                  |       |                       |                       |          |          | _         |
| - 4  |                    |           |         |   |                  |       |                       |                       |          |          | -         |
| - 5  |                    |           |         |   |                  |       |                       |                       |          |          | _         |
| _    |                    |           |         |   |                  |       |                       |                       |          |          |           |
| - 6  |                    |           |         |   |                  |       |                       |                       |          |          | _         |
| - 7  |                    |           |         |   |                  |       |                       |                       |          |          | -         |
| - 8  |                    |           |         |   |                  |       |                       |                       |          |          | -         |
| - 9  |                    |           |         |   |                  |       |                       |                       |          |          |           |
| – 9  |                    |           |         |   |                  |       |                       |                       |          |          |           |
| - 10 |                    |           |         |   |                  |       |                       |                       |          |          | _         |
| - 11 |                    |           |         |   |                  |       |                       |                       |          |          | -         |
| - 12 |                    |           |         |   |                  |       |                       |                       |          |          | _         |
|      |                    |           |         |   |                  |       |                       |                       |          |          |           |
| - 13 | 13.6               | 725.6     |         |   |                  |       |                       |                       |          |          | _         |
| - 14 | 14.5               | 724.7     |         | SANDY SILT, ML, 7.5YR 3/2 (dark br  | rown),           |       | SS01aG                | 13.6 - 14.6           | 13.6     |          |           |
| - 15 | 14.5               | 124.1     |         | non-plastic, very soft, wet, sediment   |                  | 11    | SS01bG                | 14.6 - 15.1           | - 15.1   | 0.9      | WR-WR-WH  |
|      |                    |           |         | LEAN CLAY, CL, 10YR 4/2 (dark grate to medium plasticity, very soft, wet      | yish brown), low |       |                       |                       |          |          |           |
| - 16 | 16.5               | 722.7     |         | to modium plasticity, very soit, wet  |                  |       |                       |                       | 16.0     |          | _         |
| - 17 |                    |           |         | SANDY LEAN CLAY TRACE GRAVE   |                  |       | SS02G                 | 16.0 - 17.5           | ) - 17.5 | 0.3      | WH-WH-WH_ |
| – 18 |                    |           |         | (reddish yellow) to 5YR 6/1 (gray), ve low to medium plasticity, very soft to |                  |       |                       |                       |          |          | _         |
|      |                    |           |         |   |                  |       |                       |                       |          |          |           |
| – 19 |                    |           |         |   |                  |       | ST01G                 | 18.3 - 20.3           | 3.3 - 20 | 1.9      | NR        |
| 00   |                    | I         | Y / / / | 1   |                  | 1     | 1                     |                       | 10/      | J        |           |



| С            | lient E            | Borehole       | ID N/A              |  | Stantec Boring No. KIF-B12 |      |                      |                            |             |          |                       |
|--------------|--------------------|----------------|---------------------|--|----------------------------|------|----------------------|----------------------------|-------------|----------|-----------------------|
| С            | lient              |                | Tennes              | see Valley Authority   | Boring Locatio             |      |                      | I0 N; 2,408,318            | 3.70 I      | E NAD83  | 3                     |
| P            | roject             | Number         | 175668              | 043  | Surface Elevat             | tion | 739.2 ft             | Elevatio                   | on D        | atum_    | NGVD29                |
|              | L                  | ithology       |                     |  | Overburden:                | S    | ample <sup>1,2</sup> | Depth Ft <sup>3</sup>      |             | Rec. Ft  | Blows/PSI             |
| Dep          | th Ft <sup>3</sup> | Elevation      | Graphic             | Description  | Rock Core:                 |      | RQD %                | Run Ft                     |             | Rec. Ft  | Rec. %                |
| - 20         |                    |                |                     | SANDY LEAN CLAY TRACE GRAVE<br>(reddish yellow) to 5YR 6/1 (gray), ver   |                            |      |                      |                            | Z           |          | _                     |
| - 21<br>- 22 | 22.5               | 716.7          |                     | low to medium plasticity, very soft to fi<br>(Continued)   | •                          |      | ST02G                | 21.3 - 23.3                | 21.3 -      | 0.9      | NR -                  |
| - 23         |                    |                |                     | LEAN CLAY WITH SAND, CH, 7.5YR brown) with 7.5YR 5/1 (gray), medium  |                            |      | 31023                | 21.0 20.0                  | 23.3 23     | 0.0      | -                     |
| - 24<br>- 25 | 25.3               | 713.9          |                     | hard, moist, fine sand   |                            |      | SS03G                | 23.3 - 24.8                | .3 - 24.8   | 1.2      | 8-6-6 <del>-</del>    |
| - 26         | 25.5               | 713.9          |                     | CLAYEY SILTY SAND, SM, 7.5YR 4/<br>very fine to fine, non-plastic to low pla   | sticity, very              |      |                      |                            | 25.         |          | -                     |
| - 27         |                    |                |                     | loose, moist to wet, decreasing clay of depth  | ontent with                |      | ST03G                | 25.8 - 27.8                | 8 - 27.8    | 1.9      | NR _                  |
| - 28<br>- 29 | 29.3               | 709.9          |                     |  |                            |      | SS04G                | 27.8 - 29.3                | 27.8 - 29.3 | 1.5      | WR-WR-WR              |
| - 30         |                    |                |                     | SILTY SAND, SM, 7.5YR 4/1 (dark gr fine, very loose, wet   | ay), very fine to          |      |                      |                            | ي           |          | _                     |
| - 31<br>- 32 | 32.3               | 706.9          |                     |  |                            |      | SS05G                | 30.3 - 31.8                | 0.3 - 31.8  | 1.2      | WR-WH-WH <sup>-</sup> |
| - 33<br>- 34 |                    |                |                     | POORLY GRADED SAND WITH SILT 6/2 (light brownish gray), very fine to r medium dense, wet   |                            |      | SS06G                | 32.8 - 34.3                | 32.8 - 34.3 | 1.0      | -<br>1-4-22<br>-      |
| - 35         | 35.3<br>35.6       | 703.9<br>703.6 |                     | Auger refusal at 34.8'   |                            |      | SS07aG<br>SS07bG     | 34.8 - 35.3<br>35.3 - 35.6 | 34.8        | 1.2      | —<br>4-15-38          |
| - 36         | 36.3               | 702.9          | $\smile$            | Sandstone, dark gray to blue green, n  | nedium grained,            |      | SS07cG               | 35.6 - 36.3                | 36.3        | 1.2      | 4-13-36               |
|              |                    |                |                     | Shale, dark brown to dark gray, very f<br>very soft, highly weathered, 45° beddi   | - 1                        |      |                      |                            |             |          | _                     |
|              |                    |                |                     | No Refusal /<br>Bottom of Hole at 36.3 Ft.   |                            |      |                      |                            |             |          | _                     |
|              |                    |                |                     | Top of Rock = 35.3 Ft. Top of Rock Elevation = 703.9 Ft.   |                            |      |                      |                            |             |          | _                     |
|              |                    |                | reflects<br>from te | ntal coordinates collected at time of drilli<br>s the top of steel casing. Top of casing e<br>emporary benchmark established by TVA<br>erner of the KIF-AD-2 concrete pad. | levation was measu         | ıred | using autor          | matic level and            | level       | rod refe | renced                |
|              |                    |                | G =<br>2: a,b,      | Environmental Sample Custody (two Spi<br>Geotechnical Sample Custody<br>c denote Split Spoon divided between Er  | nvironmental and Ge        |      |                      |                            | nple)       |          | -<br>-                |
|              |                    |                | 3: Dep              | ths are reported in feet below ground su   | rtace                      |      |                      |                            |             |          | -                     |



|      | \!'                 |           |         |   | 0, , ,                          |     | . KIE I               | D12                       |           |           |           |
|------|---------------------|-----------|---------|---|---------------------------------|-----|-----------------------|---------------------------|-----------|-----------|-----------|
|      |                     | Borehole  |         |   | Stantec Boring                  |     |                       |                           |           | E NIA DOO |           |
|      | Client              |           |         |   | Boring Location                 |     |                       | 10 N; 2,408,553           |           |           |           |
|      | •                   | Number    |         |   | Surface Eleva                   | IOI | -                     |                           |           |           |           |
|      | -                   | Name      |         |   | Date Started                    | _   | 2/13/21               | Comple                    |           |           | <u> </u>  |
|      | -                   | Location  |         |   | Depth to Water                  | _   |                       | Date/Ti                   |           |           |           |
|      |                     |           |         |   | Depth to Wate<br>Drill Rig Type | _   |                       | Date/Ti                   | me        | IN/A      |           |
|      | -                   |           |         | Sampling Tools (Type and Size)  | 0 ,                             |     |                       |                           | ST        |           |           |
|      |                     |           | -       | ling Tools (Type and Size) N/A  | 1 0/0 0 11mg 0                  | pui | an Bit, E             | <i>- 11/0 III 1010, 0</i> |           |           |           |
|      |                     | •         | •       | and Size) N/A   |                                 |     |                       | Overdrill                 | De        | epth N    | N/A       |
|      |                     | -         |         | Automatic Weight 140 lb   | Drop 3                          | 0"  |                       |                           |           | 89.8%     |           |
|      |                     | le Azimu  | • •     |   | Borehole Incli                  |     |                       | •                         | N/        | A         |           |
| F    | Review              | ed By     | J. Mu   |   | Approved By                     |     | A. Welshar            | · —                       |           |           |           |
|      |                     | Lithology |         |   | Overburden:                     |     | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>     |           | Rec. Ft   | Blows/PSI |
| Der  | oth Ft <sup>3</sup> | Elevation | Graphic | Description   | Rock Core:                      |     | RQD %                 | Run Ft                    |           | Rec. Ft   | Rec. %    |
|      | 0.0                 | 753.2     | Огартно | Top of Hole   | TOOK COIC.                      |     | TIGE 70               | Tunit                     |           | 1100.11   | 1100. 70  |
| - 0  | 0.0                 |           | 0303030 | Crushed stone   |                                 |     |                       |                           | 0         |           | _         |
| - 1  |                     |           |         |   |                                 |     | SS01G                 | 0.0 - 1.5                 | .0 - 1.5  | 1.5       | 8-16-23   |
|      |                     |           | 000000  |   |                                 |     |                       |                           | H         |           |           |
| - 2  |                     |           |         |   |                                 |     |                       |                           |           |           | -         |
| - 3  | 2.9                 | 750.3     |         |   |                                 |     | SS02aG                | 2.5 - 2.9                 | 2.        |           | _         |
| Ü    |                     |           |         | CLAYEY SAND, SC, 2.5YR 3/6 (dark re 2.5/1 (reddish black), low to medium pla      |                                 |     | SS02bG                | 2.9 - 4.0                 | 5-4.0     | 1.5       | 12-10-14  |
| - 4  |                     |           |         | medium dense to dense, moist, modera  |                                 |     |                       |                           | H         |           | -         |
| - 5  |                     |           |         | odor, [FILL]  |                                 |     |                       |                           |           |           | _         |
| 3    |                     |           |         | trace bottom ash layers intermixed belo   | w 3.6'                          |     |                       |                           | 5.0       |           |           |
| - 6  |                     |           |         |   |                                 |     | SS03G                 | 5.0 - 6.5                 | 5.0 - 6.5 | 0.8       | 6-5-8     |
| 7    |                     |           |         |   |                                 |     |                       |                           |           |           |           |
| - 7  | 7.5                 | 745.7     |         |   |                                 |     |                       |                           |           |           | -         |
| - 8  |                     |           |         | GRAVELLY LEAN CLAY, CL, 7.5YR 5/4   |                                 |     | SS04G                 | 7.5 - 9.0                 | 7.5-      | 1.1       | 18-13-19  |
|      |                     |           |         | 7.5YR 3/1 (very dark gray), low plasticity moist, weathered shale fill, [FILL]    | y, very nard,                   |     | 33040                 | 7.5 - 9.0                 | 9.0       | '.'       | 10-13-19  |
| - 9  | 9.5                 | 743.7     | ///     | , , , , , , , , , , , , , , , , , , ,   |                                 |     |                       |                           |           |           | -         |
| - 10 |                     |           |         | CLAYEY SAND WITH GRAVEL, SC, 7.   |                                 |     |                       |                           | Н         |           | _         |
|      |                     |           |         | (brown) to 7.5YR 3/2 (dark brown), low loose to loose, moist to wet, slight organ |                                 |     | SS05G                 | 10.0 - 11.5               | 10.0 -    | 1.2       | 3-3-4     |
| - 11 |                     |           |         | oxide staining, fine to coarse sand, fine   | gravel, layers                  |     |                       |                           | 11.5      |           | -         |
| - 12 |                     |           |         | of silty to clayey medium-grained gravel thick, [FILL]                            | I up to 6"                      |     |                       |                           |           |           | -         |
|      |                     |           |         | unck, [rill]  |                                 |     |                       |                           |           |           |           |
| - 13 |                     |           |         |   |                                 |     | SS06G                 | 12.5 - 14.0               | 2.5 - 1   | 0.9       | 8-7-15    |
| - 14 |                     |           |         |   |                                 |     |                       |                           | 4.0       |           | -         |
|      |                     |           |         |   |                                 |     |                       |                           |           |           |           |
| - 15 |                     |           |         |   |                                 |     |                       |                           | =         |           | _         |
| - 16 |                     |           |         |   |                                 |     | SS07                  | 15.0 - 16.5               | 5.0 - 16. | 1.4       | 1-1-5     |
| 10   |                     |           |         |   |                                 |     |                       |                           | .5        |           |           |
| - 17 |                     |           |         |   |                                 |     |                       |                           |           |           | -         |
| _40  |                     |           |         |   |                                 |     |                       |                           |           |           |           |



| С                    | lient E            | Borehole  | ID N/A  |   | Stantec Boring                        | g N   | o. KIF-I              | 313                        |              |         |            |
|----------------------|--------------------|-----------|---------|---|---------------------------------------|-------|-----------------------|----------------------------|--------------|---------|------------|
| С                    | lient              |           | Tennes  | see Valley Authority  | Boring Location                       |       |                       | 10 N; 2,408,553            | 3.07 I       | E NAD83 |            |
| Р                    | roject             | Number    | 175668  | 043   | Surface Eleva                         | atior | 753.2 ft              | Elevatio                   | on D         | atum_ ı | NGVD29     |
|                      |                    | Lithology |         |   | Overburden:                           | 5     | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>      |              | Rec. Ft | Blows/PSI  |
| Dep                  | th Ft <sup>3</sup> | Elevation | Graphic | Description   | Rock Core:                            |       | RQD %                 | Run Ft                     |              | Rec. Ft | Rec. %     |
| - 18                 |                    |           |         | CLAYEY SAND WITH GRAVEL, SC, (brown) to 7.5YR 3/2 (dark brown), lo  |                                       |       | SS08G                 | 17.5 - 19.0                | 17.5 - 19.   | 0.2     | 10-2-3     |
| - 19<br>- 20<br>- 21 |                    |           |         | loose to loose, moist to wet, slight orgoxide staining, fine to coarse sand, find fight silty to clayey medium-grained grathick, [FILL] (Continued) | ganic odor, iron<br>ne gravel, layers |       | SS09G                 | 20.0 - 21.5                | 0 20.0 - 21. | 0.5     | 2-1-1 _    |
| - 22                 | 22.0               | 731.2     |         | SANDY LEAN CLAY, CL, 7.5YR 4/1  | (dark gray) to                        |       |                       |                            | 5            |         | -          |
| - 23<br>- 24         | 24.0               | 729.2     |         | 7.5YR 5/6 (strong brown), medium pl<br>soft, moist, slight organic odor   |                                       |       | SS10                  | 22.5 - 24.0                | 22.5 - 24.0  | 1.3     | 1-1-1<br>- |
| - 25                 |                    |           |         | SANDY LEAN CLAY, CL, 7.5YR 5/6 low to medium plasticity, very soft, m   |                                       |       | 22.4                  |                            | 25           |         | _          |
| - 26                 |                    |           |         |   |                                       |       | SS11a                 | 25.0 - 26.0                | 5.0 - 26.    | 1.4     | 1-1-2      |
|                      | 27.0               | 726.2     |         |   |                                       |       | SS11bG                | 26.0 - 26.5                | 5            |         |            |
| - 27<br>- 28         |                    |           |         | SILTY SAND, SM, 7.5YR 4/4 (brown (light brown), fine to medium, very loo moist  |                                       |       | SS12G                 | 27.5 - 29.0                | 27.5 - 29.0  | 1.5     | WH-1-2     |
| - 29<br>- 30         |                    |           |         |   |                                       |       |                       |                            |              |         | _          |
| - 31                 |                    |           |         |   |                                       |       | ST01G                 | 30.0 - 32.0                | 30.0 - 32.0  | 2.0     | NR -       |
| - 32                 |                    |           |         |   |                                       |       |                       |                            |              |         | _          |
| - 33                 |                    |           |         |   |                                       |       | SS13                  | 32.0 - 33.5                | 2.0 - 33.5   | 0.0     | 2-3-4      |
| - 34                 |                    |           |         |   |                                       |       |                       |                            |              |         | _          |
| - 35                 |                    |           |         |   |                                       |       | SS14G                 | 34.5 - 36.0                | 34.5 - 36.0  | 1.5     | 2-3-3      |
| - 36<br>37           | 36.5               | 716.7     |         | SILTY SAND, SM, 5YR 5/8 (yellowis   | h red) to 5YR                         |       |                       |                            |              |         | _          |
| - 37<br>- 38         |                    |           |         | 4/2 (dark reddish gray), fine, loose, m   |                                       |       | SS15G                 | 37.0 - 38.5                | 37.0 - 38.5  | 1.4     | 2-2-3      |
| - 39                 | 39.0               | 714.2     |         | SILTY SAND, SM, 7.5YR 4/4 (brown  | ), fine to                            |       |                       |                            |              |         | _          |
| - 40                 |                    |           |         | medium, very loose to loose, moist, t<br>shale fragments  |                                       |       | SS16aG<br>SS16b       | 39.5 - 39.7<br>39.7 - 41.0 | 39.5 - 41.   | 1.5     | 3-2-1      |
| - 41<br>- 42         |                    |           |         |   |                                       |       |                       |                            | 0            |         | _          |



Page: 3 of 3

| С            | lient E   | Borehole  | ID N/A   | \  | Stantec Boring   | y N         | o. KIF-E              | 313                           |             |         |              |  |
|--------------|---|-----------|--|--|--|-------------|-----------------------|-------------------------------|-------------|---------|--------------|--|
| С            | lient   |           | Tennes   | see Valley Authority   | Boring Location  |             |                       | 10 N; 2,408,553               | .07         | E NAD83 |              |  |
| P            | medium, very loose to loose shale fragments (Continue)  SILTY GRAVEL WITH SAN brown), medium dense, wet to coarse gravel  Sandstone, light tan to orang moderately hard, highly weathered, 6  No Refusal / Bottom of Hole at 50.3 Ft.  Top of Rock = 48.8 Ft. Top of Rock Elevation = 704  Mud Rotary began at 17.0' bgs.  Overburden Drilling and Sampling To Bit (from 17.0' bgs), 2" SS w/o liners, Vibrating wire piezometer installed. S |           |  | 9043   | Surface Elevation 753.2 ft Elevation Datum NGVD29                      |             |                       |                               |             |         |              |  |
|              | ı   | Lithology |  |  | Overburden:  | 5           | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>         |             | Rec. Ft | Blows/PSI    |  |
| Dep          | th Ft <sup>3</sup>  | Elevation | Graphic  | Description  | Rock Core:   |             | RQD %                 | Run Ft                        |             | Rec. Ft | Rec. %       |  |
| - 43<br>- 44 | 44.0  | 709.2     |  | SILTY SAND, SM, 7.5YR 4/4 (brown) medium, very loose to loose, moist, tr shale fragments (Continued) |  |             | SS17                  | 42.0 - 43.5                   | 42.0 - 43.5 | 1.1     | 3-4-4 _      |  |
| - 45<br>- 46 |   |           |  | SILTY GRAVEL WITH SAND, GM, 7. brown), medium dense, wet, fine to co to coarse gravel                |  |             | SS18                  | 44.5 - 46.0                   | 44.5 - 46.0 | 0.0     | 21-9-10      |  |
| - 47<br>- 48 | 48.8  | 704.4     |  |  |  |             | SS19G                 | 47.0 - 48.5                   | 47.0 - 48.5 | 0.9     | 12-9-11<br>_ |  |
| - 49<br>- 50 | 49 49.3 703.9 Sandstone, light tan to orange, medium grained, moderately hard, highly weathered SS20G 48.8 - 50.3   |           |  |  |  |             |                       |                               |             |         |              |  |
|              |   |           | Overb<br>Bit (fro<br>Vibrati<br>1: E =<br>G =<br>2: a,b, | Top of Rock Elevation = 704.4 Ft.  | Tubes.  13 installation detail lit Spoons may be renvironmental and Go | for<br>equi | backfill info         | rmation.<br>In sufficient sam |             |         | - podraft    |  |
|              |   |           |  |  |  |             |                       |                               |             |         | <del>-</del> |  |



| С          | lient E            | Borehole  | IDN/A          | A  | Stantec Boring  | g N  | lo. KIF-I             | B14                   |          |         |           |  |
|------------|--------------------|-----------|----------------|--|---|------|-----------------------|-----------------------|----------|---------|-----------|--|
| С          | lient              |           | Tennes         | ssee Valley Authority  | Boring Location                                       | on   | 574,839.5             | 50 N; 2,408,620       | .30      | E NAD83 | 3         |  |
| P          | roject             | Number    | 175668         | 8043   | Surface Eleva   | tio  | n <u>738.4 ft</u>     | Elevatio              | n E      | oatum_  | NGVD29    |  |
|            | •                  | Name      |                | EC Order   | Date Started  | _    | 1/28/21               | Comple                |          |         | 21        |  |
|            | •                  | Location  |                | rriman, Tennessee  | Depth to Wate   | _    |                       | Date/Ti               |          | N/A     |           |  |
|            | •                  | or T. Gr  |                | Logger T. Greenwell  | Depth to Wate   | _    |                       | Date/Ti               | me       | N/A     |           |  |
|            | -                  |           |                | Intec Consulting Services Inc.   | Drill Rig Type  |      |                       |                       |          |         |           |  |
|            |                    |           | _              | l Sampling Tools (Type and Size)<br>ling Tools (Type and Size) N/A       |   | para | aπ Bit, 2" SS         | s w/o liners          |          |         |           |  |
|            |                    | •         | •              | ling Tools (Type and Size) <u>     N/A                              </u> |   |      |                       | Overdrill             | De       | nth     | N/A       |  |
|            |                    | _         |                | · · · · · · · · · · · · · · · · · · ·                                    | Overdrill Depth N/A  140 lb Drop 30" Efficiency 89.8% |      |                       |                       |          |         |           |  |
|            |                    | le Azimut | • •            | N/A  | Borehole Incli  |      | ion (from             | •                     | N/       |         |           |  |
|            |                    | ed By     |                | sselman  | Approved By   |      | A. Welshan            | · —                   |          |         |           |  |
|            |                    | Lithology |                |  | Overburden:   |      | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |          | Rec. Ft | Blows/PSI |  |
| Don        | th Ft <sup>3</sup> | Elevation | Graphic        | Description  | Rock Core:  |      | RQD %                 | Run Ft                |          | Rec. Ft | Rec. %    |  |
| Бер        | 0.0                | 738.4     | Grapriic       | Description Top of Hole  | Rock Core.  | П    | RQD %                 | Kull Ft               | П        | Rec. Ft | Rec. 70   |  |
| - 0        | 0.0                | 730.4     |                | Top of casing stickup  |   |      |                       |                       | +        |         |           |  |
| - 1        |                    |           |                | , op o. caomy chomap   |   |      |                       |                       |          |         | _         |  |
|            |                    |           |                |  |   |      |                       |                       |          |         |           |  |
| - 2        |                    |           |                |  |   |      |                       |                       |          |         | _         |  |
| - 3        | 3.0                | 735.4     |                |  |   |      |                       |                       |          |         | _         |  |
|            |                    |           |                | Water  |   |      |                       |                       |          |         |           |  |
| <b>-</b> 4 |                    |           |                |  |   |      |                       |                       |          |         | _         |  |
| - 5        |                    |           |                |  |   |      |                       |                       |          |         | _         |  |
| - 6        |                    |           |                |  |   |      |                       |                       |          |         |           |  |
|            |                    |           |                |  |   |      |                       |                       |          |         |           |  |
| - 7        | 7.4                | 731.0     |                |  |   |      |                       |                       |          |         | _         |  |
| - 8        |                    |           |                | SANDY SILT, ML, 7.5YR 4/1 (dark gra                                      |   |      |                       |                       | 7.       |         | _         |  |
|            |                    |           |                | (strong brown), non-plastic to low plast wet                             | ticity, very soft,                                    |      | SS01                  | 7.5 - 9.0             | 5-92     | 0.0     | WR-WR-WR  |  |
| - 9        |                    |           |                |  |   |      |                       |                       |          |         | _         |  |
| - 10       | 9.9                | 728.5     |                | DOODLY ODADED CAND WITH OUT  | 00.014  |      | SS02aG                | 9.5 - 10.0            |          |         | _         |  |
| ١          | 10.7               | 727.7     | •              | POORLY GRADED SAND WITH SILT 10YR 5/2 (grayish brown), fine to medi      |   |      | SS02bG                | 10.0 - 10.8           | 9.5 - 11 | 1.5     | 1-1-1     |  |
| - 11       |                    |           | <b>\</b> 1\1\1 | loose, wet   |   |      | SS02cG                | 10.8 - 11.8           | ω        |         | _         |  |
| - 12       |                    |           | 1111111        | SILTY SAND, SM, 7.5YR 4/4 (brown),                                       |   |      |                       |                       |          |         | _         |  |
| _ 12       |                    |           |                | medium, very loose to loose, moist, po                                   | orly graded   |      | SS03G                 | 12.0 - 13.5           | 2.0 - 1  | 0.9     | 2-1-1     |  |
| – 13       |                    |           | [[+[]+[]+]     |  |   |      |                       |                       | 3.5      |         |           |  |
| - 14       |                    |           | <b> </b>       |  |   |      |                       |                       |          |         | _         |  |
| – 15       |                    |           | [[+[]+[]+]     |  |   |      |                       |                       | 14.5     |         | _         |  |
|            |                    |           |                |  |   |      | SS04G                 | 14.5 - 16.0           | 5 - 16.0 | 1.5     | 3-2-4     |  |
| - 16       | 16.4               | 722.0     |                |  |   |      |                       |                       |          |         | _         |  |
| - 17       |                    |           |                | SILTY SAND, SM, 10YR 7/2 (light gray                                     |   |      |                       |                       |          |         | _         |  |
|            |                    |           | ╟╂╂╂╂          | (yellowish red), fine to medium, mediu                                   | m dense, moist  |      | SS05G                 | 17.0 - 18.5           | 17.0 -   | 1.1     | 4-7-7     |  |
| – 18       |                    |           | <u> </u>  }} } |  |   |      |                       |                       | 18.5     | '''     | • • • •   |  |
| 40         | 18.9               | 719.5     |                |  |   |      |                       |                       |          |         |           |  |



| Client                     | Client Borehole ID N/A Client Tennessee Valley Authority Project Number 175668043 |                              |  |                  | antec Boring                    | j N        | lo. KIF-I                     | B14                                |              |                          |                       |
|----------------------------|---|------------------------------|--|------------------|---------------------------------|------------|-------------------------------|------------------------------------|--------------|--------------------------|-----------------------|
| Client                     |   | Tennes                       | ssee Valley Authority  | Во               | ring Locatio                    | n          | 574,839.5                     | 50 N; 2,408,620                    | 0.30         | E NAD83                  |                       |
| Projec                     | t Number  | 175668                       | 3043   | Su               | ırface Elevat                   | tio        | n <u>738.4 ft</u>             | Elevation                          | on E         | Datum_r                  | NGVD29                |
|                            | Lithology   |                              |  |                  | Overburden:                     | (          | Sample <sup>1,2</sup>         | Depth Ft <sup>3</sup>              |              | Rec. Ft                  | Blows/PSI             |
| Depth Ft <sup>3</sup>      | Elevation   | Graphic                      | Description  |                  | Rock Core:                      |            | RQD %                         | Run Ft                             |              | Rec. Ft                  | Rec. %                |
| - 19<br>- 20               |   |                              | CLAYEY SILTY SAND, SM, 7.5YR 4/to medium, very loose, moist (Contin  |                  |                                 | •          | SS06G                         | 19.5 - 21.0                        | 19.5 - 21.   | 1.5                      | -<br>1-1-1            |
| - 21<br>- 22               | 745.5   |                              |  |                  |                                 |            |                               |                                    | 0 22.0       |                          | -                     |
| - 23   <u>22.9</u><br>- 24 | 715.5   |                              | SILTY SAND TRACE GRAVEL, SM, (strong brown), fine, very loose to loos  |                  |                                 |            | SS07                          | 22.0 - 23.5                        | - 23.5       | 0.0                      | 1-1-2 _<br>_          |
| - 25<br>- 26               |   |                              |  |                  |                                 |            | SS08G                         | 24.5 - 26.0                        | 24.5 - 26.0  | 1.3                      | 1-2-2                 |
| - 27<br>- 28<br>- 29       |   |                              |  |                  |                                 |            | SS09G                         | 27.0 - 28.5                        | 27.0 - 28.5  | 0.8                      | 11-4-3 _<br>-         |
| - 30<br>- 31<br>- 32       | 708.6   |                              | SILTY SAND WITH GRAVEL, SM, 7.9 brown), medium to coarse, dense to v fine to coarse sand, fine to coarse gra   | ery d            | ` `                             |            | SS10aG<br>SS10bG              | 29.5 - 29.8<br>29.8 - 31.0         | 29.5 - 31.0  | 1.3                      | 13-13-32 —<br>-       |
| - 33<br>- 34               |   |                              |  |                  |                                 |            | SS11G                         | 32.0 - 33.5                        | 32.0 - 33.5  | 1.2                      | 26-40-31 <sub>_</sub> |
| - 35<br>35.5<br>36.0       |   |                              | _ Shale, dark brown to gray, very soft, v  | /ery tl          | hin                             |            | SS12aG<br>SS12bG              | 34.5 - 35.5<br>35.5 - 36.0         | 34.5 - 36.0  | 1.5                      | 16-24-50              |
| 30                         |   |                              | bedded, highly weathered  Refusal / Bottom of Hole at 36.0 Ft.  Top of Rock = 35.5 Ft.  Top of Rock Elevation = 702.9 Ft.                                    |                  |                                 | •          |                               |                                    |              |                          | -                     |
|                            |   | reflect<br>from to<br>corner | ontal coordinates collected at time of drillist the top of steel casing. Top of casing emporary benchmark established by TVA of the KIF-105 concrete pad.    | levati<br>A. The | ion was measu<br>e temporary be | red<br>nch | l using autor<br>nmark refere | matic level and<br>enced for KIF-B | leve<br>14 w | l rod refei<br>as set at | renced –              |
|                            |   | G =<br>2: a,b,               | Environmental Sample Custody (two Spi<br>Geotechnical Sample Custody<br>c denote Split Spoon divided between En<br>oths are reported in feet below ground su | nviror           | nmental and Ge                  |            |                               |                                    | npie         | )                        | -                     |



| c  | Client E           | Borehole  | ID N/A         | 4  | Stantec Boring    | g N  | lo. KIF-I             | B15                   |         |              |                       |  |
|--|--------------------|-----------|----------------|--|-------------------|------|-----------------------|-----------------------|---------|--------------|-----------------------|--|
| C  | Client             |           | Tennes         | ssee Valley Authority  | Boring Location   | on   | 574,817.3             | 30 N; 2,408,631       | .80 E   | E NAD83      | 3                     |  |
| F  | roject             | Number    | 175668         | 3043   | Surface Eleva     | itio | n <u>739.1 ft</u>     | Elevation             | on D    | atum_        | NGVD29                |  |
| F  | roject             | Name      | KIF TD         | EC Order   | Date Started      | _    | 1/29/21               | Comple                | ted     | 1/30/2       | 21                    |  |
| F  | roject             | Location  | n <u>Ha</u>    | rriman, Tennessee  | Depth to Wate     | er _ | N/A                   | Date/Ti               | me      | N/A          |                       |  |
|  | •                  | or T. Gr  |                | Logger T. Greenwell  | Depth to Wate     | er _ | N/A                   | Date/Ti               | me      | N/A          |                       |  |
|  | •                  |           |                | antec Consulting Services Inc.   | Drill Rig Type    |      |                       |                       |         |              |                       |  |
|  |                    |           | -              | I Sampling Tools (Type and Size)   |                   | Jpdr | aft Bit, 2" S         | S w/o liners, 3"      | Shell   | by Tubes     | 3                     |  |
|  |                    | _         | •              | 9 (-)  |                   |      |                       |                       |         |              |                       |  |
|  |                    | _         |                | and Size) N/A  |                   |      |                       | Overdrill             |         |              | N/A                   |  |
|  | -                  |           |                | Automatic Weight 140 I   |                   |      |                       | Efficiency            |         | 89.8%        |                       |  |
|  |                    | le Azimu  |                | N/A  | Borehole Incli    |      | •                     | · —                   | N/A     | <del>\</del> |                       |  |
| Reviewed By J. Musselman Approved By A. Welshans |                    |           |                |  |                   |      |                       |                       |         |              |                       |  |
|  | l                  | Lithology |                |  | Overburden:       |      | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |         | Rec. Ft      | Blows/PSI             |  |
| Dep  | th Ft <sup>3</sup> | Elevation | Graphic        | Description  | Rock Core:        |      | RQD %                 | Run Ft                |         | Rec. Ft      | Rec. %                |  |
| - O  | 0.0                | 739.1     |                | Top of Hole  |                   |      |                       |                       | Ш       |              |                       |  |
|  |                    |           |                | Steel casing   |                   |      |                       |                       |         |              |                       |  |
| - 1  |                    |           |                |  |                   |      |                       |                       |         |              | _                     |  |
| - 2  |                    |           |                |  |                   |      |                       |                       |         |              | _                     |  |
| _  | 2.0                | 726.0     |                |  |                   |      |                       |                       |         |              |                       |  |
| - 3  | 2.9                | 736.2     |                | Water  |                   |      |                       |                       |         |              | _                     |  |
| ,  |                    |           |                |  |                   |      |                       |                       |         |              |                       |  |
| - 4  |                    |           |                |  |                   |      |                       |                       |         |              | _                     |  |
| - 5  |                    |           |                |  |                   |      |                       |                       |         |              | _                     |  |
|  |                    |           |                |  |                   |      |                       |                       |         |              |                       |  |
| - 6  |                    |           |                |  |                   |      |                       |                       |         |              | _                     |  |
| - 7  |                    |           |                |  |                   |      |                       |                       |         |              | -                     |  |
|  |                    |           |                |  |                   |      |                       |                       |         |              |                       |  |
| - 8  |                    |           |                |  |                   |      |                       |                       |         |              | _                     |  |
| - 9  |                    |           |                |  |                   |      |                       |                       |         |              | _                     |  |
|  |                    |           |                |  |                   |      |                       |                       |         |              |                       |  |
| - 10   |                    |           |                |  |                   |      |                       |                       |         |              | _                     |  |
| - 11   |                    |           |                |  |                   |      |                       |                       |         |              | _                     |  |
|  | 11.5               | 727.6     |                | OUT WITH CAND MI 40VP 4/0 / 1-   | la anno de la     |      | SS01aG                | 11.5 - 12.1           |         |              |                       |  |
| - 12   | 12.1               | 727.0     |                | SILT WITH SAND, ML, 10YR 4/2 (dar<br>brown), non-plastic, very soft, wet | k grayisn         |      | 330140                | 11.5 - 12.1           | 11.5    | 10           | -<br>-<br>-<br>-<br>- |  |
| - 13   |                    |           |                | SANDY LEAN CLAY, CL, 2.5Y 4/4 (ol  | ive brown) low    |      | SS01bG                | 12.1 - 13.5           | - 13.5  | 1.2          | WR-WR-WH              |  |
|  |                    |           |                | plasticity, very soft, wet   | 2. 2 , ,          |      |                       |                       |         |              |                       |  |
| - 14   | 14.5               | 724.6     |                |  |                   |      |                       |                       |         |              | _                     |  |
| - 15   |                    |           | ///            | CLAYEY SAND, SC, 5YR 6/6 (reddish  | n yellow) to 5YR  |      |                       |                       |         |              | _                     |  |
| 10   |                    |           |                | 6/1 (gray), very fine to fine, low plastic                               | ity, loose, moist |      | ST01G                 | 14.5 - 16.5           | 4.5 - 1 | 1.9          | 150                   |  |
| - 16   | 16.5               | 722.6     |                |  |                   |      |                       |                       | 6.5     |              | _                     |  |
| - 17   | 10.0               | 122.0     |                | SILTY SAND TRACE CLAY, SM, 7.5Y  | /R 6/4 (light     |      |                       |                       | 16.     |              |                       |  |
| '/   |                    |           | <u> </u>       | brown), very fine to fine, loose, moist                                  | . 3               |      | SS02G                 | 16.5 - 18.0           | 5 - 18. | 1.2          | 1-3-3                 |  |
| ۱  | 1                  | 1         | 11 1 1 1 1 1 1 | İ  |                   | 1 [  |                       |                       | 101     | ı 1          |                       |  |



| Client Tennessee Valley Authority Project Number 175668043 Surface Elevation 739.1 ft Elevation Datum_No.  | Client                | Borehole  | ID N/A             | A  | Sta       | antec Boring | g N  | o. KIF-E              | 315                   |             |             |          |
|--|-----------------------|-----------|--------------------|--|-----------|--------------|------|-----------------------|-----------------------|-------------|-------------|----------|
| Lithology  Depth Ft <sup>2</sup> Elevation   Caraphic   Description   Description   Rock Core:   RQD %   Run Ft   Rec. Ft    18  | Client                |           | Tennes             | ssee Valley Authority  |           |              |      |                       |                       | .80         | E NAD83     |          |
| Depth Ft <sup>3</sup> Elevation Graphic Description Rock Core: RQD % Run Ft Rec. Ft  18  | Projec                | t Number  | 175668             | 3043   | Su        | rface Eleva  | tior | 739.1 ft              | Elevatio              | n [         | Datum_ r    | NGVD29   |
| SILTY SAND TRACE CLAY, SM, 7.5YR 8/4 (light brown), very fine to fine, loose, moist (Continued)  SS03G 19.0 - 20.5   |                       | Lithology |                    |  |           | Overburden:  | 5    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |             | Rec. Ft     | Blows/PS |
| SSO3G 19.0 - 20.5 South brown), very fine to fine, loose, moist (Continued)  21.0 718.1 SILTY SAND TRACE CLAY, SM, 7.5YR 6/4 (light brown), low plasticity, very soft, moist  SILTY SAND, SM, 7.5YR 5/1 (gray), very fine to medium, very loose, moist  SSO4G 21.5 - 21.8 SO4G 21.8 - 23.0 South SSO4G | Depth Ft <sup>3</sup> | Elevation | Graphic            | Description  |           | Rock Core:   |      | RQD %                 | Run Ft                |             | Rec. Ft     | Rec. %   |
| 21.0 718.1 21.8 717.3 SANDY LEAN CLAY, CL, 7.5YR 4/4 (brown), low plasticity, very soft, moist SLTY SAND, SM, 7.5YR 5/1 (gray), very fine to medium, very loose, moist SS04bG 21.8 - 23.0 21.8 - 23.0 21.5 - 21.8 22.8 23.0 21.5 - 21.8 25.0 21.8 - 23.0 21.8 - 23.0  | - 19                  |           |                    | 1  |           |              |      | SS03G                 | 19.0 - 20.5           | 19.0 - 20   | 1.0         | 3-4-3    |
| 23 24 25 26 27 28 29 29.8 709.3 30.5 708.6   | 21 21.0               |           |                    |  | (browr    | n), low      |      | SS04aG                | 21.5 - 21.8           | .5 21.5     |             |          |
| 25 26 26.0 713.1 SILTY SAND TRACE GRAVEL, SM, 7.5YR 5/8 (strong brown), fine to medium, loose, wet  SS06G 26.5 - 28.0 SS07aG 29.0 - 29.8 SS07bG 29.8 - 30.5 SS07bG 29 |                       |           |                    |  | very fi   | ne to        |      | SS04bG                | 21.8 - 23.0           | - 23.0      | 1.1         | WR-1-1   |
| 27 (strong brown), fine to medium, loose, wet SS06G 26.5 - 28.0 0.9 0.9 29.8 709.3 0.5 708.6 0.0 0.9 29.8 709.3 0.5 708.6 0.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9  | 26.0                  | 713.1     |                    |  |           |              |      | SS05G                 | 24.0 - 25.5           | 24.0 - 25.5 | 1.4         | 1-1-1    |
| 29.8 709.3   | 28                    |           |                    |  |           | R 5/8        |      | SS06G                 | 26.5 - 28.0           | 26.5 - 28.0 | 0.9         | 3-1-4    |
| Sandstone, moderately hard, highly weathered  Refusal / Bottom of Hole at 31.1 Ft.  Top of Rock = 30.5 Ft. Top of Rock Elevation = 708.6 Ft.  Mud-rotary refusal at 30.5 feet btoc. Boring advanced using a 3-7/8 inch roller bit.  Horizontal coordinates collected at time of drilling using Trimble Geo7x handheld unit. Surface elevation shown reflects the top of steel casing. Top of casing elevation was measured using automatic level and level rod referer from temporary benchmark established by TVA. The temporary benchmark referenced for KIF-B15 was set at th corner of the KIF-105 concrete pad.  1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples  | 30.5                  | 708.6     |                    |  |           | ,            |      |                       |                       | 29.0 - 30.5 | 1.2         | 8-29-19  |
| Bottom of Hole at 31.1 Ft.  Top of Rock = 30.5 Ft. Top of Rock Elevation = 708.6 Ft.  Mud-rotary refusal at 30.5 feet btoc. Boring advanced using a 3-7/8 inch roller bit.  Horizontal coordinates collected at time of drilling using Trimble Geo7x handheld unit. Surface elevation shown reflects the top of steel casing. Top of casing elevation was measured using automatic level and level rod referer from temporary benchmark established by TVA. The temporary benchmark referenced for KIF-B15 was set at th corner of the KIF-105 concrete pad.  1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples  | 31   31.1             | 700.0     | l                  | Sandstone, moderately hard, highly   | weathe    | ered         |      |                       |                       |             |             |          |
| Horizontal coordinates collected at time of drilling using Trimble Geo7x handheld unit. Surface elevation shown reflects the top of steel casing. Top of casing elevation was measured using automatic level and level rod refereing from temporary benchmark established by TVA. The temporary benchmark referenced for KIF-B15 was set at the corner of the KIF-105 concrete pad.  1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples   |                       |           |                    | Bottom of Hole at 31.1 Ft.  Top of Rock = 30.5 Ft.                             |           |              |      |                       |                       |             |             |          |
| reflects the top of steel casing. Top of casing elevation was measured using automatic level and level rod referer from temporary benchmark established by TVA. The temporary benchmark referenced for KIF-B15 was set at the corner of the KIF-105 concrete pad.  1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples   |                       |           |                    | ,  |           | · ·          |      |                       |                       |             |             |          |
| G = Geotechnical Sample Custody 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples   |                       |           | reflect<br>from to | ts the top of steel casing. Top of casing emporary benchmark established by TV | elevation | on was measu | ıred | using autor           | natic level and       | leve        | l rod refer | enced    |
| 3: Depths are reported in feet below ground surface  |                       |           | G =<br>2: a,b,     | Geotechnical Sample Custody<br>c denote Split Spoon divided between E          | Environ   | •            |      |                       |                       | nple        | )           |          |



| C    | lient E            | Borehole  | ID N/A  | 1  | Stantec Boring   | g N  | lo. KIF-I             | B16                   |          |          |            |
|------|--------------------|-----------|---------|--|--|------|-----------------------|-----------------------|----------|----------|------------|
| C    | lient              |           | Tennes  | see Valley Authority                       | Boring Location  | on   | 574,797.4             | 40 N; 2,408,648       | 3.30 E   | NAD83    | <u> </u>   |
| F    | roject             | Number    | 175668  | 8043                                       | Surface Eleva  | itio | 738.5 ft              | Elevation             | n D      | atum_    | NGVD29     |
|      | -                  | Name      |         | EC Order                                   | Date Started   | _    | 1/31/21               | Comple                |          | 1/31/2   | 21         |
|      | -                  | Location  |         | rriman, Tennessee                          | Depth to Wate  | _    | N/A                   | Date/Tii              |          | N/A      |            |
|      | •                  | or T. Gr  |         | Logger _T. Greenwell                       | Depth to Wate  | _    |                       | Date/Tii              | me       | N/A      |            |
|      | -                  |           |         | ntec Consulting Services Inc.              | Drill Rig Type   |      |                       |                       | <u> </u> |          |            |
|      |                    |           | _       | Sampling Tools (Type and Size)             |  | Jpdr | aft Bit, 2" S         | S w/o liners, 3"      | Shell    | by Tubes | <u> </u>   |
|      |                    | •         | •       | ling Tools (Type and Size) N/A             | \  |      |                       | النساسية              | Da       | - 4la    | ΝΙ/Λ       |
|      |                    | _         |         | and Size) N/A                              | Overdrill Depth N/A  |      |                       |                       |          |          |            |
|      |                    | le Azimu  |         | Automatic Weight 140 N/A                   | Borehole Inclination (from Vertical)  Drop 30" Efficiency 89.8%  N/A |      |                       |                       |          |          |            |
|      |                    | ed By     |         | sselman                                    | Approved By  |      | A. Welshar            | · —                   | 14/7     | `        |            |
| 1    |                    |           | 0. 1010 |  |  | _    |                       |                       |          |          |            |
|      |                    | Lithology |         |  | Overburden:  |      | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |          | Rec. Ft  | Blows/PSI  |
| Dep  | th Ft <sup>3</sup> | Elevation | Graphic | Description                                | Rock Core:   |      | RQD %                 | Run Ft                |          | Rec. Ft  | Rec. %     |
| - 0  | 0.0                | 738.5     |         | Top of Hole                                |  |      |                       |                       |          |          |            |
|      |                    |           |         | Casing Stickup                             |  |      |                       |                       |          |          |            |
| - 1  |                    |           |         |  |  |      |                       |                       |          |          | _          |
| - 2  |                    |           |         |  |  |      |                       |                       |          |          | _          |
|      | 2.9                | 735.6     |         |  |  |      |                       |                       |          |          |            |
| - 3  |                    |           |         | Water                                      |  |      |                       |                       |          |          | _          |
| - 4  |                    |           |         |  |  |      |                       |                       |          |          | _          |
|      |                    |           |         |  |  |      |                       |                       |          |          |            |
| - 5  |                    |           |         |  |  |      |                       |                       |          |          | _          |
| - 6  |                    |           |         |  |  |      |                       |                       |          |          | _          |
|      |                    |           |         |  |  |      |                       |                       |          |          |            |
| - 7  |                    |           |         |  |  |      |                       |                       |          |          | _          |
| - 8  |                    |           |         |  |  |      |                       |                       |          |          | _          |
|      |                    |           |         |  |  |      |                       |                       |          |          |            |
| - 9  |                    |           |         |  |  |      |                       |                       |          |          | -          |
| - 10 |                    |           |         |  |  |      |                       |                       |          |          | _          |
| 10   |                    |           |         |  |  |      |                       |                       |          |          |            |
| - 11 |                    |           |         |  |  |      |                       |                       |          |          | -          |
| - 12 | 12.0               | 726.5     |         |  |  |      |                       |                       |          |          |            |
| - 12 | 12.5               | 726.0     |         | SILT WITH SAND, ML, 10YR 4/2 (dar          | k grayish  |      | SS01aG                | 12.0 - 12.5           | 12.0     |          | _          |
| - 13 |                    |           |         | \brown), non-plastic, very soft, wet       | /  |      | SS01bG                | 12.5 - 13.5           | ) - 13.5 | 0.9      | WR-WR-WH_  |
|      |                    |           |         | SANDY LEAN CLAY, CL, 2.5Y 3/3 (da          |  |      |                       |                       |          |          |            |
| – 14 |                    |           |         | brown), low to medium plasticity, very     | soil, wei  |      |                       |                       |          |          | _          |
| - 15 |                    | 700 0     |         |  |  |      |                       |                       | 14       |          | _          |
|      | 15.5               | 723.0     | KAA     | SILTY SAND, SM, 5YR 6/6 (reddish y         | rollow) to EVP   |      | ST01G                 | 14.5 - 16.5           | .5 - 16  | 1.9      | 150        |
| - 16 |                    |           |         | 6/1 (gray), very fine to fine, low plastic |  |      |                       |                       | 5        |          | -          |
| – 17 |                    |           |         | moist                                      |  |      | 00000                 | 40.5 40.0             | 16.5     |          | - IA/D 4 0 |
|      |                    |           |         |  |  |      | SS02G                 | 16.5 - 18.0           | - 18.0   | 1.1      | WR-1-2     |



Page: 2 of 2

Stantec Boring No. KIF-B16 Client Borehole ID N/A Client **Boring Location** 574,797.40 N; 2,408,648.30 E NAD83 Tennessee Valley Authority Elevation Datum NGVD29 Project Number 175668043 Surface Elevation 738.5 ft Sample<sup>1,2</sup> Overburden: Depth Ft3 Rec. Ft Blows/PSI Lithology Depth Ft<sup>3</sup> Elevation Rock Core: RQD % Rec. Ft Graphic Run Ft Rec. % Description 18 18.5 720.0 SILTY SAND TRACE CLAY, SM, 7.5YR 6/4 (light 19 brown), very fine to fine, loose, moist SS03G 19.0 - 20.5 1.1 1-3-4 20

> SILTY SAND WITH GRAVEL, SM, 7.5YR 5/4 (brown), fine to medium, loose, wet

SILTY SAND, SM, 7.5YR 5/1 (gray), very fine to

medium, very loose, moist

SS07G

SS04aG

SS04bG

SS05G

SS06G

21.5 - 22.3

22.3 - 23.0

24.0 - 25.5

26.5 - 28.0

29.0 - 29.3

1.4

1.0

0.9

1-1-1

WH-WH-4

1-3-1

50/4"

Sandstone, light tan to orange, medium grained, moderately hard, highly weathered

No Refusal / Bottom of Hole at 29.3 Ft.

Horizontal coordinates collected at time of drilling using Trimble Geo7x handheld unit. Surface elevation shown reflects the top of steel casing. Top of casing elevation was measured using automatic level and level rod referenced from temporary benchmark established by TVA. The temporary benchmark referenced for KIF-B16 was set at the NE corner of the KIF-105 concrete pad.

21

22

23

24

25

26

27

28

29

22.3

26.0

29.0

29.3

716.2

712.5

709.5

709.2

<sup>1:</sup> E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody

<sup>2:</sup> a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples

<sup>3:</sup> Depths are reported in feet below ground surface

# **APPENDIX B.3**

**TEMPORARY WELLS** 

# **Table of Contents**

| Subsurface Boring Legend | 1  |
|--------------------------|----|
| KIF-B01a                 | 2  |
| KIF-B01b                 | 5  |
| KIF-B02a                 | 8  |
| KIF-B02b                 | 11 |
| KIF-B03a                 | 14 |
| KIF-B03b                 | 17 |
| KIF-B04a                 | 20 |
| KIF-TW01                 | 23 |
| KIF-TW02                 | 26 |
| KIF-TW03                 | 29 |
| KIF-TW03a                | 32 |
| KIF-TW03b                | 34 |
| KIF-TW04                 | 36 |
| KIF-TW05                 | 39 |
| GP-17-101                | 42 |
| GP-17-102                | 43 |
| GP-17-103                | 44 |

### **Subsurface Boring Legend**

### **Lithology Graphics**

| Symbol   | Lithology                              |
|--|--|
|  | Fill                                   |
|  | Top Soil                               |
| 03030303<br>03030303<br>03030303                       | Gravel                                 |
| 0 0 0 0  | Well Graded Gravel (GW)                |
| 0 0 0 0  | Poorly Graded Gravel (GP)              |
|  | Silty Gravel (GM)                      |
|  | Silty, Clayey Gravel (GC-GM)           |
|  | Clayey Gravel (GC)                     |
| ©.   | Well Graded Gravel with Silt (GW-GM)   |
|  | Well Graded Gravel with Clay (GW-GC)   |
|  | Poorly Graded Gravel with Silt (GP-GM) |
|  | Poorly Graded Gravel with Clay (GP-GC) |
| ••••   | Well Graded Sand (SW)                  |
| • • • •  | Poorly Graded Sand (SP)                |
|  | Silty Sand (SM)                        |
|  | Silty, Clayey Sand (SC-SM)             |
|  | Clayey Sand (SC)                       |
| •                | Well Graded Sand with Silt (SW-SM)     |
|  | Well Graded Sand with Clay (SW-SC)     |
|  | Poorly Graded Sand with Silt (SP-SM)   |
|  | Poorly Graded Sand with Clay (SP-SC)   |
|  | Silt (ML)                              |
|  | Silty Clay (CL-ML)                     |
|  | Lean Clay (CL)                         |
|  | Organic Silt (OL)                      |
|  | Elastic Silt (MH)                      |
|  | Fat Clay (CH)                          |
| (////  | Organic Clay (OH)                      |
| <u></u>  | Shale                                  |
| $\begin{array}{ c c c c c c c c c c c c c c c c c c c$ | Siltstone                              |
|  | Coal                                   |
|  | Limestone                              |
|  | Sandstone                              |

### **Other Graphics**

| Symbol              | Description                                      |
|---------------------|--|
|                     | Denotes environmental analytical sample interval |
|                     | Denotes SS sample interval                       |
|                     | Denotes ST sample interval                       |
|                     | Denotes DP sample interval                       |
|                     | Denotes RS sample interval                       |
|                     | Denotes RC sample interval                       |
| $\overline{\Delta}$ | First water level reading                        |
| Ā                   | Second water level reading                       |

#### **Common Abbreviations**

| Abbreviation | Definition               |
|--------------|--------------------------|
| DP           | Direct Push              |
| НА           | Hand Auger               |
| HSA          | Hollow Stem Auger        |
| N/A          | Not Applicable           |
| NR           | Not Recorded             |
| RC           | Rock Core                |
| RQD          | Rock Quality Designation |
| RS           | Rotary Sonic             |
| SS           | Split Spoon              |
| ST           | Shelby Tube              |
| WH           | Weight of Hammer         |
| WR           | Weight of Rod            |

#### **General Notes**

The boring logs include sample numbering used during drilling. For assigned Environmental Analytical Sample ID numbers, see relevant Environmental Chain-of- Custody forms from the drilling date range listed on each log.

For pH readings and additional field data, see applicable field documentation (e.g., Soil pH Data Form) from the drilling date range listed on each log.



|      | lient F              | Borehole    | ID N/A  | <u> </u>   | Stantec Borin                    | a N  | lo KIF-I              | 301a                  |           |           |  |  |
|------|----------------------|-------------|---------|--|----------------------------------|------|-----------------------|-----------------------|-----------|-----------|--|--|
|      | lient                |             |         | ssee Valley Authority  | Boring Location                  |      |                       | 92 N; 2,407,677.68    | E NAD83   |           |  |  |
|      |                      | Number      |         |  | Surface Eleva                    |      |                       | Elevation I           |           | -         |  |  |
|      | -                    | Name        |         | EC Order   | Date Started                     |      | 12/2/19               | —<br>Completed        |           | -         |  |  |
|      | •                    | Location    |         | rriman, Tennessee  | Depth to Wat                     | _    |                       | Date/Time             | -         |           |  |  |
|      | -                    | or E. Sn    |         | Logger E. Smith  | Depth to Water N/A Date/Time N/A |      |                       |                       |           |           |  |  |
| D    | rilling              | Contract    | or Ha   | wkston   | Drill Rig Type                   | an   | d ID Geop             | robe 3230DT           |           |           |  |  |
| С    | verbu                | rden Drill  | ing and | Sampling Tools (Type and Size)   | DT37 Dual Tub                    | e So | oil Sampling          | System with 60" P     | VC Liners | <b>;</b>  |  |  |
| R    | ock D                | rilling and | d Samp  | ling Tools (Type and Size) <u>No</u>   | No Coring                        |      |                       |                       |           |           |  |  |
| С    | verdri               | II Tooling  | (Type   | and Size) NA   | Overdrill Depth N/A              |      |                       |                       |           |           |  |  |
| S    | ample                | r Hamme     | er Type | No SPT Weight N/A  | Drop <u>_</u>                    |      |                       | , _                   | N/A       |           |  |  |
|      | Borehole Azimuth N/A |             |         |  | Borehole Incli                   |      | •                     | Vertical) N           | /A        |           |  |  |
| R    | eview                | ed By _     | J. Mu   | sselman  | Approved By                      | _    | M. Aplin              |                       |           |           |  |  |
|      | l                    | ₋ithology   |         |  | Overburden:                      | :    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> | Rec. Ft   | Blows/PSI |  |  |
| Dep  | th Ft <sup>3</sup>   | Elevation   | Graphic | Description  | Rock Core:                       |      | RQD %                 | Run Ft                | Rec. Ft   | Rec. %    |  |  |
| - 0  | 0.0                  | 771.3       |         | Top of Hole  |                                  |      |                       |                       |           | _         |  |  |
|      |                      |             |         | No sampling conducted from 0.0' to 39 advanced through this interval using E |                                  |      |                       |                       |           |           |  |  |
| - 1  |                      |             |         | tip. Refer to boring log for KIF-TW01  |                                  |      |                       |                       |           | _         |  |  |
| - 2  |                      |             |         | 35.0'.   | -                                |      |                       |                       |           | -         |  |  |
|      |                      |             |         |  |                                  |      |                       |                       |           |           |  |  |
| - 3  |                      |             |         |  |                                  |      |                       |                       |           | _         |  |  |
| - 4  |                      |             |         |  |                                  |      |                       |                       |           | _         |  |  |
|      |                      |             |         |  |                                  |      |                       |                       |           |           |  |  |
| - 5  |                      |             |         |  |                                  |      |                       |                       |           | _         |  |  |
| - 6  |                      |             |         |  |                                  |      |                       |                       |           | _         |  |  |
|      |                      |             |         |  |                                  |      |                       |                       |           |           |  |  |
| - 7  |                      |             |         |  |                                  |      |                       |                       |           | =         |  |  |
| - 8  |                      |             |         |  |                                  |      |                       |                       |           | -         |  |  |
|      |                      |             |         |  |                                  |      |                       |                       |           |           |  |  |
| - 9  |                      |             |         |  |                                  |      |                       |                       |           | =         |  |  |
| - 10 |                      |             |         |  |                                  |      |                       |                       |           | _         |  |  |
|      |                      |             |         |  |                                  |      |                       |                       |           |           |  |  |
| - 11 |                      |             |         |  |                                  |      |                       |                       |           | -         |  |  |
| - 12 |                      |             |         |  |                                  |      |                       |                       |           | _         |  |  |
| 12   |                      |             |         |  |                                  |      |                       |                       |           |           |  |  |
| - 13 |                      |             |         |  |                                  |      |                       |                       |           | -         |  |  |
| _ 14 |                      |             |         |  |                                  |      |                       |                       |           |           |  |  |
| - 14 |                      |             |         |  |                                  |      |                       |                       |           |           |  |  |
| - 15 |                      |             |         |  |                                  |      |                       |                       |           | _         |  |  |
| 16   |                      |             |         |  |                                  |      |                       |                       |           |           |  |  |
| - 16 |                      |             |         |  |                                  |      |                       |                       |           |           |  |  |
| - 17 |                      |             |         |  |                                  |      |                       |                       |           | -         |  |  |
|      |                      |             |         |  |                                  |      |                       |                       |           |           |  |  |



| Client l              | Borehole  | ID N/A  |   | Stantec Boring  | g N        | o. KIF-I              | B01a                  |             |                |           |
|-----------------------|-----------|---------|---|-----------------|------------|-----------------------|-----------------------|-------------|----------------|-----------|
| Client                |           | Tennes  | see Valley Authority  | Boring Location |            |                       | 92 N; 2,407,677       | .68         | E NAD83        |           |
| Project               | Number    | 175668  | 043   | Surface Eleva   | tio        | 771.3 ft              | Elevatio              | n E         | oatum <u>r</u> | NGVD29    |
|                       | Lithology |         |   | Overburden:     | ;          | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |             | Rec. Ft        | Blows/PSI |
| Depth Ft <sup>3</sup> | Elevation | Graphic | Description   | Rock Core:      |            | RQD %                 | Run Ft                |             | Rec. Ft        | Rec. %    |
| - 18                  |           |         | No sampling conducted from 0.0' to 3  |                 |            |                       |                       |             |                | _         |
| - 19                  |           |         | advanced through this interval using tip. Refer to boring log for KIF-TW01 35.0'. (Continued) |                 |            |                       |                       |             |                | _         |
| - 20                  |           |         | , ,   |                 |            |                       |                       |             |                |           |
| - 21                  |           |         |   |                 |            |                       |                       |             |                | _         |
| - 22<br>- 23          |           |         |   |                 |            |                       |                       |             |                | _         |
| - 24                  |           |         |   |                 |            |                       |                       |             |                |           |
| - 25                  |           |         |   |                 |            |                       |                       |             |                | _         |
| - 26                  |           |         |   |                 |            |                       |                       |             |                | _         |
| - 27                  |           |         |   |                 |            |                       |                       |             |                | _         |
| - 28                  |           |         |   |                 |            |                       |                       |             |                | _         |
| - 29                  |           |         |   |                 |            |                       |                       |             |                | _         |
| - 30                  |           |         |   |                 |            |                       |                       |             |                | _         |
| - 31                  |           |         |   |                 |            |                       |                       |             |                | =         |
| - 32                  |           |         |   |                 |            |                       |                       |             |                | -         |
| - 33                  |           |         |   |                 |            |                       |                       |             |                | _         |
| - 34                  |           |         |   |                 |            |                       |                       |             |                | -         |
| - 35 <u>35.0</u>      | 736.3     |         | SILT, ML, 5Y 4/1 (dark gray) to 5Y 3/<br>gray), non-plastic, soft to very soft, m             |                 |            | DP01aG                | 35.0 - 36.5           |             |                | _         |
| - 36                  |           |         | odor, no staining, [CCR]  | oist to wet, no | 36.5       | 2.0.00                | 00.0                  |             |                | _         |
| - 37<br>- 38          |           |         |   |                 | /38.5-2019 | DP01bE                | 36.5 - 38.5           | 35.0 - 40.0 | 5.0            | N/A       |
| - 39                  |           |         |   |                 | 1203       |                       |                       |             |                | _         |
| - 40                  |           |         |   |                 |            | DP01cG                | 38.5 - 40.0           |             |                | _         |
| - 41                  |           |         |   |                 |            | DP02aG                | 40.0 - 41.5           |             |                | -         |
| - 42                  |           |         |   |                 |            |                       |                       |             |                | =         |



Page: 3 of 3

| С               | Client Borehole ID N/A |           |       |               |   | Stantec Boring No. KIF-B01a |                |                    |                       |                       |                     |         |               |
|-----------------|------------------------|-----------|-------|---------------|---|-----------------------------|----------------|--------------------|-----------------------|-----------------------|---------------------|---------|---------------|
| С               | lient                  |           | Tenr  | ness          | ee Valley Authority   | В                           | oring Location | on                 | 576,069.9             | 92 N; 2,407,677       | .407,677.68 E NAD83 |         |               |
| Р               | roject                 | Number    | 1756  | 680           | 43  | Sı                          | urface Eleva   | atio               | n <u>771.3 ft</u>     | Elevation [           |                     | atum_ ı | NGVD29        |
|                 | L                      | _ithology |       |               |   |                             | Overburden:    | ;                  | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |                     | Rec. Ft | Blows/PSI     |
| Dep             | th Ft <sup>3</sup>     | Elevation | Graph | ic            | Description   |                             | Rock Core:     |                    | RQD %                 | Run Ft                |                     | Rec. Ft | Rec. %        |
| - 43            |                        |           |       |               | SILT, ML, 5Y 4/1 (dark gray) to 5Y 3/1 gray), non-plastic, soft to very soft, mo odor, no staining, [CCR] (Continued) | oist t                      |                | 41.5/43.5-2019     | DP02bE                | 41.5 - 43.5           | 40.0 - 45.0         | 5.0     | N/A           |
| - 44            |                        |           |       |               | , <b>3</b> ,[] ()   |                             |                | 1203               | DP02cG                | 43.5 - 45.0           |                     |         | =             |
| - 45<br>- 46    |                        |           |       |               |   |                             |                |                    | DP03a                 | 45.0 - 46.5           |                     |         | _             |
| - 47<br>- 48    |                        |           |       |               |   |                             |                | 46.5/48.5-20191203 | DP03bE                | 46.5 - 48.5           | 45.0 - 50.0         | 5.0     | _<br>N/A<br>_ |
| - 49            | 49.8                   | 721.5     |       |               |   |                             |                |                    | DP03c                 | 48.5 - 49.8           |                     |         | _             |
| - 50            |                        |           |       |               | LEAN CLAY, CL, 5Y 3/1 (very dark gra  | • /                         |                |                    | DP03dG                | 49.8 - 50.0           |                     |         | _             |
| - 51            | 51.3                   | 720.0     |       | 4             | plasticity, firm to soft, moist to wet, mo<br>odor, no staining   | dera                        | ate organic    |                    | DP04aG                | 50.0 - 51.3           |                     |         | _             |
| - 52            | 53.0                   | 718.3     |       |               | SANDY SILT, ML, 5Y 5/1 (gray), low proist to wet, moderate organic odor, swith depth, clay decreases with depth       | sand                        | -              |                    | DP04bG                | 51.3 - 53.0           | 50.0 - 55.          | 5.0     | N/A           |
| - 53<br>- 54    | 53.7                   | 717.6     |       |               | WELL GRADED SAND, SW, 5Y 3/1 (\ very fine to medium, loose, moist to w  | very                        |                |                    | DP04cG                | 53.0 - 53.7           | 0                   |         | -             |
| <del>- 55</del> | 55.0                   | 716.3     |       |               | \organic odor<br>LEAN CLAY, CL, 7.5YR 6/4 (light brow   |                             |                |                    | DP04dG                | 53.7 - 55.0           |                     |         |               |
|                 |                        |           |       |               | 6/1 (gray), medium plasticity, firm, dry mottled gray   | to m                        | noist,         |                    |                       |                       |                     |         | =             |
|                 |                        |           |       |               | No Refusal /<br>Bottom of Hole at 55.0 Ft.  |                             |                |                    |                       |                       |                     |         | _             |
|                 |                        |           |       |               |   |                             |                |                    |                       |                       |                     |         | _             |
|                 |                        |           |       |               |   |                             |                |                    |                       |                       |                     |         | _             |
|                 |                        |           | 2: a  | } = (<br>,b,c | Environmental Sample Custody (two Spl<br>Geotechnical Sample Custody<br>denote Split Spoon divided between Er         | nviro                       | nmental and G  | ·                  |                       |                       | nple)               | 1       | _             |
|                 |                        |           | 3: L  | epti          | hs are reported in feet below ground sur  | nace                        | ;              |                    |                       |                       |                     |         | -             |
|                 |                        |           |       |               |   |                             |                |                    |                       |                       |                     |         | =             |
|                 |                        |           |       |               |   |                             |                |                    |                       |                       |                     |         | -             |
|                 |                        |           |       |               |   |                             |                |                    |                       |                       |                     |         | -             |
|                 |                        |           |       |               |   |                             |                |                    |                       |                       |                     |         | -             |



|      | Client E            | Borehole               | ID N/A   | 4   | S             | tantec Boring | a N  | lo. KIF-l             | B01b                         |      |                    |                     |
|------|---------------------|------------------------|----------|---|---------------|---------------|------|-----------------------|------------------------------|------|--------------------|---------------------|
|      | Client              |                        |          | ssee Valley Authority                       |               | oring Locatio |      |                       | 41 N; 2,407,677.             | 12   | E NAD83            |                     |
|      |                     | Number                 |          | ·   |               | urface Eleva  |      |                       |                              |      |                    |                     |
|      | -                   | Name                   |          | EC Order                                    |               | ate Started   |      | 12/3/19               | <br>Complet                  |      |                    |                     |
|      | -                   | Location               | Ha       | rriman, Tennessee                           |               | epth to Wate  | er _ | N/A                   | <br>Date/Tin                 |      | N/A                |                     |
| lı   | nspect              | or E. Sr               | mith     | Logger E. Smith                             |               | epth to Wate  | _    |                       | Date/Tin                     | ne   | N/A                |                     |
|      | -                   | Contract               |          | wkston                                      |               | rill Rig Type |      |                       |                              |      |                    |                     |
|      |                     |                        | -        | Sampling Tools (Type and                    | -             |               | e S  | oil Sampling          | System with 60'              | " P\ | /C Liners          | <u> </u>            |
|      |                     | _                      |          | ling Tools (Type and Size)                  | No Cor        | ing           |      |                       | 0                            | _    | 41. 1              |                     |
|      |                     | _                      |          | and Size) <u>NA</u><br>No SPT Weight        | N/A           | Drop N        | Ι/Δ  |                       | Overdrill<br>Efficiency      |      | :ptn'<br>N/A       | V/A                 |
|      |                     | le Azimut              | • •      | N/A   |               | orehole Incli |      | •                     | •                            | N/A  |                    |                     |
|      |                     | ed By                  |          | sselman                                     |               | pproved By    |      | M. Aplin              | vertical)                    | ,,   |                    |                     |
|      |                     |                        |          |   | - ' '         | 1 1           | _    |                       | Danth F13                    |      | Dog Fr             | Planta /DOI         |
|      | oth Ft <sup>3</sup> | Lithology<br>Elevation | Graphic  | Dogovintion                                 |               | Overburden:   |      | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> Run Ft |      | Rec. Ft<br>Rec. Ft | Blows/PSI<br>Rec. % |
|      | 0.0                 | 771.3                  | Grapriic | Description Top of Hole                     |               | NOCK COIE:    | Т    | ועט אַ                | RuiiFt                       |      | Nec. Ft            | 1186. 70            |
| - 0  | 0.0                 |                        |          | No sampling conducted from 0                | .0' to 35.0', | boring        |      |                       |                              |      |                    | -                   |
| - 1  |                     |                        |          | advanced through this interval              | using DPT     | with closed   |      |                       |                              |      |                    |                     |
|      |                     |                        |          | tip. Refer to boring log for KIF-<br>35.0'. | TW01 for (    | 0.0' through  |      |                       |                              |      |                    |                     |
| - 2  |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
| - 3  |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
|      |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
| - 4  |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
| - 5  |                     |                        |          |   |               |               |      |                       |                              |      |                    | -                   |
| •    |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
| - 6  |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
| - 7  |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
| 0    |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
| - 8  |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
| - 9  |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
| - 10 |                     |                        |          |   |               |               |      |                       |                              |      |                    | _                   |
| 10   |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
| - 11 |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
| - 12 |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
| 14   |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
| - 13 |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
| - 14 |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
| • •  |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
| - 15 |                     |                        |          |   |               |               |      |                       |                              |      |                    | -                   |
| - 16 |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
| . •  |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
| - 17 |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |
| 4.0  |                     |                        |          |   |               |               |      |                       |                              |      |                    |                     |



| С  | Client Borehole ID N/A |           |         | Stantec Boring No. KIF-B01b   |                |                       |                       |         |           |  |
|--|------------------------|-----------|---------|---|----------------|-----------------------|-----------------------|---------|-----------|--|
| c  | lient                  |           | Tennes  | see Valley Authority  | Boring Locatio |                       | 41 N; 2,407,677.12    | E NAD83 | }         |  |
| P  | roject                 | Number    | 175668  | 043   | Surface Elevat | tion <u>771.3 ft</u>  | Elevation             | NGVD29  |           |  |
|  |                        | Lithology |         |   | Overburden:    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> | Rec. Ft | Blows/PSI |  |
| Dep  | th Ft <sup>3</sup>     | Elevation | Graphic | Description   | Rock Core:     | RQD %                 | Run Ft                | Rec. Ft | Rec. %    |  |
| - 18   |                        |           |         | No sampling conducted from 0.0' to 3  |                |                       |                       |         | _         |  |
| - 19<br>- 20   |                        |           |         | advanced through this interval using I tip. Refer to boring log for KIF-TW01 35.0'. (Continued) |                |                       |                       |         | _         |  |
|  |                        |           |         |   |                |                       |                       |         |           |  |
| - 21<br>- 22   |                        |           |         |   |                |                       |                       |         | _         |  |
| - 23   |                        |           |         |   |                |                       |                       |         | -         |  |
| - 24   |                        |           |         |   |                |                       |                       |         | _         |  |
| - 25   |                        |           |         |   |                |                       |                       |         | _         |  |
| - 26   |                        |           |         |   |                |                       |                       |         | _         |  |
| - 27   |                        |           |         |   |                |                       |                       |         | _         |  |
| - 28<br>- 29   |                        |           |         |   |                |                       |                       |         | _         |  |
| - 30   |                        |           |         |   |                |                       |                       |         | _         |  |
| - 31   |                        |           |         |   |                |                       |                       |         | _         |  |
| - 32   |                        |           |         |   |                |                       |                       |         | =         |  |
| - 33   |                        |           |         |   |                |                       |                       |         | _         |  |
| - 34   |                        |           |         |   |                |                       |                       |         | _         |  |
| - 35<br>- 35   | 35.0                   | 736.3     |         | SILT, ML, 5Y 4/1 (dark gray) to 5Y 3/<br>gray), non-plastic, soft to very soft, m               |                | DP01a                 | 35.0 - 36.5           |         | _         |  |
| - 36<br>- 37   |                        |           |         | odor, no staining, [CCR]  | رين            | 36 5/3                | 3                     |         | _         |  |
| - 35<br>- 36<br>- 37<br>- 37<br>- 37<br>- 37<br>- 37<br>- 37<br>- 37<br>- 37 |                        |           |         |   | איז פו מז-נים  | DP01bE                | 36.5 - 38.5           | 5.0     | N/A       |  |
| - 39<br>- 39   |                        |           |         |   |                | DP01c                 | 38.5 - 40.0           |         | =         |  |
| 3106   |                        |           |         |   |                | DP02a                 | 40.0 - 41.5           |         | _         |  |
| - 41<br>- 42   |                        |           |         |   |                |                       |                       |         | _         |  |



Page: 3 of 3

| Clien                 | nt Borehole            | Stantec Boring No. KIF-B01b |   |                   |        |                 |                       |                       |                           |               |             |
|-----------------------|------------------------|-----------------------------|---|-------------------|--------|-----------------|-----------------------|-----------------------|---------------------------|---------------|-------------|
| Clien                 | nt                     | Tennes                      | see Valley Authority  | Boring Loca       |        |                 |                       |                       | 1 N; 2,407,677.12 E NAD83 |               |             |
| Proje                 | ect Number             | 175668                      | 043   | Surface Ele       | vat    | tior            | 771.3 ft              | Elevation [           |                           | atum <u>ı</u> | NGVD29      |
|                       | Lithology              |                             |   | Overburde         | n:     | 5               | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |                           | Rec. Ft       | Blows/PSI   |
| Depth Ft              | Elevation              | Graphic                     | Description   | Rock Cor          | э:     |                 | RQD %                 | Run Ft                |                           | Rec. Ft       | Rec. %      |
| - 43                  |                        |                             | SILT, ML, 5Y 4/1 (dark gray) to 5Y 3/1 gray), non-plastic, soft to very soft, models no etaining [CCR]. (Continued)   | oist to wet, no   | 1.0700 | 41.5/43.5-20    | DP02bE                | 41.5 - 43.5           | 40.0 - 45.0               | 5.0           | N/A<br>-    |
| - 44                  |                        |                             | odor, no staining, [CCR] (Continued)  |                   | 0      | 191203          | DP02c                 | 43.5 - 45.0           |                           |               | -           |
| - 45                  |                        |                             |   |                   |        |                 | DD00-                 | 45.0 40.5             |                           |               | _           |
| - 46                  |                        |                             |   |                   | d      | 46              | DP03a                 | 45.0 - 46.5           |                           |               | -           |
| - 47<br>- 48          |                        |                             |   |                   | 0.000  | 5/48.5-20191203 | DP03bE                | 46.5 - 48.5           | 45.0 - 50.0               | 5.0           | N/A<br>–    |
| - 49                  |                        |                             |   |                   |        |                 | DP03c                 | 48.5 - 49.8           |                           |               | -           |
| - 50                  |                        |                             |   |                   |        |                 | DP03d                 | 49.8 - 50.0           |                           |               | _           |
| - 51 <u>51</u>        | 1.4 719.9              |                             |   |                   |        |                 | DP04aG                | 50.0 - 51.4           | 50.0 - 52                 | 2.5           | N/A         |
| - 52 <u>52</u><br>-52 | 2.3 719.0<br>2.5 718.8 |                             | LEAN CLAY, CL, 5Y 3/1 (very dark gr   |                   |        |                 | DP04b                 | 51.4 - 52.5           | 2.5                       |               | -           |
| - 53<br>- 54   54     | 1.2 717.1              |                             | odor, no staining, weak cementation SANDY SILT, ML, 5Y 5/1 (gray), low project to wet, moderate organic odor  | plasticity, soft, |        |                 | DP05a                 | 52.5 - 54.2           | 52.5 - 55.                | 2.5           | N/A _       |
| <sub>55</sub> 55      |                        |                             | WELL GRADED SAND, SW, 5Y 3/1 (very fine to coarse, loose, moist to we organic odor  |                   | Æ      |                 | DP05b                 | 54.2 - 55.0           |                           |               |             |
|                       |                        |                             | LEAN CLAY, CL, 7.5YR 6/4 (light brown 6/1 (gray), medium plasticity, firm, dry mottled gray, expanding clay   | ,                 |        |                 |                       |                       |                           |               | -           |
|                       |                        |                             | No Refusal / Bottom of Hole at 55.0 Ft.   |                   |        |                 |                       |                       |                           |               | -           |
|                       |                        |                             |   |                   |        |                 |                       |                       |                           |               | -           |
|                       |                        | G =<br>2: a,b,              | Environmental Sample Custody (two Spl<br>Geotechnical Sample Custody<br>c denote Split Spoon divided between Er<br>ths are reported in feet below ground su | nvironmental an   |        |                 |                       |                       | mple)                     |               | -<br>-<br>- |
|                       |                        |                             |   |                   |        |                 |                       |                       |                           |               | -           |
|                       |                        |                             |   |                   |        |                 |                       |                       |                           |               |             |



|      | Client E            | Borehole               | ID N/A   | 1  | St       | antec Borinç                     | g N  | lo. KIF-              | B02a                    |             |                      |           |
|------|---------------------|------------------------|----------|--|----------|----------------------------------|------|-----------------------|-------------------------|-------------|----------------------|-----------|
|      | Client              |                        | Tennes   | ssee Valley Authority                          |          | oring Locatio                    |      |                       | 85 N; 2,407,609.        | 96 I        | E NAD83              | 1         |
| F    | roject              | Number                 | 175668   | 3043   | _ Sı     | urface Eleva                     | tio  | n <u>772.3 ft</u>     | Elevatio                | n D         | atum_r               | NGVD29    |
| F    | roject              | Name                   | KIF TD   | EC Order                                       | _ Da     | ate Started                      | _    | 12/3/19               | Complet                 | ed          | 12/4/                | 19        |
| F    | roject              | Location               | Ha       | rriman, Tennessee                              | _ De     | epth to Wate                     | er _ | N/A                   | Date/Tin                | ne          | N/A                  |           |
| lı   | nspect              | or E. Sr               | nith     | Logger E. Smith                                |          | epth to Wate                     |      |                       | Date/Tin                | ne          | N/A                  |           |
|      | -                   | Contract               |          | wkston   |          | rill Rig Type                    |      |                       |                         |             |                      |           |
|      |                     |                        | _        | Sampling Tools (Type and Size                  | · —      |                                  | e S  | oil Sampling          | System with 60          | <u>'</u> P\ | /C Liners            | <u> </u>  |
|      |                     | •                      | •        | ling Tools (Type and Size)                     | No Cori  | ng                               |      |                       | Overdeill               |             | m # la               | N/A       |
|      |                     | _                      |          | and Size) <u>NA</u><br>No SPT Weight N         | /A       | Drop N                           | Ι/Δ  |                       | Overdrill<br>Efficiency |             | ·ριπ <u>'</u><br>N/A | <u> </u>  |
|      |                     | le Azimut              | • •      | N/A  |          | blob <u>-i</u><br>orehole Inclii |      |                       | •                       | N/A         |                      |           |
|      |                     | ed By                  |          | sselman  |          | oproved By                       |      | M. Aplin              | Vortioal)               |             |                      |           |
|      |                     |                        |          |  | '        |                                  |      | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>   | _           | Rec. Ft              | Blows/PSI |
| Der  | oth Ft <sup>3</sup> | Lithology<br>Elevation | Granhic  | Description                                    |          | Overburden: Rock Core:           |      | RQD %                 | Run Ft                  |             | Rec. Ft              | Rec. %    |
|      | 0.0                 | 772.3                  | Grapriic | Top of Hole                                    |          | Nock Core.                       | Т    | IQD //                | Kuiirt                  | Т           | Nec. I t             | 11.60. // |
| - 0  | 0.0                 |                        |          | No sampling conducted from 0.0 to              | 35.0',   | boring                           |      |                       |                         | $\dagger$   |                      |           |
| - 1  |                     |                        |          | advanced through this interval usin            | g DPT    | with closed                      |      |                       |                         |             |                      | -         |
|      |                     |                        |          | tip. Refer to boring log KIF-TW02 for details. | or 0.0 - | 35.0'                            |      |                       |                         |             |                      |           |
| - 2  |                     |                        |          |  |          |                                  |      |                       |                         |             |                      | =         |
| - 3  |                     |                        |          |  |          |                                  |      |                       |                         |             |                      | -         |
|      |                     |                        |          |  |          |                                  |      |                       |                         |             |                      |           |
| - 4  |                     |                        |          |  |          |                                  |      |                       |                         |             |                      | _         |
| - 5  |                     |                        |          |  |          |                                  |      |                       |                         |             |                      | _         |
|      |                     |                        |          |  |          |                                  |      |                       |                         |             |                      |           |
| - 6  |                     |                        |          |  |          |                                  |      |                       |                         |             |                      | _         |
| - 7  |                     |                        |          |  |          |                                  |      |                       |                         |             |                      | -         |
|      |                     |                        |          |  |          |                                  |      |                       |                         |             |                      |           |
| - 8  |                     |                        |          |  |          |                                  |      |                       |                         |             |                      |           |
| - 9  |                     |                        |          |  |          |                                  |      |                       |                         |             |                      | -         |
| - 10 |                     |                        |          |  |          |                                  |      |                       |                         |             |                      |           |
| '    |                     |                        |          |  |          |                                  |      |                       |                         |             |                      |           |
| - 11 |                     |                        |          |  |          |                                  |      |                       |                         |             |                      | -         |
| - 12 |                     |                        |          |  |          |                                  |      |                       |                         |             |                      | _         |
|      |                     |                        |          |  |          |                                  |      |                       |                         |             |                      |           |
| - 13 |                     |                        |          |  |          |                                  |      |                       |                         |             |                      | -         |
| - 14 |                     |                        |          |  |          |                                  |      |                       |                         |             |                      | _         |
|      |                     |                        |          |  |          |                                  |      |                       |                         |             |                      |           |
| - 15 |                     |                        |          |  |          |                                  |      |                       |                         |             |                      | _         |
| - 16 |                     |                        |          |  |          |                                  |      |                       |                         |             |                      | _         |
|      |                     |                        |          |  |          |                                  |      |                       |                         |             |                      |           |
| - 17 |                     |                        |          |  |          |                                  |      |                       |                         |             |                      | _         |
|      |                     |                        |          |  |          |                                  |      |                       |                         |             |                      |           |



| Client Borehole ID N/A Stantec B |                      |           |         | Stantec Boring No. KIF-B02a  |                 |     |                       |                       |             |         |           |
|----------------------------------|----------------------|-----------|---------|--|-----------------|-----|-----------------------|-----------------------|-------------|---------|-----------|
|                                  | Client               |           | Tennes  | see Valley Authority   | Boring Location |     |                       | 85 N; 2,407,609       | .96         | E NAD83 | <u> </u>  |
|                                  | Projec               | t Number  | 175668  | 043  | Surface Elevat  | tio | 772.3 ft              | Elevatio              | on E        | atum_   | NGVD29    |
|                                  |                      | Lithology |         |  | Overburden:     | (   | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |             | Rec. Ft | Blows/PSI |
| De                               | epth Ft <sup>3</sup> | Elevation | Graphic | Description  | Rock Core:      |     | RQD %                 | Run Ft                |             | Rec. Ft | Rec. %    |
| - 18<br>- 19                     |                      |           |         | No sampling conducted from 0.0 to 3 advanced through this interval using                             | DPT with closed |     |                       |                       |             |         | _         |
| - 20                             | )                    |           |         | tip. Refer to boring log KIF-TW02 for details. (Continued)   | 0.0 - 35.0      |     |                       |                       |             |         | _         |
| - 21                             | ı                    |           |         |  |                 |     |                       |                       |             |         | _         |
| - 22                             | 2                    |           |         |  |                 |     |                       |                       |             |         | _         |
| - 23                             |                      |           |         |  |                 |     |                       |                       |             |         | _         |
| - 2 <sup>2</sup>                 |                      |           |         |  |                 |     |                       |                       |             |         | _         |
| - 26                             |                      |           |         |  |                 |     |                       |                       |             |         | _         |
| - 27                             | ,                    |           |         |  |                 |     |                       |                       |             |         | _         |
| - 28                             | 3                    |           |         |  |                 |     |                       |                       |             |         | _         |
| - 29                             | )                    |           |         |  |                 |     |                       |                       |             |         | _         |
| - 30                             |                      |           |         |  |                 |     |                       |                       |             |         | _         |
| - 31<br>- 32                     |                      |           |         |  |                 |     |                       |                       |             |         |           |
| - 33                             |                      |           |         |  |                 |     |                       |                       |             |         | _         |
| - 3 <sup>4</sup>                 |                      |           |         |  |                 |     |                       |                       |             |         | _         |
| 90530.GDT 3/1                    | 35.0                 | 737.3     |         | SILTY POORLY GRADED SAND WI  |                 |     |                       |                       |             |         | _         |
| 38URF DT 201                     | 5                    |           |         | SP, 5Y 2.5/1 (black), very fine, mediu<br>dense, moist to wet, no odor, no stail                     |                 |     |                       |                       |             |         | _         |
| GPJ TDEC SUI                     |                      |           |         |  |                 |     | DP01G                 | 35.0 - 40.0           | 35.0 - 40.0 | 5.0     | N/A       |
| - 38<br>- 38<br>- 38             |                      |           |         |  |                 |     |                       |                       |             |         | _         |
| ^L_668043_T<br>- 40              | 40.0                 | 732.3     |         | ODAVELLY BOODLY ODADES ON  | ID OD 5V 0/4    |     |                       |                       |             |         | _         |
| 174 – 41<br>- 42                 |                      |           |         | GRAVELLY POORLY GRADED SAN<br>(very dark gray), very fine to fine, loo<br>dense, moist to wet, [CCR] |                 |     | DP02aG                | 40.0 - 41.0           |             |         | _         |



Page: 3 of 3

Stantec Boring No. KIF-B02a Client Borehole ID N/A Client **Boring Location** 575,556.85 N; 2,407,609.96 E NAD83 Tennessee Valley Authority Surface Elevation 772.3 ft Project Number 175668043 Elevation Datum NGVD29 Lithology Sample 1,2 Overburden: Depth Ft<sup>3</sup> Rec. Ft Blows/PSI Depth Ft<sup>3</sup> Elevation Rock Core: RQD % Rec. Ft Rec. % Graphic Run Ft Description DP02bE 41.0 - 44.0 5.0 N/A 43.0 729.3 43 SILT WITH SAND, ML, 5Y 3/1 (very dark gray), non-plastic, firm to hard, wet, [CCR] 44 DP02cG 44.0 - 45.0 45 DP03aG 45.0 - 46.5 46 47 DP03bE 5.0 46.5 - 48.5 N/A 48 49 DP03cG 48.5 - 50.0 50 DP04a 50.0 - 50.7 51 DP04bE 50.7 - 52.3 52 52.3 - 52.7 52.7 719.6 DP04c 5.0 N/A 53 LEAN CLAY, CL, 10GY 5/1 (greenish gray) and 2.5Y 3/1 (very dark gray), low to medium plasticity, firm to DP04dG 52.7 - 55.0 hard, moist to dry, moderate organic odor 54 55 Color grades to 10Y 5/1 (greenish gray) mottled with 2.5Y 5/4 (light olive brown) by 55.0' 56 DP05G 55.0 - 57.5 2.5 N/A 57 57.5 714.8 No Refusal / Bottom of Hole at 57.5 Ft. 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples 3: Depths are reported in feet below ground surface



| C    | Client E           | Borehole              | IDN/A   | ١   | 5     | Stantec Boring  | g N  | lo. KIF-I             | B02b                  |       |           |           |  |  |
|------|--------------------|-----------------------|---------|---|-------|---|------|-----------------------|-----------------------|-------|-----------|-----------|--|--|
| C    | lient              |                       | Tennes  | ssee Valley Authority   | E     | Boring Location   | n    | 575,555.0             | 09 N; 2,407,613.      | 60 I  | E NAD83   |           |  |  |
| F    | roject             | Number                | 175668  | 3043  | {     | Surface Eleva   | tio  | 772.5 ft              | Elevatio              | n D   | atum_r    | NGVD29    |  |  |
| F    | roject             | Name                  | KIF TD  | EC Order  | [     | Date Started  | _    | 12/4/19               | Complet               | ed    | 12/4/1    | 19        |  |  |
| F    | roject             | Location              | ו Ha    | rriman, Tennessee   | [     | Depth to Wate   | er _ | N/A                   | Date/Tin              | пе    | N/A       |           |  |  |
|      | •                  | or E. Sr              |         | Logger E. Smith   |       | Depth to Wate   | _    |                       | Date/Tin              | ne    | N/A       |           |  |  |
|      | -                  | Contract              | · —     | wkston  |       | Orill Rig Type  |      |                       |                       |       |           |           |  |  |
|      |                    |                       | _       | Sampling Tools (Type and  |       |   | e So | oil Sampling          | System with 60'       | ' P\  | /C Liners |           |  |  |
|      |                    | _                     |         | ling Tools (Type and Size)  | No Co | oring   |      |                       | 0 1 11                | _     |           |           |  |  |
|      |                    | _                     |         | and Size) NA  | NI/A  | Overdrill Depth N/A   |      |                       |                       |       |           |           |  |  |
|      |                    | er Hamme<br>le Azimut | • •     | No SPT Weight _   |       | N/A Drop N/A Efficiency N/A  Borehole Inclination (from Vertical) |      |                       |                       |       |           |           |  |  |
|      |                    | ed By                 |         | sselman   |       | Approved By   |      | M. Aplin              | vertical)             | 111/7 | 1         |           |  |  |
| '1   |                    |                       | o. ivid |   |       |   |      |                       |                       |       |           |           |  |  |
|      |                    | Lithology             |         |   |       | Overburden:   | ;    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |       | Rec. Ft   | Blows/PSI |  |  |
| Dep  | th Ft <sup>3</sup> | Elevation             | Graphic | '   |       | Rock Core:  | _    | RQD %                 | Run Ft                | _     | Rec. Ft   | Rec. %    |  |  |
| - 0  | 0.0                | 772.5                 |         | Top of Hole   |       |   | +    |                       |                       |       |           | _         |  |  |
|      |                    |                       |         | No sampling conducted from 0.<br>advanced through this interval ( |       |   |      |                       |                       |       |           |           |  |  |
| - 1  |                    |                       |         | tip. Refer to boring log KIF-TW(                                  |       |   |      |                       |                       |       |           | _         |  |  |
| - 2  |                    |                       |         | details.  |       |   |      |                       |                       |       |           | <u> </u>  |  |  |
|      |                    |                       |         |   |       |   |      |                       |                       |       |           |           |  |  |
| - 3  |                    |                       |         |   |       |   |      |                       |                       |       |           | _         |  |  |
| - 4  |                    |                       |         |   |       |   |      |                       |                       |       |           | _         |  |  |
|      |                    |                       |         |   |       |   |      |                       |                       |       |           |           |  |  |
| - 5  |                    |                       |         |   |       |   |      |                       |                       |       |           | _         |  |  |
| - 6  |                    |                       |         |   |       |   |      |                       |                       |       |           | -         |  |  |
|      |                    |                       |         |   |       |   |      |                       |                       |       |           |           |  |  |
| - 7  |                    |                       |         |   |       |   |      |                       |                       |       |           | _         |  |  |
| - 8  |                    |                       |         |   |       |   |      |                       |                       |       |           | -         |  |  |
|      |                    |                       |         |   |       |   |      |                       |                       |       |           |           |  |  |
| - 9  |                    |                       |         |   |       |   |      |                       |                       |       |           | -         |  |  |
| - 10 |                    |                       |         |   |       |   |      |                       |                       |       |           | _         |  |  |
|      |                    |                       |         |   |       |   |      |                       |                       |       |           |           |  |  |
| - 11 |                    |                       |         |   |       |   |      |                       |                       |       |           | -         |  |  |
| - 12 |                    |                       |         |   |       |   |      |                       |                       |       |           | -         |  |  |
|      |                    |                       |         |   |       |   |      |                       |                       |       |           |           |  |  |
| - 13 |                    |                       |         |   |       |   |      |                       |                       |       |           | -         |  |  |
| - 14 |                    |                       |         |   |       |   |      |                       |                       |       |           | _         |  |  |
| '-   |                    |                       |         |   |       |   |      |                       |                       |       |           |           |  |  |
| - 15 |                    |                       |         |   |       |   |      |                       |                       |       |           | _         |  |  |
| - 16 |                    |                       |         |   |       |   |      |                       |                       |       |           | _         |  |  |
| 10   |                    |                       |         |   |       |   |      |                       |                       |       |           | ٦         |  |  |
| - 17 |                    |                       |         |   |       |   |      |                       |                       |       |           |           |  |  |
| 40   |                    |                       |         |   |       |   |      |                       |                       |       |           |           |  |  |



| С            | Client Borehole ID N/A |           |         | Stantec Boring No. KIF-B02b   |                 |            |                       |                       |            |                |           |
|--------------|------------------------|-----------|---------|---|-----------------|------------|-----------------------|-----------------------|------------|----------------|-----------|
| С            | lient                  |           | Tennes  | see Valley Authority  | Boring Location |            |                       | 09 N; 2,407,613       | .60        | E NAD83        |           |
| Р            | roject                 | Number    | 175668  | 043   | Surface Eleva   | tio        | n <u>772.5</u> ft     | Elevatio              | n [        | Datum <u>r</u> | NGVD29    |
|              | l                      | Lithology |         |   | Overburden:     |            | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |            | Rec. Ft        | Blows/PSI |
| Dep          | th Ft <sup>3</sup>     | Elevation | Graphic | Description   | Rock Core:      |            | RQD %                 | Run Ft                |            | Rec. Ft        | Rec. %    |
| - 18         |                        |           |         | No sampling conducted from 0.0 to 3   |                 |            |                       |                       |            |                | _         |
| - 19         |                        |           |         | advanced through this interval using tip. Refer to boring log KIF-TW02 for details. (Continued) |                 |            |                       |                       |            |                | =         |
| - 20         |                        |           |         | details. (Continued)  |                 |            |                       |                       |            |                | _         |
| - 21         |                        |           |         |   |                 |            |                       |                       |            |                | _         |
| - 22         |                        |           |         |   |                 |            |                       |                       |            |                | =         |
| - 23         |                        |           |         |   |                 |            |                       |                       |            |                | _         |
| - 24         |                        |           |         |   |                 |            |                       |                       |            |                | _         |
| - 25         |                        |           |         |   |                 |            |                       |                       |            |                | _         |
| - 26         |                        |           |         |   |                 |            |                       |                       |            |                | _         |
| - 27         |                        |           |         |   |                 |            |                       |                       |            |                | _         |
| - 28         |                        |           |         |   |                 |            |                       |                       |            |                | =         |
| - 29         |                        |           |         |   |                 |            |                       |                       |            |                | _         |
| - 30         |                        |           |         |   |                 |            |                       |                       |            |                | _         |
| - 31         |                        |           |         |   |                 |            |                       |                       |            |                | _         |
| - 32<br>- 33 |                        |           |         |   |                 |            |                       |                       |            |                |           |
| - 34         |                        |           |         |   |                 |            |                       |                       |            |                | _         |
|              | 35.0                   | 737.5     |         |   |                 |            |                       |                       |            |                |           |
| - 35         | 00.0                   | 707.0     |         | POORLY GRADED SAND WITH GR 2.5/1 (black), fine to medium, medium                                |                 |            | DP01aG                | 35.0 - 36.0           | 38         |                | _         |
| - 36         |                        |           |         | dense, moist to wet, no odor, no stair  |                 | 36.0       | DP01bE                | 36.0 - 37.5           | 5.0 - 37.5 | 2.5            | N/A       |
| - 37         | 37.5                   | 735.0     |         | POORLY GRADED SAND, SP, 5Y 3/   | /1 (very dark   | /39.0-2019 |                       |                       |            |                | _         |
| - 38<br>- 39 |                        |           |         | gray), very fine to fine, moist to wet, [   |                 | 1204       | DP02aE                | 37.5 - 39.0           | 37.5 - 40  | 2.5            | N/A       |
| - 39<br>- 40 |                        |           |         |   |                 |            | DP02bG                | 39.0 - 40.0           | 3.0        |                |           |
| - 40<br>- 41 |                        |           |         |   |                 |            | DP03aG                | 40.0 - 41.0           |            |                |           |
| - 41<br>- 42 |                        |           |         |   |                 |            |                       |                       |            |                |           |



Page: 3 of 3

Stantec Boring No. KIF-B02b Client Borehole ID N/A Client **Boring Location** 575,555.09 N; 2,407,613.60 E NAD83 Tennessee Valley Authority Surface Elevation 772.5 ft Project Number 175668043 Elevation Datum NGVD29 Lithology Sample<sup>1,2</sup> Overburden: Depth Ft3 Rec. Ft Blows/PSI Depth Ft<sup>3</sup> Elevation Rock Core: RQD % Run Ft Rec. Ft Rec. % Graphic Description DP03bE 41.0 - 44.0 5.0 N/A 43.0 729.5 43 SILT WITH SAND, ML, 5Y 3/1 (very dark gray), non-plastic, firm to hard, wet, [CCR] 44 DP03cG 44.0 - 45.0 45 DP04aG 45.0 - 46.5 46 47 46.5 - 48.5 DP04bE 5.0 N/A 48 49 DP04cG 48.5 - 50.0 50 DP05a 50.0 - 50.7 51 2.5 N/A DP05bE 50.7 - 52.3 52 52.3 720.2 DP05cG 52.3 - 52.5 LEAN CLAY, CL, 10GY 5/1 (greenish gray) and 2.5Y 53 3/1 (very dark gray), low to medium plasticity, firm to hard, moist to dry, moderate organic odor DP06G 52.5 - 55.0 2.5 N/A 54 55 Color grades to 10Y 5/1 (greenish gray) mottled with 2.5Y 5/4 (light olive brown) by 55.0' 56 DP07G 55.0 - 57.5 2.5 N/A 57 715.0 57.5 No Refusal / Bottom of Hole at 57.5 Ft. 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples 3: Depths are reported in feet below ground surface



|      | Client E           | Borehole    | ID N/A       | Α  | S       | tantec Boring  | g N  | lo. KIF-              | B03a                  |      |           |           |
|------|--------------------|-------------|--------------|--|---------|----------------|------|-----------------------|-----------------------|------|-----------|-----------|
|      | Client             |             |              | ssee Valley Authority  |         | oring Locatio  |      |                       | 46 N; 2,408,236.      | 12   | E NAD83   |           |
| F    | roject             | Number      | 175668       | 3043   | S       | urface Eleva   | tio  | n 776.3 ft            | Elevatio              | n E  | atum ı    | NGVD29    |
| F    | roject             | Name        | KIF TD       | EC Order   | D       | ate Started    |      | 12/5/19               | Complet               | ed   | 12/5/     | 19        |
|      | -                  | Location    | Ha           | rriman, Tennessee  | D       | epth to Wate   | er _ | N/A                   | <br>Date/Tin          |      | N/A       |           |
| lı   | nspect             | or E. Sr    | nith         | Logger _E. Smith   | D       | epth to Wate   | er   | N/A                   | Date/Tin              | ne   | N/A       |           |
|      | rilling            | Contract    | or <u>Ha</u> | wkston   | D       | rill Rig Type  | an   | d ID Geor             | probe 3230DT          |      |           |           |
| C    | verbu              | rden Drill  | ling and     | I Sampling Tools (Type and                                     | d Size) | DT37 Dual Tube | e S  | oil Sampling          | System with 60'       | " P\ | /C Liners | i         |
| F    | Rock D             | rilling and | d Samp       | ling Tools (Type and Size)                                     | No Cor  | ring           |      |                       |                       |      |           |           |
|      |                    | _           |              | and Size) NA   |         |                |      |                       | Overdrill             |      |           | N/A       |
|      |                    |             | • •          | No SPT Weight  | N/A     | Drop _N        |      | -                     | Efficiency            | _    | N/A       |           |
|      |                    | le Azimu    |              | N/A  |         | orehole Incli  |      | •                     | Vertical)             | N/   | Α         |           |
| F    | Review             | ed By _     | J. Mu        | sselman  | А       | pproved By     | _    | M. Aplin              |                       |      |           |           |
|      | l                  | Lithology   |              |  |         | Overburden:    |      | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |      | Rec. Ft   | Blows/PSI |
| Dep  | th Ft <sup>3</sup> | Elevation   | Graphic      | Description  |         | Rock Core:     |      | RQD %                 | Run Ft                |      | Rec. Ft   | Rec. %    |
| - 0  | 0.0                | 776.3       |              | Top of Hole  |         |                |      |                       |                       |      |           | _         |
|      |                    |             |              | No sampling conducted from 0                                   |         |                |      |                       |                       |      |           |           |
| - 1  |                    |             |              | advanced through this interval tip. Refer to boring log KIF-TW | -       |                |      |                       |                       |      |           |           |
| - 2  |                    |             |              | details.   |         |                |      |                       |                       |      |           |           |
|      |                    |             |              |  |         |                |      |                       |                       |      |           |           |
| - 3  |                    |             |              |  |         |                |      |                       |                       |      |           |           |
| - 4  |                    |             |              |  |         |                |      |                       |                       |      |           |           |
|      |                    |             |              |  |         |                |      |                       |                       |      |           |           |
| - 5  |                    |             |              |  |         |                |      |                       |                       |      |           | _         |
| - 6  |                    |             |              |  |         |                |      |                       |                       |      |           |           |
| -    |                    |             |              |  |         |                |      |                       |                       |      |           |           |
| - 7  |                    |             |              |  |         |                |      |                       |                       |      |           |           |
| - 8  |                    |             |              |  |         |                |      |                       |                       |      |           |           |
| - 9  |                    |             |              |  |         |                |      |                       |                       |      |           |           |
| - 3  |                    |             |              |  |         |                |      |                       |                       |      |           |           |
| - 10 |                    |             |              |  |         |                |      |                       |                       |      |           | -         |
| - 11 |                    |             |              |  |         |                |      |                       |                       |      |           |           |
|      |                    |             |              |  |         |                |      |                       |                       |      |           |           |
| - 12 |                    |             |              |  |         |                |      |                       |                       |      |           |           |
| - 13 |                    |             |              |  |         |                |      |                       |                       |      |           |           |
|      |                    |             |              |  |         |                |      |                       |                       |      |           |           |
| - 14 |                    |             |              |  |         |                |      |                       |                       |      |           |           |
| - 15 |                    |             |              |  |         |                |      |                       |                       |      |           | -         |
|      |                    |             |              |  |         |                |      |                       |                       |      |           |           |
| - 16 |                    |             |              |  |         |                |      |                       |                       |      |           |           |
| - 17 |                    |             |              |  |         |                |      |                       |                       |      |           |           |
| 40   |                    |             |              |  |         |                |      |                       |                       |      |           |           |
| - 18 |                    |             |              |  |         |                |      |                       |                       |      |           |           |
| 40   | 1                  |             | l            | 1  |         |                | - 1  | 1                     | i l                   | - 1  | 1         |           |



| Clie    | Client Borehole ID N/A |           | Stantec Boring No. KIF-B03a |   |                  |           |                       |                               |          |               |           |
|---------|------------------------|-----------|-----------------------------|---|------------------|-----------|-----------------------|-------------------------------|----------|---------------|-----------|
| Clie    | nt                     |           | Tenne                       | ssee Valley Authority   | Boring Location  |           |                       | 20.46 N; 2,408,236.12 E NAD83 |          |               |           |
| Proj    | ect                    | Number    | 175668                      | 3043  | Surface Eleva    | tio       | 776.3 ft              | Elevatio                      | n D      | atum <u>ı</u> | NGVD29    |
|         | L                      | ithology  |                             |   | Overburden:      | ;         | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>         |          | Rec. Ft       | Blows/PSI |
| Depth F | -t <sup>3</sup>        | Elevation | Graphic                     | Description   | Rock Core:       |           | RQD %                 | Run Ft                        |          | Rec. Ft       | Rec. %    |
| - 19    |                        |           |                             | No sampling conducted from 0.0 to 4                             | 0.0' boring      |           |                       |                               |          |               | _         |
| - 20    |                        |           |                             | advanced through this interval using                            | DPT with closed  |           |                       |                               |          |               | _         |
| - 21    |                        |           |                             | tip. Refer to boring log KIF-TW03 for details. (Continued)      | 0.0 - 40.0'      |           |                       |                               |          |               | -         |
| - 22    |                        |           |                             |   |                  |           |                       |                               |          |               | -         |
| - 23    |                        |           |                             |   |                  |           |                       |                               |          |               | -         |
| - 24    |                        |           |                             |   |                  |           |                       |                               |          |               | -         |
| - 25    |                        |           |                             |   |                  |           |                       |                               |          |               | _         |
| - 26    |                        |           |                             |   |                  |           |                       |                               |          |               | -         |
| - 27    |                        |           |                             |   |                  |           |                       |                               |          |               | _         |
| - 28    |                        |           |                             |   |                  |           |                       |                               |          |               | _         |
| - 29    |                        |           |                             |   |                  |           |                       |                               |          |               | _         |
| - 30    |                        |           |                             |   |                  |           |                       |                               |          |               | _         |
| - 31    |                        |           |                             |   |                  |           |                       |                               |          |               | -         |
| - 32    |                        |           |                             |   |                  |           |                       |                               |          |               | -         |
| - 33    |                        |           |                             |   |                  |           |                       |                               |          |               | _         |
| - 34    |                        |           |                             |   |                  |           |                       |                               |          |               | _         |
| - 35    |                        |           |                             |   |                  |           |                       |                               |          |               | _         |
| - 36    |                        |           |                             |   |                  |           |                       |                               |          |               | _         |
| - 37    |                        |           |                             |   |                  |           |                       |                               |          |               | _         |
| - 38    |                        |           |                             |   |                  |           |                       |                               |          |               | _         |
| - 39    |                        |           |                             |   |                  |           |                       |                               |          |               | -         |
| - 40 40 | 0.0                    | 736.3     | 11111                       |   |                  |           |                       |                               |          |               | _         |
| - 41    |                        |           |                             | SILT, ML, 5Y 2.5/1 (black), non-plast hard, moist to wet, [CCR] | ic, hard to very |           | DP01aG                | 40.0 - 41.5                   |          |               | -         |
| - 42    |                        |           |                             |   |                  | 41.5/43   |                       |                               | 40.      |               | _         |
| - 43    |                        |           |                             |   |                  | .5-201912 | DP01bE                | 41.5 - 43.5                   | 0 - 45.0 | 5.0           | N/A       |
| - 44    |                        |           |                             |   |                  | 05        | DP01cG                | 43.5 - 45.0                   |          |               | _         |



Page: 3 of 3

| С            | lient E            | Borehole  | ID _  | N/A         |   | Sta     | ntec Borin   | g N              | o. KIF-I              | B03a                  |             |          |               |
|--------------|--------------------|-----------|-------|-------------|---|---------|--------------|------------------|-----------------------|-----------------------|-------------|----------|---------------|
| c            | lient              |           | Те    | nnes        | see Valley Authority  |         | ing Location |                  |                       | 46 N; 2,408,236       | 3.12        | E NAD83  |               |
| Р            | roject             | Number    | 17    | 5668        | 043   | Sur     | face Eleva   | atio             | 776.3 ft              | Elevatio              | on E        | Datum_ r | NGVD29        |
|              |                    | Lithology |       |             |   | (       | Overburden:  | ,                | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |             | Rec. Ft  | Blows/PSI     |
| Dep          | th Ft <sup>3</sup> | Elevation | Grap  | ohic        | Description   |         | Rock Core:   |                  | RQD %                 | Run Ft                |             | Rec. Ft  | Rec. %        |
| - 45<br>- 46 |                    |           |       |             | SILT, ML, 5Y 2.5/1 (black), non-plastic hard, moist to wet, [CCR] (Continued  |         | d to very    |                  | DP02aG                | 45.0 - 46.5           |             |          | _             |
| - 47<br>- 48 |                    |           |       |             |   |         |              | 46.5/48.5-2019   | DP02bE                | 46.5 - 48.5           | 45.0 - 50.0 | 5.0      | _<br>N/A<br>_ |
| - 49         |                    |           |       |             |   |         |              | 1205             | DP02cG                | 48.5 - 50.0           |             |          | -             |
| - 50<br>- 51 |                    |           |       |             |   |         |              | 51               | DP03aG                | 50.0 - 51.5           |             |          | -             |
| - 52<br>- 53 |                    |           |       |             |   |         |              | .5/53.5-20191205 | DP03bE                | 51.5 - 53.5           | 50.0 - 55.0 | 5.0      | N/A<br>-      |
| - 54         | 54.5               | 721.8     |       |             |   |         |              |                  | DP03cG                | 53.5 - 54.5           |             |          | _             |
| - 55         | 04.0               | 721.0     |       |             | SANDY SILT, ML, 10Y 3/2 (very dark to N 7/ (light gray), low plasticity, hard   |         |              |                  | DP03dG                | 54.5 - 55.0           |             |          | _             |
| - 56<br>- 57 |                    |           |       |             | moist, slight organic odor  |         |              |                  | DP04G                 | 55.0 - 57.5           | 55.0 - 57.5 | 2.5      | N/A –         |
| - 58         | 58.2               | 718.1     |       | Щ           |   |         |              |                  | DP05aG                | 57.5 - 58.2           | ٥ <u>-</u>  |          | -             |
| - 59         | 59.2               | 717.1     | • • • |             | POORLY GRADED SAND, SP, 5Y 7/1<br>very fine, very loose, wet  | 1 (ligh | t gray),     | -                | DP05bG                | 58.2 - 59.2           | 7.5 - 60.0  | 2.5      | N/A _         |
| - 60         | 60.0               | 716.3     |       |             | CLAYEY SAND, SC, 2.5Y 8/1 (white) (light olive brown), very fine to fine, very medium dense, moist  |         |              |                  | DP05cG                | 59.2 - 60.0           |             |          |               |
|              |                    |           |       |             | No Refusal /<br>Bottom of Hole at 60.0 Ft.  |         |              |                  |                       |                       |             |          | _             |
|              |                    |           |       |             |   |         |              |                  |                       |                       |             |          | -             |
|              |                    |           | 2:    | G =<br>a,b, | Environmental Sample Custody (two Spli<br>Geotechnical Sample Custody<br>c denote Split Spoon divided between En<br>ths are reported in feet below ground sur | nvironr | •            |                  |                       |                       | mple)       | )        | -             |
|              |                    |           |       |             |   |         |              |                  |                       |                       |             |          | -             |



| C    | lient E            | Borehole  | IDN/A   | 1  | s          | Stantec Boring  | jΝ  | o. <b>KIF-</b> I      | B03b                  |       |              |           |
|------|--------------------|-----------|---------|--|------------|-----------------|-----|-----------------------|-----------------------|-------|--------------|-----------|
| C    | lient              |           | Tennes  | see Valley Authority   | B          | Boring Location | n   | 575,718.8             | 86 N; 2,408,238.      | 19 I  | E NAD83      |           |
| F    | roject             | Number    | 175668  | 3043   | s          | Surface Eleva   | tio | 776.5 ft              | Elevatio              | n D   | atum_r       | 1GVD29    |
|      | -                  | Name      |         | EC Order   |            | Date Started    | _   | 12/5/19               | Complet               |       | 12/5/1       | 9         |
|      | -                  | Location  |         | rriman, Tennessee  |            | Depth to Wate   | _   | N/A                   | Date/Tin              |       | N/A          |           |
|      | •                  | or E. Sn  |         | Logger E. Smith  |            | Depth to Wate   | _   |                       | Date/Tin              | пе    | N/A          |           |
|      | -                  | Contract  |         | wkston   |            | Orill Rig Type  |     |                       |                       | ' ' ' | /C   in a na |           |
|      |                    |           | _       | Sampling Tools (Type and ling Tools (Type and Size)              | No Co      |                 | 30  | on Sampling           | System with 60        | Ρ\    | /C Liners    |           |
|      |                    | _         |         | and Size) NA   | 110 00     | iiig            |     |                       | Overdrill             | De    | nth N        | N/A       |
|      |                    | _         |         | No SPT Weight  | N/A        | Drop N          | /A  |                       | Efficiency            |       | ۷/A          | <u></u>   |
|      |                    | le Azimut | • •     |  | B          |                 |     | ion (from             | •                     | N/A   | 4            |           |
| F    | Review             | ed By _   | J. Mu   | sselman  | A          | Approved By     |     | M. Aplin              |                       |       |              |           |
|      |                    | _ithology |         |  |            | Overburden:     | ;   | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |       | Rec. Ft      | Blows/PSI |
| Dep  | th Ft <sup>3</sup> | Elevation | Graphic | Description  |            | Rock Core:      |     | RQD %                 | Run Ft                |       | Rec. Ft      | Rec. %    |
| - 0  | 0.0                | 776.5     | ·       | Top of Hole  | ,          |                 |     |                       |                       |       |              |           |
| - 0  |                    |           |         | No sampling conducted from 0.                                    |            |                 |     |                       |                       |       |              |           |
| - 1  |                    |           |         | advanced through this interval utip. Refer to boring log KIF-TW0 |            |                 |     |                       |                       |       |              | -         |
| - 2  |                    |           |         | details.   | 70 101 0.0 | 40.0            |     |                       |                       |       |              | -         |
|      |                    |           |         |  |            |                 |     |                       |                       |       |              |           |
| - 3  |                    |           |         |  |            |                 |     |                       |                       |       |              | _         |
| - 4  |                    |           |         |  |            |                 |     |                       |                       |       |              | -         |
| - 5  |                    |           |         |  |            |                 |     |                       |                       |       |              | _         |
|      |                    |           |         |  |            |                 |     |                       |                       |       |              |           |
| - 6  |                    |           |         |  |            |                 |     |                       |                       |       |              | _         |
| - 7  |                    |           |         |  |            |                 |     |                       |                       |       |              | -         |
| ۰    |                    |           |         |  |            |                 |     |                       |                       |       |              |           |
| - 8  |                    |           |         |  |            |                 |     |                       |                       |       |              |           |
| - 9  |                    |           |         |  |            |                 |     |                       |                       |       |              | _         |
| - 10 |                    |           |         |  |            |                 |     |                       |                       |       |              | _         |
|      |                    |           |         |  |            |                 |     |                       |                       |       |              |           |
| - 11 |                    |           |         |  |            |                 |     |                       |                       |       |              | _         |
| - 12 |                    |           |         |  |            |                 |     |                       |                       |       |              | -         |
| - 13 |                    |           |         |  |            |                 |     |                       |                       |       |              | _         |
| 10   |                    |           |         |  |            |                 |     |                       |                       |       |              |           |
| - 14 |                    |           |         |  |            |                 |     |                       |                       |       |              | _         |
| - 15 |                    |           |         |  |            |                 |     |                       |                       |       |              | _         |
| 10   |                    |           |         |  |            |                 |     |                       |                       |       |              |           |
| - 16 |                    |           |         |  |            |                 |     |                       |                       |       |              | _         |
| - 17 |                    |           |         |  |            |                 |     |                       |                       |       |              | _         |
| – 18 |                    |           |         |  |            |                 |     |                       |                       |       |              | _         |
| 40   |                    |           |         |  |            |                 |     |                       |                       |       |              |           |



| Clien           | t Borehole | ID N/A  | 1   | Stantec Boring  | g N        | o. KIF-I              | B03b                  |        |         |           |
|-----------------|------------|---------|---|-----------------|------------|-----------------------|-----------------------|--------|---------|-----------|
| Clien           | t          | Tennes  | see Valley Authority  | Boring Location |            |                       | 36 N; 2,408,238.      | 19 I   | E NAD83 |           |
| Proje           | ct Number  | 175668  | 043   | Surface Eleva   | tio        | 776.5 ft              | Elevatio              | n D    | atum_ı  | NGVD29    |
|                 | Lithology  |         |   | Overburden:     | ;          | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |        | Rec. Ft | Blows/PSI |
| Depth Ft        | Elevation  | Graphic | Description   | Rock Core:      |            | RQD %                 | Run Ft                |        | Rec. Ft | Rec. %    |
| - 19            |            |         | No compilies a conducted form 0.0 to 4                                      | O.O. basisas    |            |                       |                       |        |         | -         |
| - 20            |            |         | No sampling conducted from 0.0 to 40 advanced through this interval using I | OPT with closed |            |                       |                       |        |         | _         |
| - 21            |            |         | tip. Refer to boring log KIF-TW03 for details. <i>(Continued)</i>           | 0.0 - 40.0'     |            |                       |                       |        |         | -         |
| - 22            |            |         |   |                 |            |                       |                       |        |         | -         |
| - 23            |            |         |   |                 |            |                       |                       |        |         | -         |
| - 24            |            |         |   |                 |            |                       |                       |        |         | _         |
| - 25            |            |         |   |                 |            |                       |                       |        |         | _         |
| - 26            |            |         |   |                 |            |                       |                       |        |         | -         |
| - 27            |            |         |   |                 |            |                       |                       |        |         | -         |
| - 28            |            |         |   |                 |            |                       |                       |        |         | _         |
| - 29            |            |         |   |                 |            |                       |                       |        |         | -         |
| - 30            |            |         |   |                 |            |                       |                       |        |         | _         |
| - 31            |            |         |   |                 |            |                       |                       |        |         | _         |
| - 32            |            |         |   |                 |            |                       |                       |        |         | -         |
| - 33            |            |         |   |                 |            |                       |                       |        |         | -         |
| - 34            |            |         |   |                 |            |                       |                       |        |         | _         |
| - 35            |            |         |   |                 |            |                       |                       |        |         | _         |
| - 36            |            |         |   |                 |            |                       |                       |        |         | _         |
| - 37            |            |         |   |                 |            |                       |                       |        |         | -         |
| - 38            |            |         |   |                 |            |                       |                       |        |         | -         |
| - 39            |            |         |   |                 |            |                       |                       |        |         | -         |
| - 40 <u>40.</u> | 736.5      |         | SILT, ML, 5Y 2.5/1 (black), non-plasti                                      | c, hard to very |            |                       |                       | )))    |         | _         |
| - 41            |            |         | hard, moist to wet, no odor, grain size depth, [CCR]                        |                 | 4          | DP01aG                | 40.0 - 41.5           |        |         | -         |
| - 42            |            |         |   |                 | 1.5/43.5-2 | DP01bE                | 41.5 - 43.5           | 40.0 - | 5.0     | N/A       |
| - 43            |            |         |   |                 | 0191205    | D. 010L               | 11.3 40.0             | 45.0   | 3.0     | -         |
| - 44            |            |         |   |                 |            | DP01cG                | 43.5 - 45.0           |        |         | _         |



Page: 3 of 3

| Cli  | ent E                    | Borehole  | ID  | N           | /A                              |  | Stante                      | c Borin     | g N                                   | lo. KIF-I             | B03b                       |                         |         |             |
|--|--------------------------|-----------|-----|-------------|---------------------------------|--|-----------------------------|-------------|---------------------------------------|-----------------------|----------------------------|-------------------------|---------|-------------|
| Cli  | Project Number 175668043 |           |     | Authority   | Boring                          | Location   | on                          | 575,718.8   | 36 N; 2,408,23                        | 8.19                  | E NAD83                    | <b>3</b>                |         |             |
| Pro  | oject                    | Lithology |     |             |                                 |  | Surfac                      | e Eleva     | atio                                  | n <u>776.5</u> ft     | Elevati                    | on [                    | Datum_  | NGVD29      |
|  | I                        | _ithology |     |             |                                 |  | Ove                         | rburden:    |                                       | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>      |                         | Rec. Ft | Blows/PSI   |
| Depth  | r Ft <sup>3</sup>        | Elevation | Gra | aphic       | Desc                            | ription  | Roo                         | k Core:     |                                       | RQD %                 | Run Ft                     |                         | Rec. Ft | Rec. %      |
| - 45 - 46 - 47 - 48 - 49 - 50 - 51 - 52 - 53 |                          |           | Gra | aphio       | SILT, ML, hard, moi depth, [Co  | , 5Y 2.5/1 (black), non-plast st to wet, no odor, grain size CR] (Continued)  BILT, ML, 10Y 3/2 (very dark ght gray), low plasticity, hard | Rootiic, hard to e decrease | very s with | 48.5/48.5-20191205 51.5/83.5-20191205 |                       | -                          | 45.0 - 50.0 50.0 - 55.0 |         |             |
| - 56<br>- 57<br>- 58<br>- 59                 | 60.0                     | 740 F     |     |             |                                 | ght organic odor   |                             |             |                                       | DP04G                 | 55.0 - 57.5<br>57.5 - 60.0 | 55.0 - 57.5 57.5 - 60.0 | 2.5     | N/A         |
| 60   | 60.0                     | 716.5     |     |             | Heavily in from 59.6            | on stained 10YR 4/4 (dark y<br>'' to 60.0'.  | yellowish b                 | rown)       |                                       |                       |                            |                         | \       | <del></del> |
|  |                          |           |     |             | No Refus<br>Bottom of           | al /<br>f Hole at 60.0 Ft.   |                             |             |                                       |                       |                            |                         |         |             |
|  |                          |           | 2   | G<br>2: a,l | = Geotechnica<br>b,c denote Spl | ntal Sample Custody (two Sp<br>al Sample Custody<br>lit Spoon divided between E<br>orted in feet below ground si                           | Environmer                  | •           | ·                                     |                       |                            | mple                    | )       | -<br>-      |



| C    | Client E            | Borehole           | ID N/A  | 4   | S           | tantec Borin  | g N      | No. KIF-              | B04a                  |           |              |            |
|------|---------------------|--------------------|---------|---|-------------|---------------|----------|-----------------------|-----------------------|-----------|--------------|------------|
| C    | Client              |                    | Tennes  | ssee Valley Authority                     |             | oring Locatio |          |                       | 09 N; 2,407,874.2     | 27 I      | E NAD83      |            |
| F    | roject              | Number             | 175668  | 3043                                      | S           | urface Eleva  | tio      | n <u>765.5 ft</u>     | Elevation             | n D       | atum_ ı      | NGVD29     |
| F    | roject              | Name               | KIF TD  | EC Order                                  | D           | ate Started   | _        | 12/5/19               | Complete              | ed        | 12/5/        | 19         |
| F    | roject              | Location           | ו Ha    | rriman, Tennessee                         | D           | epth to Wate  | er _     | N/A                   | Date/Tim              | ne        | N/A          |            |
| lı   | nspect              | or E. Sr           | nith    | Logger E. Smith                           |             | epth to Wate  | _        |                       | Date/Tim              | ne        | N/A          |            |
|      | -                   | Contract           |         | wkston                                    |             | rill Rig Type |          |                       |                       |           |              |            |
|      |                     |                    | _       | Sampling Tools (Type and                  |             |               | e S      | oil Sampling          | System with 60"       | ' P\      | /C Liners    | <u> </u>   |
|      |                     | _                  |         | ling Tools (Type and Size)                | No Cor      | ing           |          |                       | 0                     |           | 41           |            |
|      |                     | _                  |         | and Size) <u>NA</u><br>No SPT Weight      | N/A         | Drop N        | Ι/Δ      |                       | Overdrill I           |           | ptn'<br> V/A | N/A        |
|      |                     | le Azimut          |         | No SPT Weight                             |             | orehole Incli |          |                       | Efficiency Vertical)  | '<br>N//  |              |            |
|      |                     | ed By              |         | sselman                                   |             | pproved By    |          | M. Aplin              | vertical)             | ,,        | •            |            |
|      |                     |                    |         |   | , ,         | 1 1           | _        |                       | Danth Ct3             |           | Dos E        | Player/DC! |
| D    | oth Ft <sup>3</sup> | Lithology          | Cronbir | December 41 - 11                          |             | Overburden:   |          | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |           | Rec. Ft      | Blows/PSI  |
| Deb  |                     | Elevation<br>765.5 | Graphic | Description Top of Hole                   |             | Rock Core:    | $\vdash$ | RQD %                 | Run Ft                | Τ         | Rec. Ft      | Rec. %     |
| - 0  | 0.0                 | . 55.5             |         | No sampling conducted from 0.0            | 0 to 35.0'  | borina        | $\dag$   |                       |                       | $\dagger$ |              |            |
| - 1  |                     |                    |         | advanced through this interval u          | ising DPT   | with closed   |          |                       |                       |           |              |            |
|      |                     |                    |         | tip. Refer to boring log KIF-TW0 details. | 4 for 0.0 - | 35.0'         |          |                       |                       |           |              |            |
| - 2  |                     |                    |         | dotallo.                                  |             |               |          |                       |                       |           |              |            |
| - 3  |                     |                    |         |   |             |               |          |                       |                       |           |              |            |
|      |                     |                    |         |   |             |               |          |                       |                       |           |              |            |
| - 4  |                     |                    |         |   |             |               |          |                       |                       |           |              |            |
| - 5  |                     |                    |         |   |             |               |          |                       |                       |           |              | -          |
|      |                     |                    |         |   |             |               |          |                       |                       |           |              |            |
| - 6  |                     |                    |         |   |             |               |          |                       |                       |           |              |            |
| - 7  |                     |                    |         |   |             |               |          |                       |                       |           |              |            |
|      |                     |                    |         |   |             |               |          |                       |                       |           |              |            |
| - 8  |                     |                    |         |   |             |               |          |                       |                       |           |              |            |
| - 9  |                     |                    |         |   |             |               |          |                       |                       |           |              |            |
| 40   |                     |                    |         |   |             |               |          |                       |                       |           |              |            |
| - 10 |                     |                    |         |   |             |               |          |                       |                       |           |              | -          |
| - 11 |                     |                    |         |   |             |               |          |                       |                       |           |              |            |
| 10   |                     |                    |         |   |             |               |          |                       |                       |           |              |            |
| - 12 |                     |                    |         |   |             |               |          |                       |                       |           |              |            |
| - 13 |                     |                    |         |   |             |               |          |                       |                       |           |              |            |
| - 14 |                     |                    |         |   |             |               |          |                       |                       |           |              |            |
| 14   |                     |                    |         |   |             |               |          |                       |                       |           |              |            |
| - 15 |                     |                    |         |   |             |               |          |                       |                       |           |              | -          |
| - 16 |                     |                    |         |   |             |               |          |                       |                       |           |              |            |
| 10   |                     |                    |         |   |             |               |          |                       |                       |           |              |            |
| - 17 |                     |                    |         |   |             |               |          |                       |                       |           |              |            |
|      |                     |                    |         |   |             |               |          |                       |                       |           |              |            |



| Clie    | nt E            | Borehole  | ID N/A                                       | 1   | St     | antec Borin    | g N         | lo. KIF-l             | B04a                  |          |          |           |
|---------|-----------------|-----------|--|---|--------|----------------|-------------|-----------------------|-----------------------|----------|----------|-----------|
| Clie    | nt              |           | Tennes                                       | see Valley Authority  |        | oring Location |             |                       | 09 N; 2,407,874       | .27      | E NAD83  |           |
| Proj    | ject            | Number    | 175668                                       | 043   | Sι     | ırface Eleva   | atio        | n <u>765.5</u> ft     | Elevation             | on E     | oatum_ r | NGVD29    |
|         |                 | _ithology |  |   |        | Overburden:    |             | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |          | Rec. Ft  | Blows/PSI |
| Depth F | Ft <sup>3</sup> | Elevation | Graphic                                      | Description   |        | Rock Core:     |             | RQD %                 | Run Ft                |          | Rec. Ft  | Rec. %    |
| - 18    |                 |           |  | N   | 01.1   |                |             |                       |                       |          |          | _         |
| - 19    |                 |           |  | No sampling conducted from 0.0 to 35 advanced through this interval using D tip. Refer to boring log KIF-TW04 for 0 | PT۱    | with closed    |             |                       |                       |          |          | -         |
| - 20    |                 |           |  | details. (Continued)  |        |                |             |                       |                       |          |          | _         |
| - 21    |                 |           |  |   |        |                |             |                       |                       |          |          | -         |
| - 22    |                 |           |  |   |        |                |             |                       |                       |          |          | -         |
| - 23    |                 |           |  |   |        |                |             |                       |                       |          |          | _         |
| - 24    |                 |           |  |   |        |                |             |                       |                       |          |          | -         |
| - 25    |                 |           |  |   |        |                |             |                       |                       |          |          | _         |
| - 26    |                 |           |  |   |        |                |             |                       |                       |          |          | -         |
| - 27    |                 |           |  |   |        |                |             |                       |                       |          |          | _         |
| - 28    |                 |           |  |   |        |                |             |                       |                       |          |          | _         |
| - 29    |                 |           |  |   |        |                |             |                       |                       |          |          | -         |
| - 30    |                 |           |  |   |        |                |             |                       |                       |          |          | _         |
| - 31    |                 |           |  |   |        |                |             |                       |                       |          |          | _         |
| - 32    |                 |           |  |   |        |                |             |                       |                       |          |          | _         |
| - 33    |                 |           |  |   |        |                |             |                       |                       |          |          | _         |
| - 34    |                 |           |  |   |        |                |             |                       |                       |          |          | -         |
| - 35    | 5.0             | 730.5     | • • • • •                                    | POORLY GRADED SAND, SP, 10B 2   | .5/1   | (bluish        | _           |                       |                       |          |          | _         |
| - 36    |                 |           |  | black), very fine, very loose, wet, poorl [CCR]   |        |                |             | DP01aG                | 35.0 - 36.5           |          |          | -         |
| - 37    |                 |           |  |   |        |                | 36.5/38.5-2 | DP01bE                | 36.5 - 38.5           | 35.0 - 4 | 5.0      | N/A       |
| - 38    |                 |           |  |   |        |                | 0191205     |                       |                       | 40.0     |          | _         |
| - 39    |                 |           |  |   |        |                |             | DP01cG                | 38.5 - 40.0           |          |          | -         |
| - 40    | 0.0             | 725.5     | . • . • . •  <br>                            | SILT, ML, 10B 2.5/1 (bluish black), noi   | n-pla  | astic. firm    |             |                       |                       |          |          | _         |
| - 41    |                 |           |  | wet, poorly graded, [CCR]   | ۰، ۲۰۰ | ,,             |             | DP02aG                | 40.0 - 41.5           |          |          | _         |
| - 42    |                 |           | <u>                                     </u> |   |        |                |             |                       |                       |          |          |           |



Page: 3 of 3

| С                               | lient E  | Borehole  | ID N/A  |  | Stantec Borin            | g N          | lo. KIF-l             | B04a                  |             |               |           |
|---------------------------------|--|-----------|---------|--|--------------------------|--------------|-----------------------|-----------------------|-------------|---------------|-----------|
| c                               | lient  |           | Tennes  | see Valley Authority   | Boring Location          | on           | 574,774.0             | 09 N; 2,407,874       | .27 I       | E NAD83       | 1         |
| P                               | roject   | Number    | 175668  | 043  | Surface Eleva            | atio         | n <u>765.5</u> ft     | Elevatio              | n D         | atum <u>r</u> | NGVD29    |
|                                 |  | Lithology |         |  | Overburden:              | :            | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |             | Rec. Ft       | Blows/PSI |
| Dep                             | th Ft <sup>3</sup>   | Elevation | Graphic | Description  | Rock Core:               |              | RQD %                 | Run Ft                |             | Rec. Ft       | Rec. %    |
| - 43                            |  |           |         | Minimal coarse angular gravel at 42.0' SILT, ML, 10B 2.5/1 (bluish black), nor   | n-plastic, firm,         | 41.5/43.5-20 | DP02bE                | 41.5 - 43.5           | 40.0 - 45.0 | 5.0           | N/A       |
| _ 11                            | wet, poorly graded, [CCR] (Continuate 44.0 721.5 wet, poorly graded, [CCR] |           |         |  | <i>1)</i>                | 191205       | DP02cG                | 43.5 - 44.0           |             |               | _         |
| - 45                            | LEAN CLAY, CL, 10B 2.5/1 (bluish b   |           |         |  | ck), very soft,          |              | DP02dG                | 44.0 - 45.0           |             |               | _         |
| - 46<br>- 47                    |  |           |         | LEAN CLAY, CL, 5Y 6/2 (light olive gra<br>(olive gray), firm to hard, moist to wet,<br>organic odor, iron oxide staining, color<br>content change with depth, mottled 7.5<br>(brown) | moderate<br>and moisture |              | DP03G                 | 45.0 - 47.5           | 45.0 - 47.5 | 2.5           | N/A -     |
| - 48<br>- 49<br>- <del>50</del> | 50.0 715.5   |           |         |  |                          |              | DP04G                 | 47.5 - 50.0           | 47.5 - 50.0 | 2.5           | N/A _     |
| 30                              |  |           |         | No Refusal /<br>Bottom of Hole at 50.0 Ft.   |                          |              |                       |                       |             |               |           |

E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)

G = Geotechnical Sample Custody
2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples

<sup>3:</sup> Depths are reported in feet below ground surface



| Client l              | Borehole       | ID N                                      | /A   | Stantec Boring      | No. KIF-              | ΓW01                   |           |           |
|-----------------------|----------------|---|--|---------------------|-----------------------|------------------------|-----------|-----------|
| Client                |                | Tenne                                     | essee Valley Authority                                       | Boring Location     | <u>576,050.0</u>      | 03 N; 2,407,660.0      | 5 E NAD83 |           |
| Project               | Number         | 17566                                     | 68043  | Surface Elevati     | on <u>771.8 ft</u>    | Elevation              | Datum_r   | NGVD29    |
| Project               | Name           | KIF T                                     | DEC Order  | Date Started        | 1/24/19               | Complete               | ed1/28/   | 19        |
| Project               | Locatio        | n <u>H</u>                                | arriman, Tennessee   | Depth to Water      | 15.5 ft               | Date/Tim               | e1/25/    | 19 09:05  |
|                       |                |   | Logger D. Mihalek  | Depth to Water      | N/A                   | Date/Tim               | e N/A     |           |
| Drilling              | Contract       | tor _S                                    | tantec Consulting Services Inc.                              | Drill Rig Type a    | ind ID CME            | 55T#1, #709            |           |           |
| Overbu                | ırden Dril     | lling an                                  | nd Sampling Tools (Type and Size                             | )4-1/4" HSA, 3" SS  | S w/o liners, 3       | " Shelby Tubes         |           |           |
|                       | _              |   | pling Tools (Type and Size) N/A                              |                     |                       |                        |           |           |
| Overdr                | ill Tooling    | g (Type                                   | e and Size)8-1/4" HSA overdrill of b                         | oring               |                       | Overdrill [            | Depth     | 14.0 ft   |
|                       |                |   | e Automatic Weight 140                                       | Drop <u>30</u>      |                       | Efficiency             | N/A       |           |
| Boreho                | ole Azimu      |   | N/A (Vertical)   | Borehole Inclina    | ation (from           | Vertical)              | N/A       |           |
| Reviev                | ved By         | E. S                                      | Smith  | Approved By _       | L. Price              |                        |           |           |
|                       | Lithology      |   |  | Overburden:         | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>  | Rec. Ft   | Blows/PSI |
| Depth Ft <sup>3</sup> | Elevation      | Graphi                                    | Description  | Rock Core:          | RQD %                 | Run Ft                 | Rec. Ft   | Rec. %    |
| 0.0                   | 771.8          | ·   | Top of Hole  |                     |                       |                        |           |           |
| - 0 0.0<br>0.3        | 771.5          |   |  |                     |                       | ç                      |           |           |
| - 1                   |                |   | FAT CLAY, CH, 5YR 4/6 (yellowish re                          | ed) high            | SS01G                 | 0.0 - 1.5              | 1.2       | 2-3-8     |
| 1.9                   | 769.9          |   | plasticity, firm, with sand and interbed                     |                     | SS02aG                | 1.5 - 1.9              |           |           |
| - 2                   | 7 00.0         |   | pebbles, [FILL]  |                     | SS02b                 | 1.9 - 2.0              | 1.5       | 9-16-19   |
| - 3                   |                |   | SANDY SILT, ML, 5Y 4/1 (dark gray)                           | non-plastic,        | SS02cE                | 2.0 - 3.0              |           | _         |
| - 3                   |                |   | firm, dry, [CCR]   | 01901               | SS03aE                | 3.0 - 4.0              |           |           |
| - 4                   |                |   |  | 24                  | SS03bG                | 4                      | 1.5       | 11-15-18  |
|                       |                |   |  |                     |                       | 4.0 - 4.5              |           |           |
| - 5  <br>5.5          | 766.3          |   |  |                     | SS04aG                | 4.5 - 5.5              | 1.3       | 19-42-17  |
| 6.0                   | 765.8          | 0 0                                       | WELL GRADED GRAVEL, GW, 10YF                                 | R 6/1 (gray),       | SS04bG                | 5.5 - 6.0              |           | _         |
| 6.5                   | 765.3<br>764.8 |   | dense, riprap, limestone, [FILL]                             |                     | SS05aG<br>SS05bG      | 6.0 - 6.5<br>6.5 - 7.0 | 1.5       | 5-6-31    |
| - 7 <b>7.0</b>        | 704.8          |   | SILT, ML, 5Y 4/1 (dark gray), low plas                       | sticity, firm, dry, | SS05cE                | 7.0 - 7.5              | 1.5       | 3-0-31    |
| - 8                   |                |   | │  | )/9.0-2             |                       | -                      |           | _         |
| - 6                   |                |   | FAT CLAY, CH, 7.5YR 4/4 (brown), h                           | igh plasticity,     | SS06E                 | 7.5 - 9.0              | 1.5       | 23-32-35  |
| - 9                   |                |   |  |                     | SS07aG                | 9.0 - 9.5              |           | -         |
|                       |                |   | SILT, ML, 5Y 4/1 (dark gray), low plast [CCR]                | sticity, nard, dry, | SS07bG                | 9.5 - 10.0             | 1.5       | 7-25-48   |
| - 10                  |                |   |  |                     | SS07cG                | 10.0 - 10.5            |           | _         |
| - 11                  |                |   |  |                     | SS08aG                | 10.5 - 11.5            |           |           |
| 11.8                  | 760.0          |   |  |                     | SS08bE                | 11.5 - 12.0            | 1.5       | 17-24-19  |
| - <sub>12</sub> 12.0  | 759.8          |   | FAT CLAY, CH, 7.5YR 4/4 (brown), h                           | igh plasticity,     |                       | 11.5 - 12.0            |           | -         |
| - 13                  |                |   | firm, moist, [FILL]  | 5-20190             | SS09E                 | 12.0 - 13.5            | 1.5       | 8-11-14   |
| 13.5                  | 758.3          | $\parallel \parallel \parallel \parallel$ | SILT, ML, 5Y 4/1 (dark gray), low plas                       | sticity, firm, dry, |                       | ŏ                      |           |           |
| - 14                  |                |   | [CCR]  |                     | SS10G                 | 13.5 - 15.0            | 1.5       | 12-11-11  |
|                       |                |   | SILTY SAND, SM, 10YR 3/1 (very da medium dense, moist, [CCR] | rk gray),           | 33100                 | 13.3 - 13.0            | 1.5       | 12-11-11  |
| - 15  <br>            |                |   | inculant dense, moist, [OOK]                                 |                     |                       | ā                      | ,         | _         |
| - 16                  |                |   | Wet at 15.5'   |                     | SS11G                 | 15.0 - 16.5            | 1.5       | 9-9-6     |
|                       |                |   | Very lease at 10 Fl  | 6.5/18              |                       | ٥                      |           |           |
| - 17                  |                |   | Very loose at 16.5'  | 1.5-201             | SS12E                 | 16.5 - 18.0            | 1.5       | 3-2-3     |
|                       |                |   | <del> </del>   | 9012                |                       | ō                      |           |           |



| С                                     | lient E            | Borehole  | ID N/A  | A   | Stantec Boring   | g N              | o. KIF-               | TW01                       |                 |         |                  |
|---------------------------------------|--------------------|-----------|---------|---|------------------|------------------|-----------------------|----------------------------|-----------------|---------|------------------|
| c                                     | lient              |           | Tennes  | ssee Valley Authority   | Boring Location  |                  |                       | 03 N; 2,407,660.           | .05 E           | E NAD83 |                  |
| P                                     | roject             | Number    | 175668  | 3043  | Surface Eleva    | tio              | 771.8 ft              | Elevatio                   | n D             | atum_ı  | NGVD29           |
|                                       |                    | Lithology |         |   | Overburden:      | (                | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>      |                 | Rec. Ft | Blows/PSI        |
| Dep                                   | th Ft <sup>3</sup> | Elevation | Graphic | Description   | Rock Core:       |                  | RQD %                 | Run Ft                     |                 | Rec. Ft | Rec. %           |
| - 18<br>- 19                          |                    |           |         | SILTY SAND, SM, 10YR 3/1 (very dar<br>medium dense, moist, [CCR] (Contin          |                  |                  | SS13aE<br>SS13bG      | 18.0 - 18.5<br>18.5 - 19.5 | 18.0 - 19       | 1.5     | 2-1-2<br>_       |
| - 20                                  |                    |           |         |   |                  |                  | ST01G                 | 19.5 - 21.5                | 5 19.5 - 2      | 0.0     | NR               |
| - 21<br>- 22                          |                    |           |         |   |                  | 21.5/23.         | SS15E                 | 21.5 - 22.5                | 1.5 21.5-2      | 1.0     | 3-3 -            |
| - 23                                  |                    |           |         |   |                  | 5-20190128       | SS16aE<br>SS16bG      | 22.5 - 23.5<br>23.5 - 24.0 | 2.5 22.5 - 24.0 | 1.5     | 2-2-3            |
| - 24<br>- 25                          |                    |           |         |   |                  |                  | ST02G                 | 24.0 - 26.0                | 24.0 - 26.0     | 0.0     | NR —             |
| - 26<br>- 27                          | 26.0               | 745.8     |         | SILTY SAND WITH GRAVEL, SM, 5Y coarse, very loose, wet, [CCR]                     | R 2.5/1 (black), | 26.5/28          | SS18a<br>SS18bE       | 26.0 - 26.5<br>26.5 - 27.0 | 26.0 - 27.0     | 0.7     | -<br>WH-2-4<br>- |
| - 28                                  |                    |           |         |   |                  | .5-20190128      | SS19E                 | 27.0 - 28.5                | 27.0 - 28.5     | 1.5     | 2-5-7            |
| - 29<br>- 30                          |                    |           |         |   |                  |                  | SS20G<br>SS21aG       | 28.5 - 30.0<br>30.0 - 30.5 | 8.5 - 30.0      | 1.5     | 5-5-5<br>—       |
| - 31                                  | 31.0               | 740.8     |         | SILTY SAND, SM, 5YR 2.5/1 (black),  | fine to medium,  | 31               | SS21b<br>SS21cG       | 30.5 - 31.0<br>31.0 - 31.5 | 30.0 - 31.5     | 1.2     | 4-4-4            |
| - 32<br>- 33                          | 33.0               | 739.8     |         | loose, wet, [CCR]  WELL GRADED SAND, SW, 5YR 2.5,  coarse, very loose, wet, [CCR] |                  | .5/33.5-20190128 | SS22E<br>SS23aE       | 31.5 - 33.0<br>33.0 - 33.5 | 31.5 - 33.0     | 1.5     | 3-3-6            |
| - 34                                  |                    |           |         | SILTY SAND, SM, 5YR 2.5/1 (black), very loose, wet, [CCR]                         | fine to medium,  | 28               | SS23bG                | 33.5 - 34.5                | 33.0 - 34.5     | 1.5     | 3-5-5            |
| RF DT 20190530.GDT — 36               |                    |           |         |   |                  |                  | SS24G                 | 34.5 - 36.0                | 34.5 - 36.0     | 1.5     | 1-3-5            |
|                                       |                    |           |         |   |                  | 36.5/38.5-2      | SS25aG<br>SS25bE      | 36.0 - 36.5<br>36.5 - 37.5 | 36.0 - 37.5     | 1.5     | 2-4-9            |
| 175666043_TVA_KIF_TDEC.GPJ TDEC SUBSI | 38.8               | 733.0     |         | SILT, ML, 7.5YR 3/1 (very dark gray),   | non-plastic      | 0190128          | SS26aE<br>SS26bG      | 37.5 - 38.5<br>38.5 - 39.0 | 37.5 - 39.0     | 1.5     | 10-7-8<br>_      |
| - 40                                  | 40.5               | 731.3     |         | very loose, wet, [CCR]  | ทงห-ุมส่วนป,     |                  | SS27G                 | 39.0 - 40.5                | 39.0 - 40.5     | 1.5     | 1-1-1 _          |
| 174 EID BORING FO                     | 41.5               | 730.3     |         | SILTY SAND, SM, 5YR 3/1 (very dark loose, wet, [CCR]                              | gray), very      |                  | SS28G                 | 40.5 - 42.0                | 40.5 - 42.0     | 1.5     | 1-2-1<br>        |



Page: 3 of 3

| Client I              | Borehole ID _  | N/A   | Stantec Borin             | g N  | lo. KIF-              | TW01                               |           |           |
|-----------------------|----------------|---|---------------------------|------|-----------------------|------------------------------------|-----------|-----------|
| Client                | Ten            | nessee Valley Authority   | Boring Location           |      |                       | 03 N; 2,407,660.0                  | 5 E NAD83 | <b>,</b>  |
| Project               | Number 175     | 668043  | Surface Eleva             | itio | n <u>771.8 ft</u>     | Elevation                          | Datum_    | NGVD29    |
|                       | Lithology      |   | Overburden:               |      | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>              | Rec. Ft   | Blows/PSI |
| Depth Ft <sup>3</sup> | Elevation Grap | nic Description   | Rock Core:                |      | RQD %                 | Run Ft                             | Rec. Ft   | Rec. %    |
| - 43<br>44.0          | 727.8          | SILT, ML, 5YR 3/1 (very dark gray), loose, wet, [CCR] (Continued)                   | non-plastic, very         |      | ST03G                 | 42.0 - 44.0 <sup>42.0</sup> - 44.0 | 1.2       | NR        |
| 44                    |                | No Refusal /<br>Bottom of Hole at 44.0 Ft.  |                           |      |                       | •                                  |           |           |
|                       |                | DOLLOTH OF HOTE AL 44.0 Ft.   |                           |      |                       |                                    |           | _         |
|                       |                |   |                           |      |                       |                                    |           | -         |
|                       |                |   |                           |      |                       |                                    |           | _         |
|                       |                |   |                           |      |                       |                                    |           |           |
|                       | Te             | mporary well installed. See well installatior                                       | n log for backfill detail | ls   |                       |                                    |           | -         |
|                       |                |   |                           |      |                       |                                    |           | -         |
|                       | 1:             | E = Environmental Sample Custody (two S<br>G = Geotechnical Sample Custody          | Split Spoons may be r     | equ  | ired to obta          | in sufficient samp                 | le)       | _         |
|                       | 2: 8           | a,b,c denote Split Spoon divided between Depths are reported in feet below ground s | Environmental and G       | eot  | echnical Sa           | mples                              |           | _         |
|                       | <b>3.</b> 1    | Sopilis are reported in reet below ground s   | dilacc                    |      |                       |                                    |           | -         |
|                       |                |   |                           |      |                       |                                    |           |           |
|                       |                |   |                           |      |                       |                                    |           |           |
|                       |                |   |                           |      |                       |                                    |           | -         |
|                       |                |   |                           |      |                       |                                    |           | -         |
|                       |                |   |                           |      |                       |                                    |           |           |
|                       |                |   |                           |      |                       |                                    |           | _         |
|                       |                |   |                           |      |                       |                                    |           | -         |
|                       |                |   |                           |      |                       |                                    |           |           |
|                       |                |   |                           |      |                       |                                    |           |           |
|                       |                |   |                           |      |                       |                                    |           | -         |
|                       |                |   |                           |      |                       |                                    |           |           |
|                       |                |   |                           |      |                       |                                    |           |           |
|                       |                |   |                           |      |                       |                                    |           | _         |
|                       |                |   |                           |      |                       |                                    |           | -         |
|                       |                |   |                           |      |                       |                                    |           | -         |
|                       |                |   |                           |      |                       |                                    |           |           |
|                       |                |   |                           |      |                       |                                    |           | -         |
|                       |                |   |                           |      |                       |                                    |           |           |
|                       |                |   |                           |      |                       |                                    |           |           |
|                       |                |   |                           |      |                       |                                    |           | _         |
|                       |                |   |                           |      |                       |                                    |           |           |



| C          | lient E            | Borehole  | IDN/   | Α   | Stantec Borin   | g N                                   | o. KIF-               | TW02                  |          |         |           |
|------------|--------------------|-----------|--|---|-----------------|---------------------------------------|-----------------------|-----------------------|----------|---------|-----------|
| C          | Client             |           | Tenne  | ssee Valley Authority   | Boring Location | on                                    | 575,548.              | 50 N; 2,407,585       | .76 I    | E NAD83 |           |
| F          | roject             | Number    | 175668   | 8043  | Surface Eleva   | atior                                 | 771.9 ft              | Elevation             | n D      | atum_r  | NGVD29    |
| F          | roject             | Name      | KIF TE   | DEC Order   | Date Started    | _                                     | 2/5/19                | Comple                | ted      | 2/5/19  | )         |
| F          | roject             | Location  | n Ha   | arriman, Tennessee  | Depth to Wat    | er _                                  | 18.3 ft               | Date/Tii              | me       |         |           |
| lı         | nspect             | or J. Ar  | ndrew  | Logger D. Mihalek   | Depth to Wat    | er _                                  | N/A                   | Date/Tii              | me       | N/A     |           |
|            | rilling            | Contract  | or Sta   | antec Consulting Services Inc.  | Drill Rig Type  | and                                   | ID CWE                | 55T#1, #709           |          |         |           |
| C          | verbu              | rden Dril | ling and   | d Sampling Tools (Type and Size)  | 4-1/4" HSA, 3"  | SS v                                  | v/o liners, 3         | " Shelby Tubes        |          |         |           |
|            |                    | -         |  | oling Tools (Type and Size) N/A   |                 |                                       |                       |                       |          |         |           |
|            |                    | _         |  | and Size) 8-1/4" HSA overdrill of bo                                    |                 |                                       |                       | Overdrill             | De       | pth _   | 4.5 ft    |
|            | -                  |           |  | Automatic Weight 140  | Drop _3         |                                       |                       | Efficiency            |          | I/A     |           |
|            |                    | le Azimu  |  |   | Borehole Incli  |                                       | •                     | Vertical)             | N/A      | 4       |           |
| F          | Review             | ed By _   | E. Sr  | nith  | Approved By     |                                       | L. Price              |                       |          |         |           |
|            | L                  | _ithology |  |   | Overburden:     | 5                                     | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |          | Rec. Ft | Blows/PSI |
| Dep        | th Ft <sup>3</sup> | Elevation | Graphic  | Description   | Rock Core:      |                                       | RQD %                 | Run Ft                |          | Rec. Ft | Rec. %    |
| <b>–</b> 0 | 0.0                | 771.9     |  | Top of Hole   |                 |                                       |                       |                       |          |         |           |
|            | 0.8                | 771.1     |  | ORGANIC SILT, OL, 7.5YR 4/3 (brow                                       | ,               |                                       | SS01G                 | 0.0 - 1.5             | 0.0      | 1.3     | 1-4-5     |
| - 1        |                    |           |  | plasticity, stiff, moist, with organic mat                              |                 |                                       | 33016                 | 0.0 - 1.5             | 1.5      | 1.3     | 1-4-5     |
| - 2        |                    |           |  | FAT CLAY WITH SAND, CH, 7.5 4/3 plasticity, soft, moist, some limestone | , , -           |                                       | SS02aG                | 1.5 - 2.25            |          |         | _         |
| 2          | 2.3                | 769.6     |  | interbedded, [FILL]   |                 | 2.25                                  | SS02bE                | 2.25 - 3.0            | 5 - 3.0  | 1.5     | 4-6-8     |
| - 3        | 3.5                | 768.4     |  | SILTY SAND, SM, 2.5Y 4/1 (dark gray                                     | y), very loose, | /4.0-20                               | 0002DL                | 2.23 - 3.0            |          |         | -         |
|            | 3.5                | 700.4     |  | moist, [CCR]  |                 | 19020                                 | SS03aE                | 3.0 - 4.0             | 3.0 - 4  | 1.3     | 1-16-23   |
| - 4        |                    |           |  | SILTY GRAVEL WITH SAND, GM, 2.5   | 5Y 4/1 (dark    | 01                                    | SS03bG                | 4.0 - 4.5             | 5        |         | _         |
| - 5        |                    | 700.4     |  | gray), medium dense, dry, [CCR]   |                 |                                       | SS04aG                | 4.5 - 5.5             | 4.5      | 1.5     |           |
|            | 5.5                | 766.4     |  | SILTY SAND, SM, 2.5Y 4/2 (dark gray                                     | /ish brown)     | $\left\{ \ \right\} \left[ \ \right]$ | SS04bG                | 5.5 - 6.0             | 6.0      | 1.5     | 10-21-30  |
| - 6        |                    |           |  | medium dense to dense, dry to moist,                                    |                 |                                       | SS05aG                | 6.0 - 6.5             | 6        |         | _         |
| - 7        |                    |           | $\  \cdot  | Geofabric at 5.5'   |                 | 6.5/8                                 | SS05bE                | 6.5 - 7.5             | 0 - 7.5  | 1.5     | 23-44-46  |
|            |                    |           |  |   |                 | 5-2019                                |                       |                       |          |         |           |
| - 8        |                    |           | $\  \cdot  |   |                 | 90205                                 | SS06aE                | 7.5 - 8.5             | 7.5 - 9  | 1.4     | 13-29-30  |
| - 9        |                    |           |  |   |                 |                                       | SS06bG                | 8.5 - 9.0             | 0        |         | _         |
|            |                    |           | $\  \cdot \ _{1}$  |   |                 |                                       | SS07G                 | 0.0 10.5              | 9.0-     | 1 -     | 6 40 00   |
| - 10       |                    |           |  |   |                 |                                       | 3307G                 | 9.0 - 10.5            | 10.5     | 1.5     | 6-18-22 _ |
| - 11       |                    |           | $\  \dagger \dagger \dagger \dagger \dagger $  |   |                 |                                       | SS08aG                | 10.5 - 11.5           | 10       |         | _         |
| '''        |                    |           |  |   |                 | _                                     |                       |                       | 5 - 12.  | 1.5     | 12-28-32  |
| - 12       |                    |           | $\  \cdot \ _1 + \  \cdot \ _1$  |   |                 | 1.5/13.                               | SS08bE                | 11.5 - 12.0           |          |         | -         |
|            |                    |           |  |   |                 | 5-2019                                | SS09E                 | 12.0 - 13.5           | 12.0 - 1 | 1.5     | 21-20-20  |
| – 13       |                    |           |  |   |                 | 90205                                 |                       |                       | 3.5      |         | _         |
| - 14       |                    |           |  | Loose at 13.5'  |                 |                                       | 00400                 | 40 5 45 0             | 13.5     | 4.5     | 0.40.40   |
|            |                    |           |  |   |                 |                                       | SS10G                 | 13.5 - 15.0           | - 15.0   | 1.5     | 8-12-13   |
| - 15       | 15.5               | 756.4     |  |   |                 |                                       |                       |                       | 15       |         | _         |
| - 16       |                    |           | $\ \cdot\ _{L^{2}}$  | SILTY SAND, SM, 2.5Y 4/2 (dark gray                                     | vish brown),    |                                       | SS11G                 | 15.0 - 16.5           | 0 - 16.  | 1.5     | 6-9-9     |
|            |                    |           | $\parallel \downarrow \mid \downarrow \downarrow \downarrow \downarrow$  | loose, wet, [CCR]   |                 | 6.5/18.                               |                       |                       | 5        |         |           |
| - 17       |                    |           | $\  \cdot \  \cdot \  \cdot \ $  | Organic material (twigs) at 16.5'                                       |                 | .5-2019                               | SS12E                 | 16.5 - 18.0           | 16.5 - 1 | 1.5     | 2-6-13    |
|            |                    |           |  |   |                 | 3020                                  |                       |                       | 8.0      |         |           |



| Client l                  | Borehole       | ID N/A  |   | Stantec Borin   | g N           | o. KIF-               | ΓW02                       |               |               |                    |
|---------------------------|----------------|---------|---|-----------------|---------------|-----------------------|----------------------------|---------------|---------------|--------------------|
| Client                    |                | Tennes  | see Valley Authority  | Boring Location |               |                       | 50 N; 2,407,585.           | .76 E         | NAD83         |                    |
| Project                   | Number         | 175668  | 043   | Surface Eleva   | atio          | 771.9 ft              | Elevatio                   | n D           | atum <u>r</u> | NGVD29             |
|                           | Lithology      |         |   | Overburden:     | :             | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>      |               | Rec. Ft       | Blows/PSI          |
| Depth Ft <sup>3</sup>     | Elevation      | Graphic | Description   | Rock Core:      |               | RQD %                 | Run Ft                     |               | Rec. Ft       | Rec. %             |
| - 18 <u>\</u><br>- 19     |                |         | SILTY SAND, SM, 2.5Y 4/2 (dark grayi loose, wet, [CCR] (Continued)            | sh brown),      |               | SS13aE<br>SS13bG      | 18.0 - 18.5<br>18.5 - 19.5 | 18.0 - 19.5   | 1.5           | -<br>11-12-10<br>_ |
| - 20<br>- 21              |                |         |   |                 |               | SS14G                 | 19.5 - 21.0                | 19.5 - 21.0   | 1.5           | 1-4-6              |
| - 22                      |                |         |   |                 |               | ST01G                 | 21.0 - 23.0                | 21.0 - 23.0   | 1.8           | NR -               |
| - 23<br>- 24              | 748.4          |         | SILTY SAND WITH GRAVEL, SM, 5Y  | 3/1 (very dark  | -             | SS16G                 | 23.0 - 24.0                | 23.0 - 24.0   | 1.0           | 6-10<br>-          |
| - 25                      |                |         | gray), very loose, wet, [CCR]   |                 |               | SS17G                 | 24.0 - 25.5                | 24.0 - 25.5   | 1.5           | 2-3-11 _           |
| - 26                      |                |         |   |                 | 26            | SS18aG<br>SS18bE      | 25.5 - 26.5<br>26.5 - 27.0 | 25.5 - 27.0   | 1.5           | 6-6-7              |
| - 27<br>- 28              |                |         |   |                 | 5/28.5-201902 | SS19E                 | 27.0 - 28.5                | 27.0 - 28.5   | 1.5           | 4-6-6              |
| - 29                      |                |         |   |                 | 05            | SS20G                 | 28.5 - 30.0                | 28.5 - 30.0   | 1.5           | 5-6-2              |
| - 30<br>- 31 31.0<br>31.5 | 740.9<br>740.4 |         | _ CLAYEY SILT, ML, 5Y 4/1 (dark gray),  | medium          | -             | SS21aG<br>SS21bG      | 30.0 - 31.0<br>31.0 - 31.5 | 30.0 - 31.5   | 1.5           | 1-1-1              |
| - 32                      | 7 10.1         |         | plasticity, very soft, wet, [CCR]  SILTY SAND, SM, 5Y 2.5/1 (black), ve       |                 | 31.5/33.5-20  | SS22E                 | 31.5 - 33.0                | 31.5 - 33.0   | 1.5           | 1-2-2              |
| - 33<br>- 34              |                |         | [CCR]   |                 | )190205       | SS23aE<br>SS23bG      | 33.0 - 33.5<br>33.5 - 34.5 | 33.0 - 34.5   | 1.5           | 1-2-2              |
| - 35                      |                |         |   |                 |               | SS24G                 | 34.5 - 36.0                | 34.5 - 36.0   | 1.5           | 2-2-3              |
| - 36<br>- 37              |                |         |   |                 | 36.5/3        | SS25aG<br>SS25bE      | 36.0 - 36.5<br>36.5 - 37.5 | 36.0 - 37.    | 1.5           | 1-2-3              |
| - 38<br>38.5              | 733.4          |         |   |                 | 8.5-20190205  | SS26aE                | 37.5 - 38.5                | 5 37.5 - 39.0 | 1.5           | 2-2-3              |
| - 39                      |                |         | SILT WITH SAND, ML, 5Y 2.5/1 (black (dark gray), non-plastic, soft, wet, [CCF |                 |               | SS26bG<br>SS27G       | 38.5 - 39.0<br>39.0 - 40.5 | 39.0 - 40.5   | 1.5           | -<br>2-3-3         |
| - 40<br>- 41              |                |         |   |                 |               | SS28aG                | 40.5 - 41.5                | 10.5 40.5     | 1.5           | <br>1-1-1          |
| - 42                      |                |         |   |                 |               | SS28b                 | 41.5 - 42.0                | 42.0          | 1.0           | i-i-i<br>-         |



Page: 3 of 3

| Client I                     | Borehole  | ID N/A  | ,   | Stantec Borin   | g No  | o. KIF-1                  | ΓW02                  |                         |         |                        |
|------------------------------|-----------|---------|---|-----------------|-------|---------------------------|-----------------------|-------------------------|---------|------------------------|
| Client                       |           | Tennes  |   | Boring Location |       |                           | 50 N; 2,407,585.      | 76 E                    | E NAD83 | <u> </u>               |
| Project                      | t Number  | 175668  | 5043  | Surface Eleva   | ation | 771.9 ft                  | Elevation             | n D                     | atum_r  | NGVD29                 |
|                              | Lithology |         |   | Overburden:     | S     | sample <sup>1,2</sup>     | Depth Ft <sup>3</sup> |                         | Rec. Ft | Blows/PSI              |
| Depth Ft <sup>3</sup>        | Elevation | Graphic | Description   | Rock Core:      | F     | RQD %                     | Run Ft                |                         | Rec. Ft | Rec. %                 |
| - 43<br>- 44<br>- 45<br>45.5 | 726.4     |         | SILT WITH SAND, ML, 5Y 2.5/1 (black) (dark gray), non-plastic, soft, wet, [CCR] (Continued) |                 |       | SS29aG<br>SS29bG<br>ST02G |                       | 42.0 - 43.5 43.5 - 45.5 | 1.5     | WH-WH-1 _<br>-<br>1540 |
|                              |           |         | No Refusal /<br>Bottom of Hole at 45.5 Ft.  |                 |       | ,                         |                       |                         |         | -                      |

Temporary well installed. See well installation log for backfill details

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody
  2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface



|      |                     |                       |  |  |                              |          | VIE :                 | TMO2                  |          |          |           |
|------|---------------------|-----------------------|--|--|------------------------------|----------|-----------------------|-----------------------|----------|----------|-----------|
|      |                     | Borehole              |  |  | Stantec Borin                |          |                       |                       |          |          |           |
|      | Client              |                       |  | see Valley Authority   | Boring Locati                |          |                       | 53 N; 2,408,211       |          |          |           |
|      | -                   | Number                |  |  | Surface Eleva                |          | -                     | Elevation             |          | -        |           |
|      | •                   | Name                  |  | EC Order   | Date Started                 | _        | 2/25/19               | Comple                |          |          |           |
|      | -                   | Location              |  | riman, Tennessee   | Depth to Wat                 | _        |                       | Date/Ti               |          | 2/25/1   | 19        |
|      | •                   | or J. An              |  | Logger <u>D. Mihalek</u>   | Depth to Wat                 | _        |                       |                       | me       | N/A      |           |
|      | _                   |                       |  | ntec Consulting Services Inc.  | Drill Rig Type               |          |                       |                       |          |          |           |
|      |                     |                       | •  | Sampling Tools (Type and Size)   |                              | SS \     | v/o liners, 3         | " Shelby Tubes        | •        |          |           |
|      |                     | _                     |  | ling Tools (Type and Size) N/A   |                              |          |                       | O                     |          | 41       | 14 F ft   |
|      |                     |                       |  | and Size) 8-1/4" HSA overdrill of both Automatic Weight 140            |                              | 20       |                       | Overdril              |          |          | 14.5 ft   |
|      |                     | er Hamme<br>le Azimut |  | 110.g.n  |                              |          | ion (from             | •                     | I<br>N/. | N/A<br>^ |           |
|      |                     | ed By                 |  |  | Borehole Incl<br>Approved By |          | L. Price              | vertical)             | IN/      |          |           |
|      | Ceview              | ed by _               | L. OII   |  | Approved by                  |          |                       |                       |          |          |           |
|      |                     | Lithology             |  |  | Overburden:                  |          | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |          | Rec. Ft  | Blows/PSI |
| Dep  | oth Ft <sup>3</sup> | Elevation             | Graphic  | Description  | Rock Core:                   |          | RQD %                 | Run Ft                |          | Rec. Ft  | Rec. %    |
| - 0  | 0.0                 | 776.0                 |  | Top of Hole  |                              |          |                       |                       |          |          |           |
|      | 0.8                 | 775.2                 |  | FAT CLAY, CH, 10YR 3/4 (dark yellow                                    |                              | 1        | SS01G                 | 0.0 - 1.5             | 0.0-     | 1.5      | 1-1-6     |
| - 1  |                     |                       |  | [FILL]   | garilo matter,               |          |                       |                       | 1.5      |          | _         |
| - 2  |                     |                       |  | LEAN CLAY, CL, 5YR 5/6 (yellowish r                                    | ed), medium                  | 1.5/3    |                       |                       | 1.5      |          |           |
|      | 2.5                 | 773.5                 |  | plasticity, firm, moist, [FILL]  |                              | .5-2019  | SS02E                 | 1.5 - 3.0             | - 3.0    | 1.5      | 4-7-9     |
| - 3  |                     |                       |  | SANDY SILT WITH GRAVEL, ML, 7.5  | SYR 3/1 (very                | 90225    | SS03aE                | 3.0 - 3.5             | (0)      | 1        | -         |
| - 4  |                     |                       |  | dark gray), fine, loose, moist, [CCR]                                  |                              |          | SS03bG                | 3.5 - 4.5             | 3.0 - 4. | 1.3      | 5-9-14    |
| ·    |                     |                       |  |  |                              |          | 000000                | 0.0 1.0               |          |          |           |
| - 5  |                     |                       |  |  |                              |          | SS04G                 | 4.5 - 6.0             | 4.5      | 1.4      | 4-10-16 — |
| - 6  | 6.0                 | 770.0                 |  |  |                              |          |                       |                       | 6.0      |          | _         |
| 0    |                     |                       |  | SILTY GRAVEL, GM, 7.5YR 3/1 (very                                      |                              |          | SS05aG                | 6.0 - 6.5             | 6.0      |          |           |
| - 7  | 7.5                 | 768.5                 | ╟┇┼┇┼  | very fine to coarse, dense, dry, [CCR]                                 |                              | 6.5/8.5  | SS05bE                | 6.5 - 7.5             | - 7.5    | 1.5      | 24-20-19  |
|      | 1.5                 | 700.5                 | <del>                                     </del> | SILTY SAND, SM, 7.5YR 3/1 (very da                                     | rk grav), fine.              | -20190   | 0000-5                | 75.05                 | 7        | 1        |           |
| - 8  |                     |                       |  | very dense, dry, [CCR]   | ··· g·, /, ···· - ,          | 225      | SS06aE                | 7.5 - 8.5             | .5 - 9.0 | 1.5      | 15-32-50  |
| - 9  | 9.3                 | 766.7                 | 1   1   1  |  |                              |          | SS06bG                | 8.5 - 9.0             |          |          | _         |
|      |                     |                       | 8 8 8 8  | WELL GRADED GRAVEL, GW, 10YR   | ? 5/1 (gray),                | 1        | SS07aG                | 9.0 - 10.0            | 9.0 - 1  | 1.5      | 41-44-23  |
| - 10 | 10.3                | 765.7<br>765.5        |  | medium to coarse, very dense, dry, [F                                  | ILL]                         |          | SS07bG                | 10.0 - 10.5           | 0.5      |          | _         |
| - 11 |                     |                       |  | SILTY SAND, SM, 7.5YR 3/1 (very da                                     | rk gray),                    |          | SS08aG                | 10.5 - 11.5           | 10.5     |          |           |
|      | 11.5                | 764.5                 | $\frac{1}{1}$                                    | medium dense, dry, [CCR]   |                              | <u>_</u> | SS08bE                | 11.5 - 12.0           | - 12.0   | 1.5      | 8-19-49   |
| - 12 |                     |                       |  | \SILT, ML, 5YR 5/6 (yellowish red), low to hard, dry, [FILL]           | v plasticity, firm           | 5/13.5   | OCOODE                | 11.0 - 12.0           | 12       | 1        | _         |
| - 13 |                     |                       | [+  +  +   |  | TD 5/6                       | -20190   | SS09E                 | 12.0 - 13.5           | .0 - 13  | 1.5      | 25-24-23  |
|      |                     |                       |  | SILTY SAND WITH GRAVEL, SM, 5Y (yellowish red), fine to medium, very d |                              | 225      |                       |                       | .5       |          |           |
| - 14 |                     |                       | [+[+[+]  | [CCR]  | , <b>,</b> ,                 |          | SS10G                 | 13.5 - 15.0           | 13.5 -   | 1.5      | 10-15-19  |
| – 15 | 15.0                | 761.0                 |  |  |                              |          |                       |                       | 15.0     |          | _         |
| 10   |                     |                       |  | POORLY GRADED SAND, SP, 5YR 5  |                              |          | 00445                 | 450 :==               | 15.0     |          | 7.0.45    |
| - 16 | 16.5                | 759.5                 | ·  | red), fine to medium, loose, dry, [CCR                                 | ]                            | 16       | SS11G                 | 15.0 - 16.5           | - 16.5   | 1.5      | 7-9-10    |
| 4-7  | 10.0                | 138.3                 |  | SANDY SILT, ML, 5YR 5/6 (yellowish                                     | red), fine to                | .5/18.5  |                       |                       | 16       | †        |           |
| - 17 |                     |                       |  | medium, loose, moist, [CCR]  | ,, 13                        | -20190   | SS12E                 | 16.5 - 18.0           | .5 - 18  | 1.5      | 4-5-6     |
| 4.0  |                     |                       |  |  |                              | )225     |                       |                       | ю        |          |           |



| Client                | Borehole II | ) N/A   | ·   | Stantec Borin   | g N          | o. KIF-               | ΓW03                       |               |               |                 |
|-----------------------|-------------|---------|---|-----------------|--------------|-----------------------|----------------------------|---------------|---------------|-----------------|
| Client                |             | Tennes  | see Valley Authority  | Boring Location |              |                       | 53 N; 2,408,211            | .78 E         | E NAD83       |                 |
| Projed                | t Number_   | 175668  | 043   | Surface Eleva   | atio         | 776.0 ft              | Elevatio                   | n D           | atum <u>ı</u> | NGVD29          |
|                       | Lithology   |         |   | Overburden:     |              | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>      |               | Rec. Ft       | Blows/PSI       |
| Depth Ft <sup>3</sup> | Elevation C | Graphic | Description   | Rock Core:      |              | RQD %                 | Run Ft                     |               | Rec. Ft       | Rec. %          |
| - 18                  |             |         | SANDY SILT, ML, 5YR 5/6 (yellowish medium, loose, moist, [CCR] (Continu |                 |              | SS13aE                | 18.0 - 18.5                | 18.0 - 1      | 1.4           | -<br>4-6-7      |
| - 19 <u>\</u><br>- 20 |             |         | Wet at 19.3'  | ,               |              | SS13bG                | 18.5 - 19.5                | 19.5 19.5     |               |                 |
| - 21                  |             |         |   |                 |              | SS14G                 | 19.5 - 21.0                | 19.5 - 21.0   | 1.5           | 3-2-6<br>-      |
| - 22<br>23.0          | 753.0       |         |   |                 |              | ST01G                 | 21.0 - 23.0                | 21.0 - 23.0   | 1.0           | NR -            |
| - 23   23.0<br>- 24   | 700.0       |         | SILT, ML, 5YR 5/6 (yellowish red), vergiccr                             | / loose, wet,   | 23.0/26.     | SS15E                 | 23.0 - 24.5                | 23.0 - 24.5   | 1.5           | 3-5-6           |
| - 25                  |             |         |   |                 | 0-20190226   | SS16E                 | 24.5 - 26.0                | 24.5 - 26.0   | 1.5           | 4-5-3           |
| - 26<br>- 27          |             |         |   |                 |              | SS17G                 | 26.0 - 27.5                | 26.0 - 27.    | 1.5           | -<br>4-5-5<br>_ |
| - 28                  |             |         |   |                 |              | SS18G                 | 27.5 - 29.0                | 5 27.5 - 29   | 1.5           | 2-2-3           |
| - 29<br>- 30 30.0     | 746.0       |         |   |                 |              | SS19G                 | 29.0 - 30.5                | 0 29.0 - 30.  | 1.5           | 3-7-6           |
| - 31                  |             |         | SILTY SAND WITH GRAVEL, SM, 10\ very loose to loose, wet, [CCR]         | /R 2/1 (black), |              | SS20a                 | 30.5 - 31.5                | .5 30.5-3     | 1.0           | 2-4-5           |
| - 32                  |             | 11111   |   |                 | 31.5/33      | SS20bE                | 31.5 - 32.0                | 2.0           |               | -               |
| - 33                  |             |         |   |                 | 3.5-20190226 | SS21E                 | 32.0 - 33.5                | 32.0 - 33.5   | 1.5           | 4-7-6           |
| - 34<br>- 35          |             |         |   |                 |              | SS22G                 | 33.5 - 35.0                | 33.5 - 35.0   | 1.5           | 4-4-4<br>—      |
| - 36 35.5             | 740.5       |         | SILT WITH SAND, ML, 5YR 5/6 (yellow loose, wet, [CCR]                   | vish red), very | _            | SS23G                 | 35.0 - 36.5                | 35.0 - 36.5   | 1.5           | 3-4-4           |
| - 37                  |             |         | 7 - 7 <b>1</b>  |                 | 36.5/38.5-20 | SS24E                 | 36.5 - 38.0                | 36.5 - 38.0   | 1.5           | 2-2-4           |
| - 38                  |             |         |   |                 | 190226       | SS25aE                | 38.0 - 38.5                | 38.           |               | _               |
| - 39                  |             |         |   |                 |              | SS25bG                | 38.5 - 39.5                | 38.0 - 39.5 3 | 1.5           | 2-2-5 _         |
| - 40<br>- 41          |             |         |   |                 |              | SS26G                 | 39.5 - 41.0                | 39.5 - 41.0   | 1.5           | 2-2-4           |
| - 42                  |             |         |   |                 |              | SS27aG<br>SS27bE      | 41.0 - 41.5<br>41.5 - 42.5 | 41.0 - 42.5   | 1.5           | 2-3-4           |



Page: 3 of 3

| Client B                             | orehole l | D _N/A  | <u>4</u> S   | tantec Borin   | g No. KIF-                                   | TW03  |         |                            |
|--------------------------------------|-----------|---------|--|----------------|--|---|---------|----------------------------|
| Client                               |           | Tennes  | ssee Valley Authority  | oring Location | on <u>575,720.</u>                           | 53 N; 2,408,211.78  | BENAD83 | <u> </u>                   |
| Project                              | Number    | 175668  | 3043 S   | urface Eleva   | ation <u>776.0 ft</u>                        | Elevation   | Datum_ı | NGVD29                     |
| L                                    | ithology  |         |  | Overburden:    | Sample <sup>1,2</sup>                        | Depth Ft <sup>3</sup>   | Rec. Ft | Blows/PSI                  |
| Depth Ft <sup>3</sup>                | Elevation | Graphic | Description  | Rock Core:     | RQD %  | Run Ft  | Rec. Ft | Rec. %                     |
| - 43<br>- 44<br>- 45<br>- 46<br>- 47 | 731.0     |         | SILT WITH SAND, ML, 5YR 5/6 (yellowis loose, wet, [CCR] (Continued)  SILT, ML, 10YR 3/1 (very dark gray), non soft, wet, [CCR] |                | \$\$28aE<br>\$\$28bG<br>\$\$29aG<br>\$\$29bG | 42.5 - 43.5<br>43.5 - 44.0<br>44.0 - 45.0<br>45.0 - 45.5<br>45.5 - 47.5 | 1.5     | 1-1-3 -<br>1-2-3 -<br>NR - |
| 47.5                                 | 728.5     |         | No Refusal /   |                |  |   |         | _                          |

Bottom of Hole at 47.5 Ft.

Temporary well installed. See well installation log for backfill details

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface



| (    | lient F             | Borehole    | ID N/A                                |   | Stantec Boring                        | a No. KI            | F-TW03a               |          |         |               |
|------|---------------------|-------------|---------------------------------------|---|---------------------------------------|---------------------|-----------------------|----------|---------|---------------|
|      | Client              | orenoie     |                                       | see Valley Authority  | Boring Location                       |                     | 41.10 N; 2,407,987    | 7 58     | E NAD83 |               |
|      |                     | Number      |                                       |   | Surface Eleva                         | -                   |                       |          |         |               |
|      | -                   | Name        |                                       |   | Date Started                          | -                   |                       |          |         |               |
|      | •                   | Location    |                                       | rriman, Tennessee   | Depth to Wate                         |                     |                       |          |         |               |
|      | •                   |             |                                       | Logger D. Mihalek   | Depth to Wate                         |                     | Date/Ti               |          |         |               |
|      |                     |             |                                       | ntec Consulting Services Inc.                                       | Drill Rig Type                        |                     |                       |          |         |               |
|      | Overbu              | ırden Dril  | ling and                              | Sampling Tools (Type and Size)                                      | 4-1/4" HSA, 3" \$                     | SS w/o liner        | s                     |          |         |               |
| F    | Rock D              | rilling and | d Samp                                | ling Tools (Type and Size)N/A                                       |                                       |                     |                       |          |         |               |
|      | Overdri             | ill Tooling | (Type                                 | and Size) N/A   |                                       |                     | Overdril              | l De     | epth _  | N/A           |
|      |                     |             |                                       | Automatic Weight 140  |                                       | 80                  | - ,                   | _        | N/A     |               |
|      |                     |             |                                       | N/A (Vertical)  |                                       | •                   | om Vertical) _        | N/       | A       |               |
| F    | Review              | ed By _     | E. Sm                                 | nith  | Approved By                           | L. Price            |                       |          |         |               |
|      | !                   | Lithology   |                                       |   | Overburden:                           | Sample <sup>1</sup> | Depth Ft <sup>3</sup> |          | Rec. Ft | Blows/PSI     |
| De   | oth Ft <sup>3</sup> | Elevation   | Graphic                               | Description   | Rock Core:                            | RQD %               | Run Ft                |          | Rec. Ft | Rec. %        |
| - 0  | 0.0                 | 771.4       |                                       | Top of Hole   |                                       |                     |                       | Ш        |         | _             |
|      | 0.5                 | 770.9       |                                       | ORGANIC SILT, OL, 7.5YR 6/4 (light I                                | orown), low                           |                     |                       |          |         |               |
| - 1  |                     |             |                                       | plasticity, moist, top soil, [FILL]                                 |                                       | SS01                | G 0.0 - 1.5           | .0 - 1.5 | 1.5     | 2-6-8         |
| _ '  |                     |             |                                       | FAT CLAY, CH, 7.5YR 5/6 (strong bro plasticity, soft, moist, [FILL] | wn), high                             |                     |                       |          |         | _             |
|      | 2.0                 | 769.4       |                                       | plasticity, sort, moist, [i izz]                                    |                                       | SS02a               | aG 1.5 - 2.0          |          |         |               |
| - 2  |                     |             |                                       | SANDY SILT WITH GRAVEL, ML, 10                                      | YR 4/1 (dark                          |                     |                       | 1.5 - 3  | 1.5     | 4-14-17       |
|      |                     |             |                                       | gray), loose, dry, [CCR]  |                                       | SS02                | b 2.0 - 3.0           | .0       |         |               |
| - 3  |                     |             |                                       |   |                                       |                     |                       |          | 1       | -             |
|      | 1,0                 | 707.4       |                                       |   |                                       | SS03                | a 3.0 - 4.0           | 3.0-     | 1.4     | 18-22-18      |
| - 4  | 4.0                 | 767.4       |                                       | WELL GRADED GRAVEL, GW, 10YR  | 7/1 (light                            |                     | oG 4.0 - 4.5          | 4.5      |         | -             |
|      |                     |             |                                       | gray), medium dense, [FILL]   | · · · · · · · · · · · · · · · · · · · |                     | 1.0 1.0               |          | 1       |               |
| - 5  |                     |             | 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 |   |                                       | SS04                | G 4.5 - 6.0           | 4.5      | 1.4     | —<br>16-29-32 |
|      |                     |             | 8. 8. 8.<br>8. 8. 8.                  |   |                                       | 3304                | 4.3 - 0.0             | 6.0      | 1.4     | 10-29-32      |
| - 6  | 6.0                 | 765.4       | °. °. °.<br>                          | Encountered geofabric at 6.0'                                       | _                                     |                     |                       |          | - 1     | -             |
|      |                     |             |                                       | SILTY SAND, SM, 10YR 5/1 (gray), m                                  | edium dense                           |                     | _                     | 6.0      |         | 47.04.00      |
| - 7  |                     |             |                                       | dry, [CCR]  | cularii deribe,                       | SS05                | 6.0 - 7.5             | - 7.5    | 1.5     | 17-21-23<br>- |
|      |                     |             |                                       |   |                                       |                     |                       |          |         |               |
| - 8  |                     |             |                                       |   |                                       |                     |                       | 7.       |         | _             |
|      |                     |             |                                       |   |                                       | SS06                | 7.5 - 9.0             | 5-9.0    | 1.5     | 5-5-4         |
| - 9  |                     |             |                                       | Moist at 8.75'  |                                       |                     |                       |          |         | _             |
| 3    | 9.5                 | 761.9       |                                       | Worst at 0.73   |                                       | SS07a               | aG 9.0 - 9.5          | ω        |         |               |
| 10   |                     |             |                                       | POORLY GRADED GRAVEL, GP, 10  | YR 5/1 (gray),                        |                     | oG 9.5 - 10.5         | .0 - 10. | 1.5     | 5-14-46       |
| - 10 |                     |             | 0 0 0                                 | dense, dry, [CCR]   |                                       |                     |                       | 5        |         | _             |
|      |                     |             |                                       | Augured to 15.0'  |                                       | SS08                | G 10.5 - 10.6         | 10.      | 0.1     | 50+/1"        |
| - 11 |                     |             |                                       | •   |                                       |                     |                       | 5 - 10.6 |         | _             |
|      |                     |             | 9 9 9                                 |   |                                       |                     |                       | O)       |         |               |
| - 12 |                     |             | 8 8 8                                 |   |                                       |                     |                       |          |         | _             |
|      |                     |             |                                       |   |                                       |                     |                       |          |         |               |
| 42   |                     |             | ا * * * * *                           |   |                                       |                     |                       |          |         |               |



| Client Borehole ID N/A                               |  | Stantec Boring   | No. KIF-              | ГW03а  |                    |           |
|--|--|--|-----------------------|--|--------------------|-----------|
| Client Tennes  | see Valley Authority   | Boring Location  |                       | 10 N; 2,407,987.58                           | BENAD83            |           |
| Project Number 175668                                | 043  | Surface Elevat   | tion <u>771.4 ft</u>  | Elevation                                    | Datum_n            | NGVD29    |
| Lithology  |  | Overburden:  | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>                        | Rec. Ft            | Blows/PSI |
| Depth Ft <sup>3</sup> Elevation Graphic              | Description  | Rock Core:   | RQD %                 | Run Ft                                       | Rec. Ft            | Rec. %    |
| - 14   | POORLY GRADED GRAVEL, GP, 10 dense, dry, [CCR] (Continued)   | DYR 5/1 (gray),  |                       |  |                    | -         |
| - 15 ¥<br>15.3   756.1   % % % \$                    | _ Wet at 15.0'   |  | SS09                  | 15.0 - 15.3                                  | 0.0                | 36/4"     |
|  | Refusal /<br>Bottom of Hole at 15.3 Ft.  |  |                       | 50-153                                       |                    | -         |
| Since I  As-drill coordir  1: E =    G =    2: a,b,t | ntered obstruction at 15.3 feet, boring tecoring was terminated, all Environmentated boring location not surveyed. Horizonates based on 2017 LIDAR surfaces.  Environmental Sample Custody (two Spectechnical Sample Custody denote Split Spoon divided between Eths are reported in feet below ground surveyed. | al Samples were disp<br>ntal coordinates base<br>lit Spoons may be re<br>nvironmental and Ge | osed of as inve       | estigative derived d boring location. \u00ed | waste.<br>Vertical |           |



| (    | Client E            | Borehole   | ID N/A                                       | <u> </u>   | Stantec Boring      | g N  | o. KIF-               | TW03b                 |            |         |             |
|------|---------------------|------------|--|--|---------------------|------|-----------------------|-----------------------|------------|---------|-------------|
| (    | Client              |            | Tennes                                       | see Valley Authority   | Boring Location     |      |                       | 10 N; 2,407,967       | '.58       | E NAD83 |             |
| F    | Project             | Number     | 175668                                       | 043  | Surface Eleva       | tior | 771.9 ft              | Elevatio              | n E        | oatum_r | NGVD29      |
| F    | Project             | Name       | KIF TD                                       | EC Order   | Date Started        | _    | 1/31/19               | Comple                | ted        | 1/31/1  | 19          |
| F    | Project             | Location   | n Ha   | rriman, Tennessee  | Depth to Wate       | er _ | 9.7 ft                | Date/Ti               | me         | 1/31/1  | 19 16:05    |
|      |                     |            |  | Logger D. Mihalek  | Depth to Wate       | er _ | N/A                   | Date/Ti               | me         | N/A     |             |
|      | _                   |            |  | ntec Consulting Services Inc.  | Drill Rig Type      |      |                       | 55T#1, #709           |            |         |             |
| (    | Overbu              | ırden Dril | ling and                                     | Sampling Tools (Type and Size)   | )4-1/4" HSA, 3" S   | SS v | v/o liners            |                       |            |         |             |
|      |                     | •          | •  | ling Tools (Type and Size) <u>N/A</u>  | Λ                   |      |                       |                       |            |         |             |
|      |                     | _          |  | and Size) N/A  |                     | _    |                       | Overdrill             |            |         | N/A         |
|      |                     |            | • •  | Automatic Weight 140   |                     |      |                       | •                     | _          | N/A     |             |
|      |                     | le Azimu   |  |  | Borehole Inclin     |      | •                     | Vertical)             | N/         | Α       |             |
|      | keview              | ed By _    | E. Sm  | <u> </u>   | Approved By         |      | L. Price              |                       |            |         |             |
|      |                     | Lithology  |  |  | Overburden:         | 5    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |            | Rec. Ft | Blows/PSI   |
| De   | oth Ft <sup>3</sup> | Elevation  | Graphic                                      | Description  | Rock Core:          |      | RQD %                 | Run Ft                |            | Rec. Ft | Rec. %      |
| - 0  | 0.0                 | 771.9      |  | Top of Hole  |                     | Ш    |                       |                       |            |         | _           |
| -    | 0.7                 | 771.2      |  | ORGANIC SILT, OL, 10YR 4/4 (dark )   | yellowish           |      |                       |                       | 0          |         |             |
| - 1  | 0.7                 | 111.2      |  | brown), firm, moist, [FILL]  |                     |      | SS01G                 | 0.0 - 1.5             | 0.0 - 1.5  | 1.2     | 4-7-9       |
| '    |                     |            |  | FAT CLAY, CH, 7.5YR 4/6 (strong broplasticity, firm, moist, [FILL]           | own), high          |      |                       |                       |            |         |             |
|      | 2.0                 | 769.9      |  | plasticity, iiiii, molet, [i 122]  |                     |      |                       |                       |            |         |             |
| - 2  | 2.0                 | 100.0      |  | SILTY SAND WITH GRAVEL, SM, 10   | YR 3/1 (very        |      | SS02aG                | 1.5 - 2.5             | 1.5 - 3.0  | 1.5     | 9-12-19     |
|      | 3.0                 | 768.9      |  | dark gray), fine to coarse, loose, [CCF                                      | ₹]                  |      | SS02b                 | 2.5 - 3.0             | 8.0        |         |             |
| - 3  | 3.0                 | 700.9      |  | SILTY SAND, SM, 10YR 3/1 (very dar   | rk gray) fine to    |      | SS03a                 | 3.0 - 3.5             |            |         | -           |
|      |                     |            |  | medium, medium dense, dry, [CCR]   | K gray), mio to     |      | 0000                  | 0.0 0.0               | 3.0 - 4.5  | 1.5     | 17-21-22    |
| - 4  |                     |            |  |  |                     |      | SS03bG                | 3.5 - 4.5             | 4.5        | 1.5     | 17-21-22    |
|      | 4.5                 | 767.4      | ╂┼╂┼╂┤                                       | OU TV CAND WITH ODAYEL ON 7  |                     |      |                       |                       |            | -       |             |
| - 5  |                     |            |  | SILTY SAND WITH GRAVEL, SM, 7.8 dark gray), fine to coarse, dense, dry,      | ` ,                 |      |                       |                       | 4.5        |         | -           |
|      |                     |            | <u> </u>                                     | 5 ,,, <u> ,</u>  | 1                   |      | SS04G                 | 4.5 - 6.0             | 4.5 - 6.0  | 1.4     | 10-21-42    |
| - 6  | 6.0                 | 765.9      | ╟╂╂╂╂  |  |                     |      |                       |                       |            |         | -           |
| -    |                     |            | ╟╁╁╁╁┆                                       | SILTY SAND, SM, 10YR 3/1 (very dar   | rk gray), fine to   |      |                       |                       | 6          |         |             |
| - 7  |                     |            | ╟╂╂╂╂╏                                       | medium, dense, dry, [CCR] Geofabric encountered at 6.5' and 7.5              | ,                   |      | SS05                  | 6.0 - 7.5             | .0 - 7.5   | 1.5     | 17-21-22    |
| - /  | 7.5                 | 764.4      | ╟╁╂╁╂  |  |                     |      |                       |                       | 3,         |         | -           |
| _    |                     |            |  | SILT WITH SAND, ML, 10YR 5/1 (gra  | y), soft, moist,    |      |                       |                       |            |         |             |
| - 8  |                     |            | $\  \  \  \  \  \ $                          | [CCR]  |                     |      | SS06                  | 7.5 - 9.0             | 7.5 - 9.0  | 1.5     | 5-7-6       |
|      |                     | 760.0      | $\  \  \  \  \  \ $                          |  |                     |      |                       |                       | 9.0        |         |             |
| - 9  | 9.0                 | 762.9      | ╫╁╂╁┼  | SILTY SAND, SM, 10YR 4/1 (dark gra   | av) medium          |      |                       |                       |            | 1       | -           |
|      | 9.8                 | 762.1      | <u>                                     </u> | dense, moist to wet, [CCR]   | , medium            |      | SS07aG                | 9.0 - 10.0            | 9.0-       | ,       | 5 0 11      |
| - 10 |                     |            |  | Wet at 9.7'  |                     |      | 0007/ 0               | 40.0 40.5             | 9.0 - 10.5 | 1.5     | 5-9-11<br>- |
|      | 10.5                | 761.4      |  | $_{\!$ | ,                   |      | SS07bG                | 10.0 - 10.5           |            |         |             |
| - 11 |                     |            | $\  \  \  \  \  \ $                          | gray), fine to coarse, medium dense, i                                       | moist, [CCR]        |      | SS08aG                | 10.5 - 11.0           | 10.        |         | -           |
|      | 11.5                | 760.4      |  | Geofabric encountered in sample  | - into the state of |      | SS08b                 | 11.0 - 12.0           | 5 - 12.0   | 1.2     | 17-22-40    |
| - 12 |                     |            |  | SILT, ML, 10YR 5/1 (gray), soft, wet, vocabbles, [CCR]                       | with limestone      |      | 22305                 | 11.0 12.0             |            |         | _           |
| 12   |                     |            | 8 8 8 8                                      | GRAVEL WITH SAND, GW, 5Y 6/2 (li   | aht olive aray)     |      | 2000                  | 12.0 12.0             | 12.        |         | -           |
| 40   |                     |            |  | medium to coarse, dense, moist, [FILI  | 0 ,,.               |      | SS09a                 | 12.0 - 13.0           | 2.0 - 13.5 | 1.5     | 22-16-30    |



|      |  | Borehole  |                |   |          | antec Borin     |      |                       |                       |              |               |  |
|------|--|-----------|----------------|---|----------|-----------------|------|-----------------------|-----------------------|--------------|---------------|--|
|      | lient  |           |                | see Valley Authority  |          | ring Locatio    |      |                       | 0 N; 2,407,967.5      |              |               |  |
| P    | roject   | Number    | 175668         | 043   | Su       | rface Eleva     | tio  | n <u>771.9 ft</u>     | Elevation             | n Datum_     | NGVD29        |  |
|      |  | _ithology |                |   |          | Overburden:     |      | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> | Rec. Ft      | Blows/PSI     |  |
| Dep  | th Ft <sup>3</sup>   | Elevation | Graphic        | Description   |          | Rock Core:      |      | RQD %                 | Run Ft                | Rec. Ft      | Rec. %        |  |
| - 13 | 13.5   | 758.4     | 8 8 8<br>8 8 8 | Geofabric encountered in sample   |          |                 |      | SS09b                 | 13.0 - 13.5           |              | _             |  |
|      |  |           |                | Refusal /<br>Bottom of Hole at 13.5 Ft.   |          |                 |      |                       | 1                     |              | _             |  |
|      |  |           |                |   |          |                 |      |                       |                       |              | _             |  |
|      |  |           |                |   |          |                 |      |                       |                       |              | _             |  |
|      |  |           | Encou          | ntered obstruction at 13.5 feet, boring te  | rmina    | ited and backfi | ille | d in accordar         | nce with Explorat     | ory Drilling | SAP           |  |
|      |  |           |                | _   |          |                 |      |                       |                       |              | <b>ΟΛ</b> Ι _ |  |
|      | Since boring was terminated, all Environmental Samples were disposed of as investigative derived waste.  As-drilled boring location not surveyed. Horizontal coordinates based on proposed boring location. Vertical |           |                |   |          |                 |      |                       |                       |              |               |  |
|      |  |           |                | nates based on 2017 LIDAR surfaces.   | illai Ci | Jordinales bas  | eu   | on proposed           | borning location.     | vertical     |               |  |
|      |  |           | G =            | Environmental Sample Custody (two Sp<br>Geotechnical Sample Custody<br>c denote Split Spoon divided between E |          | -               |      |                       |                       | ole)         | _             |  |
|      |  |           | 3: Dep         | ths are reported in feet below ground su  | ırface   |                 |      |                       | •                     |              | _             |  |
|      |  |           |                |   |          |                 |      |                       |                       |              | -             |  |
|      |  |           |                |   |          |                 |      |                       |                       |              |               |  |
|      |  |           |                |   |          |                 |      |                       |                       |              | _             |  |
|      |  |           |                |   |          |                 |      |                       |                       |              | _             |  |
|      |  |           |                |   |          |                 |      |                       |                       |              |               |  |
|      |  |           |                |   |          |                 |      |                       |                       |              | _             |  |
|      |  |           |                |   |          |                 |      |                       |                       |              | _             |  |
|      |  |           |                |   |          |                 |      |                       |                       |              | -             |  |
|      |  |           |                |   |          |                 |      |                       |                       |              | _             |  |
|      |  |           |                |   |          |                 |      |                       |                       |              |               |  |
|      |  |           |                |   |          |                 |      |                       |                       |              | _             |  |
|      |  |           |                |   |          |                 |      |                       |                       |              | _             |  |
|      |  |           |                |   |          |                 |      |                       |                       |              | _             |  |



|      |                     |                    |    |      |                   |   |          |               |          | IZIE :                | T14/0.4                 |            |         |           |
|------|---------------------|--------------------|----|------|-------------------|---|----------|---------------|----------|-----------------------|-------------------------|------------|---------|-----------|
|      |                     | Borehole           |    | _    |                   |   |          | antec Borin   |          |                       |                         |            |         |           |
|      | Client              |                    |    |      |                   | ssee Valley Authority   |          | ring Locatio  |          |                       | 11 N; 2,407,855         |            |         |           |
|      | •                   | Number             |    |      |                   |   |          | ırface Eleva  | itio     | -                     | Elevation               |            | -       |           |
|      | -                   |                    |    |      |                   | DEC Order   |          | te Started    | _        | 2/8/19                | Comple                  |            |         |           |
|      | •                   | Locatio            |    | _    |                   | arriman, Tennessee  |          | epth to Wate  | _        |                       | Date/Ti                 |            |         | 19 14:25  |
|      | •                   | or J. Ai           |    |      |                   | Logger M. Edmunds, D. Miha  |          | •             | _        |                       | Date/Ti                 | me         | N/A     |           |
|      | _                   |                    |    | _    |                   | antec Consulting Services Inc.                                    |          | ill Rig Type  |          |                       |                         |            |         |           |
|      |                     |                    |    |      |                   | d Sampling Tools (Type and Size<br>oling Tools (Type and Size) N/ |          | -1/4 HSA, 3 ( | 33 1     | w/o liners, s         | Shelby Tubes            |            |         |           |
|      |                     | •                  |    |      | •                 | and Size) 8-1/4" HSA overdrill of b                               |          |               |          |                       | Overdrill               | De         | nth     | 37.0 ft   |
|      |                     |                    |    |      |                   | Automatic Weight 140  |          | Drop 3        | 30       |                       | Overdilli<br>Efficiency |            | ν/Α     | <u> </u>  |
|      |                     | le Azimu           |    | -    | рС                | N/A (Vertical)  |          |               |          | ion (from             | Vertical)               | N/.        |         |           |
|      |                     | ed By              |    |      | Sn                | nith  |          | proved By     |          | L. Price              |                         |            |         |           |
|      |                     |                    |    |      |                   |   |          |               | _        |                       | D 41 F43                |            | D       |           |
| _    |                     | Lithology          |    |      |                   |   |          | Overburden:   |          | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>   |            | Rec. Ft | Blows/PSI |
| Del  | oth Ft <sup>3</sup> | Elevation<br>765.2 | Gr | ар   | nic               | '   |          | Rock Core:    |          | RQD %                 | Run Ft                  | П          | Rec. Ft | Rec. %    |
| - 0  | 0.0                 | 765.2              |    | 7    | 7                 | Top of Hole SANDY LEAN CLAY, CL, 10YR 3/6 (                       | (dork )  | vollowich     |          |                       |                         | Н          |         | _         |
|      |                     |                    |    | /    | //                | brown), low plasticity, firm, moist, with                         | ` .      |               |          | SS01G                 | 0.0 - 1.5               | 0.0 - 1.5  | 0.9     | 1-5-4     |
| - 1  |                     |                    |    |      | //                | gravel, [FILL]  |          |               |          |                       |                         | Ç.         |         | _         |
| - 2  | 2.0                 | 763.2              | 4  | 4    | 4                 |   |          |               |          | SS02aG                | 1.5 - 2.0               | 1.5        |         |           |
|      |                     |                    |    |      |                   | FAT CLAY, CH, 2.5YR 6/4 (light redo                               | dish br  | rown),        |          | SS02bG                | 2.0 - 3.0               | .5 - 3.0   | 1.5     | 5-3-5     |
| - 3  | 3.5                 | 761.7              |    |      |                   | medium plasticity, firm, moist, [FILL]                            |          |               |          | SS03aG                | 3.0 - 3.5               |            | 1       | -         |
|      | 3.5                 | 701.7              |    | ſ    |                   | SILT WITH SAND, ML, 5YR 3/1 (very                                 | v dark   | grav).        | 3.5      |                       |                         | 3.0 - 4.5  | 1.5     | 6-4-2     |
| - 4  |                     |                    |    |      |                   | non-plastic to low plasticity, very soft                          | •        | ,             | 5/5.5-20 | SS03bE                | 3.5 - 4.5               | ·σ         |         | -         |
| - 5  |                     |                    |    |      |                   | [CCR]   |          |               | 19020    | SS04aE                | 4.5 - 5.5               | 4.5        |         | –         |
|      |                     |                    |    |      |                   |   |          |               | 8        | SS04bG                | 5.5 - 6.0               | 4.5 - 6.0  | 1.5     | 1-1-1     |
| - 6  |                     |                    |    |      |                   |   |          |               |          | SS05aG                | 6.0 - 6.5               |            |         | -         |
| - 7  |                     |                    |    |      |                   |   |          |               | 6.5      | SS05bE                | 6.5 - 7.5               | 6.0 - 7.5  | 1.5     | WH-1-1    |
| - /  |                     |                    |    |      |                   |   |          |               | /8.5-20  | SSUSDE                | 0.5 - 7.5               | .5         |         | -         |
| - 8  |                     |                    |    |      |                   |   |          |               | 190208   | SS06aE                | 7.5 - 8.5               | 7.5        |         | -         |
|      |                     |                    |    |      |                   |   |          |               | 8        | SS06bG                | 8.5 - 9.0               | 7.5 - 9.0  | 1.5     | 1-0-1     |
| - 9  |                     |                    |    |      |                   |   |          |               |          | 000000                | 0.5 - 5.0               |            |         | -         |
| - 10 | 10.0                | 755.2              |    |      |                   |   |          |               |          | SS07G                 | 9.0 - 10.5              | 0.0 - 10.  | 1.5     | 1-WR-WR   |
| - 10 |                     |                    | 1  | ŀ    | 1                 | SILTY SAND, SM, 10YR 4/1 (dark gr                                 | ray), fi | ne, very      |          |                       |                         | ·σ         |         |           |
| - 11 |                     |                    | #‡ | łţ   | + ‡               | loose, moist, [CCR]   |          |               |          | SS08aG                | 10.5 - 11.5             | 10.5       |         | -         |
|      | 12.0                | 753.2              |    | ţŀ   | 1                 |   |          |               | <u> </u> | SS08bE                | 11.5 - 12.0             | - 12.0     | 1.5     | 1-1-2     |
| - 12 | 12.0                | 755.2              | Ħţ | Ħ    | $\dagger \dagger$ | SILT, ML, 10YR 4/1 (dark gray), very                              | / soft t | o firm        | .5/13.5  | COOODE                | 11.5 - 12.0             |            | 1       | -         |
| 12   |                     |                    |    |      |                   | moist, [CCR]  | 3011 1   | O 111111,     | 5-2019   | SS09E                 | 12.0 - 13.5             | 2.0 - 1    | 1.5     | WH-WH-WH  |
| - 13 |                     |                    |    |      |                   |   |          |               | 0211     | ļ                     |                         | 3.5        |         |           |
| - 14 |                     |                    |    |      |                   |   |          |               |          | 00400                 | 40 5 45 0               | 13.5       |         | -         |
|      |                     |                    |    |      |                   |   |          |               |          | SS10G                 | 13.5 - 15.0             | .5 - 15.0  | 1.5     | 1-3-5     |
| - 15 |                     |                    |    | $\ $ |                   |   |          |               |          |                       |                         |            |         | _         |
| - 16 |                     |                    |    | $\ $ |                   |   |          |               |          | SS11G                 | 15.0 - 16.5             | 5.0 - 16.5 | 1.5     | 1-1-3     |
| - 10 |                     |                    |    | $\ $ |                   |   |          |               |          |                       |                         | 5.5        |         | _         |
| 47   |                     |                    |    | Ш    |                   |   |          |               |          |                       |                         |            |         |           |



| С            | lient E            | Borehole  | ID _ | N/A |   | Sta    | antec Borin  | g N           | lo. KIF-              | ΓW04                       |             |         |            |
|--------------|--------------------|-----------|------|-----|---|--------|--------------|---------------|-----------------------|----------------------------|-------------|---------|------------|
| c            | lient              |           | Ten  | nes | see Valley Authority  |        | ring Locati  |               |                       | 11 N; 2,407,855            | 5.14        | E NAD83 |            |
| P            | roject             | Number    | 175  | 668 | 043   | Sı     | ırface Eleva | atio          | n <u>765.2 ft</u>     | Elevatio                   | on D        | atum_n  | NGVD29     |
|              | l                  | Lithology |      |     |   |        | Overburden:  | ,             | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>      |             | Rec. Ft | Blows/PSI  |
| Dep          | th Ft <sup>3</sup> | Elevation | Grap | hic | Description   |        | Rock Core:   |               | RQD %                 | Run Ft                     |             | Rec. Ft | Rec. %     |
| - 17         |                    |           |      |     | SILT, ML, 10YR 4/1 (dark gray), very moist, [CCR] (Continued)       | soft t | o firm,      | 16.5/18.5     | SS12E                 | 16.5 - 18.0                | 16.5 - 18   | 1.5     | 2-4-5      |
| - 18         |                    |           |      |     | most, [cort] (commutati   |        |              | -20190211     | SS13aE                | 18.0 - 18.5                | .0 18.0 - 1 | 1.5     | -<br>2-2-2 |
| <b>-</b> 19  | 19.5               | 745.7     |      |     |   |        |              |               | SS13bG                | 18.5 - 19.5                | 9.5         |         | _          |
| - 20         |                    |           |      |     | SILTY SAND, SM, 10YR 4/1 (dark grawet, [CCR]                        | ay), v | ery loose,   |               | SS14G                 | 19.5 - 21.0                | 19.5 - 21.0 | 1.5     | 1-1-1      |
| - 21<br>-    | <u> </u>           |           | ╟┼┼┼ |     |   |        |              | 2             | SS15a                 | 21.0 - 21.5                | 21.0        | 4.5     | - \\       |
| - 22         |                    |           |      |     |   |        |              | 1.5/23.5-20   | SS15bE                | 21.5 - 22.5                | - 22.5      | 1.5     | WH-1-1 _   |
| - 23         |                    |           |      |     |   |        |              | 190211        | SS16aE                | 22.5 - 23.5                | 22.5 - 24   | 1.5     | 1-3-6      |
| - 24         |                    |           |      |     |   |        |              |               | SS16b                 | 23.5 - 24.0                | 0 2         |         | -          |
| - 25         |                    |           |      |     |   |        |              |               | ST01G                 | 24.0 - 26.0                | 4.0 - 26.0  | 1.9     | NR —       |
| - 26<br>- 27 | 26.0               | 739.2     |      |     | SILTY GRAVEL, GM, 5Y 2.5/1 (black wet, [CCR]                        | ), ver | ry loose,    | 26.5/         | SS17aG<br>SS17bE      | 26.0 - 26.5<br>26.5 - 27.0 | 26.0 - 27.0 | 1.0     | 5-5<br>-   |
| - 28         |                    |           |      |     |   |        |              | 28.5-20190211 | SS18E                 | 27.0 - 28.5                | 27.0 - 28.5 | 1.2     | 1-2-2      |
| - 29         |                    |           |      |     |   |        |              |               | SS19G                 | 28.5 - 30.0                | 28.5 - 30.0 | 1.5     | 2-2-3      |
| - 30<br>- 31 | 30.0               | 735.2     |      |     | SILTY SAND, SM, 5Y 2.5/1 (black), v<br>[CCR]                        | ery Ic | pose, wet,   |               | SS20G                 | 30.0 - 31.5                | 30.0 - 31   | 1.5     | 1-2-3      |
| - 32         |                    |           |      |     |   |        |              | 31.5/3        | 00045                 | 04.5.00.0                  | 31.5 31.5   |         | -          |
| - 33         |                    |           |      |     |   |        |              | 3.5-2019021   | SS21E<br>SS22aE       | 31.5 - 33.0<br>33.0 - 33.5 | .5-33.0     | 1.5     | 3-2-3<br>- |
| - 34         |                    |           |      |     |   |        |              | 3             | SS22bG                | 33.5 - 34.5                | 33.0 - 34.5 | 1.3     | 1-3-2      |
| - 35         |                    |           |      |     |   |        |              |               | SS23G                 | 34.5 - 36.0                | 34.5 - 36.0 | 1.5     |            |
| - 36         | 36.0               | 729.2     |      |     | CLAYEY SAND, SC, 5Y 2.5/1 (black)                                   | , low  | plasticity,  |               | SS24aG                | 36.0 - 36.5                | 3.0 36.     |         | -          |
| - 37         | 37.5               | 727.7     |      |     | very loose, wet, [CCR]  |        | •            | 36.5/38.5-2   | SS24bE                | 36.5 - 37.5                | 0-37.5      | 1.5     | 1-1-2 –    |
| - 38         |                    |           |      |     | SILT, ML, 10Y 3/1 (very dark greenish non-plastic, firm, wet, [CCR] | h gra  | y),          | 20190213      | SS25aE                | 37.5 - 38.5                | 37.5 - 39.0 | 1.5     | 2-2-3      |
| - 39         |                    |           |      |     |   |        |              |               | SS25bG                | 38.5 - 39.0                | °           |         | _          |



Page: 3 of 3

|                         | Client E            | Borehole I | ID N/A          |   | Sta     | ntec Borino     | g N | lo. KIF-              | ΓW04                  |             |         |           |
|-------------------------|---------------------|------------|-----------------|---|---------|-----------------|-----|-----------------------|-----------------------|-------------|---------|-----------|
|                         | Client              |            | Tennes          | see Valley Authority  | Bor     | ing Locatio     | on  | 574,754.1             | 11 N; 2,407,855.      | 14 E        | E NAD83 | <u> </u>  |
| F                       | Project             | Number     | 175668          | 043   | Sur     | face Eleva      | tio | n <u>765.2 ft</u>     | Elevatior             | ı D         | atum_ ı | NGVD29    |
|                         |                     | Lithology  |                 |   | (       | Overburden:     | ;   | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |             | Rec. Ft | Blows/PSI |
| Dep                     | oth Ft <sup>3</sup> | Elevation  | Graphic         | Description   |         | Rock Core:      |     | RQD %                 | Run Ft                |             | Rec. Ft | Rec. %    |
| - 40<br><del>- 41</del> | 41.0                | 724.2      |                 | SILT, ML, 10Y 3/1 (very dark greenisl non-plastic, firm, wet, [CCR] (Contin   |         | ),              |     | ST02G                 | 39.0 - 41.0           | 39.0 - 41.0 | 1.7     | NR —      |
| 41                      |                     |            |                 | No Refusal /<br>Bottom of Hole at 41.0 Ft.  |         |                 |     |                       |                       |             |         | -         |
|                         |                     |            |                 |   |         |                 |     |                       |                       |             |         | =         |
|                         |                     |            |                 |   |         |                 |     |                       |                       |             |         | _         |
|                         |                     |            | Tempo           | orary well installed. See well installation l   | log for | backfill detail | s   |                       |                       |             |         | _         |
|                         |                     |            | G =<br>2: a,b,e | Environmental Sample Custody (two Sp<br>Geotechnical Sample Custody<br>c denote Split Spoon divided between E<br>ths are reported in feet below ground su | nviron  | •               |     |                       |                       | ole)        |         | _         |
|                         |                     |            | ·               |   |         |                 |     |                       |                       |             |         | _         |
|                         |                     |            |                 |   |         |                 |     |                       |                       |             |         | _         |
|                         |                     |            |                 |   |         |                 |     |                       |                       |             |         | _         |
|                         |                     |            |                 |   |         |                 |     |                       |                       |             |         | =         |
|                         |                     |            |                 |   |         |                 |     |                       |                       |             |         | _         |
|                         |                     |            |                 |   |         |                 |     |                       |                       |             |         | _         |
|                         |                     |            |                 |   |         |                 |     |                       |                       |             |         | _         |
|                         |                     |            |                 |   |         |                 |     |                       |                       |             |         | _         |
|                         |                     |            |                 |   |         |                 |     |                       |                       |             |         | _         |
|                         |                     |            |                 |   |         |                 |     |                       |                       |             |         | _         |
|                         |                     |            |                 |   |         |                 |     |                       |                       |             |         | _         |
|                         |                     |            |                 |   |         |                 |     |                       |                       |             |         | _         |
|                         |                     |            |                 |   |         |                 |     |                       |                       |             |         | -         |



|      |        | Borehole  |  | _  | Stantec Borin                           |                        |                       |                       |             |            |           |
|------|--------|-----------|--|--|---|------------------------|-----------------------|-----------------------|-------------|------------|-----------|
|      | lient  |           |  | see Valley Authority   | Boring Locati                           |                        |                       | 75 N; 2,408,921       |             |            |           |
|      | •      | Number    |  |  | Surface Eleva                           | atio                   |                       | Elevatio              |             |            | -         |
|      | •      | Name      |  | EC Order   | Date Started                            | _                      | 11/13/18              |                       |             |            |           |
|      | •      | Location  |  | riman, Tennessee   | Depth to Wat                            | _                      |                       | Date/Ti               |             | 11/13      | /18       |
|      | •      | or B. Lu  |  | Logger <u>G. Budd</u>  | Depth to Wat                            | _                      |                       | Date/Ti               | me          | N/A        |           |
|      | _      |           |  | ntec Consulting Services Inc.  | Drill Rig Type                          |                        |                       |                       |             |            |           |
|      |        |           | •  | Sampling Tools (Type and Size ling Tools (Type and Size)                   | <i>,</i>                                | 33                     | w/o liners, s         | Shelby Tubes          |             |            |           |
|      |        | •         | •  | and Size) 8-1/4" HSA overdrill of b  |   |                        |                       | Overdrill             | De          | nth :      | 39.0 ft   |
|      |        | _         |  | Automatic Weight 140   | Drop (                                  | 30                     |                       | Efficiency            |             | ν/Α<br>Ν/Α |           |
|      |        | le Azimu  | ٠.   | N/A (Vertical)   | Borehole Incl                           |                        | ion (from             | -                     | N/          |            |           |
|      |        | ed By     | E. Sm  |  | Approved By                             |                        | L. Price              |                       |             |            |           |
|      |        | _ithology |  |  | Overburden:                             |                        | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |             | Rec. Ft    | Blows/PSI |
| Den  | th Ft³ |           | Graphic  | Description  | Rock Core:                              |                        | RQD %                 | Run Ft                |             | Rec. Ft    | Rec. %    |
|      | 0.0    | 770.5     | Grapino  | Top of Hole  | Nock Core.                              | Н                      | TOOD 70               | Ruiii                 | П           | 1100.11    | 1100. 70  |
| - 0  | 0.0    |           | 111111   | SILTY SAND WITH GRAVEL, SM, 10   | )YR 3/1 (very                           |                        |                       |                       |             |            |           |
| - 1  |        |           |  | dark gray), loose to dense, dry to moi                                     |   |                        | SS01G                 | 0.0 - 1.5             | 0.0 - 1.5   | 1.3        | 4-8-6     |
| ·    |        |           |  | material, [CCR]  |   |                        |                       |                       |             |            |           |
| - 2  |        |           | $ I \downarrow I \downarrow I \downarrow I \downarrow I$ |  |   | 1.5/3.5                | SS02E                 | 1.5 - 3.0             | 1.5 - 3.0   | 1.5        | 5-6-4     |
|      |        |           |  |  |   | -20181                 | 30022                 | 1.0 0.0               | 3.0         |            | 001       |
| - 3  |        |           |  |  |   | 113                    | SS03aE                | 3.0 - 3.5             | ္အ          |            | -         |
| - 4  |        |           |  |  |   |                        | SS03b                 | 3.5 - 4.5             | 0 - 4.5     | 1.5        | 4-2-2     |
|      |        |           |  |  |   |                        |                       |                       |             | -          |           |
| - 5  | 5.2    | 765.3     |  |  |   | $\left\{ \right\}$     | SS04G                 | 4.5 - 6.0             | 4.5 - 6.0   | 1.2        | 5-3-6     |
| - 6  |        |           |  | LEAN CLAY, CL, 5YR 4/4 (reddish br to moist, with fragments of chert, [FIL | , ·                                     |                        |                       |                       | .0          |            | _         |
| Ü    | 6.5    | 764.0     |  |  |   | ┦┢                     | SS05a                 | 6.0 - 6.5             | 6.0         | 4.5        | 44 47 00  |
| - 7  | 7.5    | 763.0     | 0 0 0  | POORLY GRADED GRAVEL, GP, 10 dark gray), fine to coarse, dense, dry,       | ` ,                                     | 6.5/8.5                | SS05bE                | 6.5 - 7.5             | 6.0 - 7.5   | 1.5        | 11-17-20  |
|      | 1.5    | 703.0     |  | CCR]   | III matchai,                            | -20181                 | 0000 5                | 75.05                 |             | 1          |           |
| - 8  |        |           |  | SILTY SAND WITH GRAVEL, SM, 10   | YR 3/1 (very                            | 113                    | SS06aE                | 7.5 - 8.5             | 7.5 - 9.0   | 1.5        | 24-35-50+ |
| - 9  |        |           | [   ]   [   ]  | dark gray) and 10YR 5/6 (yellowish by                                      | rown), dense to                         |                        | SS06b                 | 8.5 - 9.0             |             |            | -         |
|      |        |           |  | very dense, dry, [CCR]   |   |                        | SS07G                 | 9.0 - 10.5            | 9.0 - 10.   | 1.5        | 39-62-106 |
| - 10 |        |           |  |  |   |                        | 00070                 | 0.0 10.0              | 10.5        | 1.0        |           |
| - 11 |        |           |  |  |   |                        | SS08a                 | 10.5 - 11.5           | 10.5        |            | _         |
| •••  |        |           |  |  |   |                        |                       |                       | 5 - 12.0    | 1.5        | 45-56-55  |
| - 12 | 12.0   | 758.5     | <u>                                     </u>             | WELL ORANGE OALD OW 10/F0  | // /                                    | 1.5/13                 | SS08bE                | 11.5 - 12.0           |             |            | -         |
|      |        |           |  | WELL GRADED SAND, SW, 10YR 3/<br>gray), medium dense to dense, dry to      | ` •                                     | .5-201                 | SS09E                 | 12.0 - 13.5           | 12.0 - 13.5 | 1.5        | 27-30-34  |
| - 13 |        |           |  | 3 7/1  | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | 31113                  |                       |                       | 13.5        |            | -         |
| - 14 |        |           |  |  |   |                        |                       |                       | 13.5        |            | =         |
|      |        |           |  |  |   |                        | SS10G                 | 13.5 - 15.0           | .5 - 15.0   | 1.5        | 25-30-25  |
| - 15 | 15.0   | 755.5     |  | WELL GRADED SAND WITH SILT A   | ND GRAVEI                               | $\left  \cdot \right $ |                       |                       |             |            | _         |
| - 16 |        |           | ·:•   <b>  </b>  | SW-SM, 10YR 2/1 (black), medium de   |   |                        | SS11G                 | 15.0 - 16.5           | 5.0 - 16.   | 1.5        | 19-15-17  |
| 7    | ዾ      |           |  | wet, [CCR]   |   |                        |                       |                       | 3.5         |            | _         |
| 47   |        |           | <u>  • •   †   †  </u>                                   |  |   |                        |                       |                       |             |            |           |



| С            | lient E            | Borehole  | ID N/A  |   | Sta   | antec Borin  | g N            | lo. KIF-              | TW05                       |             |               |                 |
|--------------|--------------------|-----------|---------|---|-------|--------------|----------------|-----------------------|----------------------------|-------------|---------------|-----------------|
| С            | lient              |           | Tennes  | see Valley Authority  | Вс    | ring Locati  | on             | 575,382.              | 75 N; 2,408,92°            | 1.34        | E NAD83       | <u> </u>        |
| Р            | roject             | Number    | 175668  | 043   | Su    | ırface Eleva | atio           | n <u>770.5</u> ft     | Elevation                  | on D        | atum <u>ı</u> | NGVD29          |
|              |                    | Lithology |         |   |       | Overburden:  |                | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>      |             | Rec. Ft       | Blows/PSI       |
| Dep          | th Ft <sup>3</sup> | Elevation | Graphic | Description   |       | Rock Core:   |                | RQD %                 | Run Ft                     |             | Rec. Ft       | Rec. %          |
| - 17         |                    |           |         | WELL GRADED SAND WITH SILT AN<br>SW-SM, 10YR 2/1 (black), medium de           |       |              | 16.5/19        | SS12E                 | 16.5 - 18.0                | 16.5 - 18   | 1.5           | 13-11-10        |
| - 18         |                    |           |         | wet, [CCR] (Continued)  | 136,  | moist to     | .5-2018111     | SS13aE                | 18.0 - 18.5                | .0 18.0     | 1.5           | -<br>17-22-19   |
| - 19         |                    |           |         |   |       |              | ω              | SS13b                 | 18.5 - 19.5                | 19.5        | 1.5           | 17-22-19        |
| - 20         |                    |           |         |   |       |              |                | SS14G                 | 19.5 - 21.0                | 19.5 - 21.0 | 1.5           | 11-17-13        |
| - 21<br>- 22 |                    |           |         |   |       |              |                | SS15G                 | 21.0 - 22.5                | 21.0 - 22.5 | 1.5           | -<br>11-11-11 _ |
| - 23         | 23.3               | 747.2     |         | SILTY SAND, SM, 10YR 4/1 (dark gra  |       |              | 22.5/24.5-2018 | SS16E                 | 22.5 - 24.0                | 22.5 - 24.0 | 1.5           | 14-26-30        |
| - 24         |                    |           |         | fine, loose to medium dense, moist to   | wet,  | [CCR]        | 81113          | SS17aE                | 24.0 - 24.5                | 24.0 -      | 0.6           | -<br>11-21-17   |
| - 25         | 25.8               | 744.7     |         |   |       |              |                | SS17b                 | 24.5 - 25.5                | 25.5        |               |                 |
| - 26         |                    |           |         | WELL GRADED SAND, SW, 10YR 2/1 to coarse, loose, wet, [CCR]                   | (bla  | ack), fine   | 26             | SS18a<br>SS18bE       | 25.5 - 26.5<br>26.5 - 27.0 | 25.5 - 27.0 | 1.5           | 5-6-6           |
| - 27         | 27.7               | 742.8     |         |   |       |              | 3.5/28.5-20    |                       |                            | 27.0        |               | -               |
| - 28         |                    |           |         | SILT WITH SAND, ML, 10YR 4/1 (dark fine to fine, very loose to loose, wet, [C |       |              | 181113         | SS19E                 | 27.0 - 28.5                | - 28.5      | 1.5           | 9-9-10 _        |
| - 29<br>- 30 |                    |           |         |   |       |              |                | SS20G                 | 28.5 - 30.0                | 28.5 - 30.0 | 1.5           | 4-3-6           |
| - 31         |                    |           |         |   |       |              |                | SS21G                 | 30.0 - 31.5                | 30.0 - 31.5 | 1.5           | 2-3-4           |
| - 32         |                    |           |         |   |       |              | 31.5/33.5-201  | SS22E                 | 31.5 - 33.0                | 31.5 - 33.0 | 1.5           | 4-7-9           |
| - 33         |                    |           |         |   |       |              | 81113          | SS23aE                | 33.0 - 33.5                | 33.0        | 1.5           | 3-5-8           |
| - 34         |                    |           |         |   |       |              |                | SS23bG                | 33.5 - 34.5                | .34.5       | 1.5           | 3-3-6 _         |
| - 35         |                    |           |         |   |       |              |                | SS24G                 | 34.5 - 36.0                | 34.5 - 36.0 | 1.5           | 2-2-2           |
| - 36<br>- 37 |                    |           |         |   |       |              |                | SS25                  | 36.0 - 37.5                | 36.0 - 37.5 | 1.5           | WR-WR-WR_       |
| - 38         | 38.0               | 732.5     |         | LEAN CLAY WITH SAND, CL, 10YR 5   | /1 (d | gray) and    |                | SS26                  | 37.5 - 39.0                | 37.5 - 3    | 1.5           | 1-2-2           |
| - 39         |                    |           |         | 10YR 4/6 (dark yellowish brown), medi<br>moist to wet, with organics          |       |              |                |                       |                            | 9.0         |               | _               |



Page: 3 of 3

| Client l              | Borehole II | ) <u>N/A</u> |   | Sta     | antec Borinç      | g N | lo. KIF-              | ΓW05                  |            |           |
|-----------------------|-------------|--------------|---|---------|-------------------|-----|-----------------------|-----------------------|------------|-----------|
| Client                |             | Tenness      | see Valley Authority  |         | oring Location    |     |                       | 75 N; 2,408,921.3     | 34 E NAD83 | <b>I</b>  |
| Project               | Number_     | 1756680      | )43   | Su      | ırface Eleva      | tio | n <u>770.5 ft</u>     | Elevation             | n Datum_ı  | NGVD29    |
|                       | Lithology   |              |   |         | Overburden:       | ý   | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> | Rec. Ft    | Blows/PSI |
| Depth Ft <sup>3</sup> | Elevation C | Graphic      | Description   |         | Rock Core:        |     | RQD %                 | Run Ft                | Rec. Ft    | Rec. %    |
| 40                    |             | ,,,          |   |         |                   |     | 07040                 | 00.0 44.0             | ω <b>σ</b> | 400       |
| - 40<br>41.0          | 729.5       |              |   |         |                   |     | ST01G                 |                       | 1.8        | 400 —     |
| <del>- 41  </del>     | 1 /2        |              | No Refusal /<br>Bottom of Hole at 41.0 Ft.                            |         |                   |     |                       |                       |            |           |
|                       |             |              | Bottom of Flore at 11.0 Ft.   |         |                   |     |                       |                       |            | -         |
|                       |             |              |   |         |                   |     |                       |                       |            | -         |
|                       |             |              |   |         |                   |     |                       |                       |            |           |
|                       |             |              |   |         |                   |     |                       |                       |            | _         |
|                       |             | Tempo        | rary well installed. See well installation                            | log fo  | r backfill detail | s   |                       |                       |            | _         |
|                       |             | 1: E = E     | Environmental Sample Custody (two Sp                                  | olit Sp | oons may be r     | equ | ired to obta          | in sufficient samp    | ple)       | _         |
|                       |             | G = 0        | Geotechnical Sample Custody<br>c denote Split Spoon divided between E |         | -                 |     |                       |                       | ,          | _         |
|                       |             | 3: Dept      | ths are reported in feet below ground su                              | urface  |                   |     |                       | •                     |            |           |
|                       |             |              |   |         |                   |     |                       |                       |            | _         |
|                       |             |              |   |         |                   |     |                       |                       |            | _         |
|                       |             |              |   |         |                   |     |                       |                       |            |           |
|                       |             |              |   |         |                   |     |                       |                       |            | _         |
|                       |             |              |   |         |                   |     |                       |                       |            | _         |
|                       |             |              |   |         |                   |     |                       |                       |            |           |
|                       |             |              |   |         |                   |     |                       |                       |            | _         |
|                       |             |              |   |         |                   |     |                       |                       |            | -         |
|                       |             |              |   |         |                   |     |                       |                       |            |           |
|                       |             |              |   |         |                   |     |                       |                       |            | _         |
|                       |             |              |   |         |                   |     |                       |                       |            |           |
|                       |             |              |   |         |                   |     |                       |                       |            | _         |
|                       |             |              |   |         |                   |     |                       |                       |            | =         |
|                       |             |              |   |         |                   |     |                       |                       |            | -         |
|                       |             |              |   |         |                   |     |                       |                       |            |           |
|                       |             |              |   |         |                   |     |                       |                       |            |           |
|                       |             |              |   |         |                   |     |                       |                       |            | _         |
|                       |             |              |   |         |                   |     |                       |                       |            | _         |
|                       |             |              |   |         |                   |     |                       |                       |            |           |
|                       |             |              |   |         |                   |     |                       |                       |            | _         |



| Γ  | Project N | Number | 175618610   |            |          | Location      | N        | 575427.   | 15, E 24102  | 207.27 (NAD 83)   |
|--|-----------|--------|---|------------|----------|---------------|----------|-----------|--------------|---|
|  | Project N | Name   | KIF Stilling Pond   |            |          | Boring No.    | GP       | -17-101   | Total Dept   | h 24.0 ft   |
|  | County    | _      | Roane County, TN  |            |          | Surface Ele   | vation   | 75        | 9.5 ft       |   |
|  | Project 7 | Туре   | Geotechnical Explo  | oration    |          | Date Started  | d 1      | 1/9/17    | Completed    | 11/10/17  |
|  | Supervis  | sor    | Edgar Smith Dri   | ller S&ME  |          | Depth to Wa   | ater 14  | 4.7 ft    | Date/Time    | 11/13/17  |
|  | Logged    | Ву     | Edgar Smith   |            |          | Depth to Wa   | ater N   | /A        | Date/Time    | N/A   |
| r  | Litholo   | ogy    |   | Overburden | Sample # | Depth         | Rec. Ft. | Blows     | Mois.Cont. % |   |
|  | Elevation | Depth  | Description   | Rock Core  | RQD      | Run           | Rec. Ft. | Rec. %    | Run Depth    | Remarks   |
| L  | 759.5     | 0.0    | Top of Hole   |            |          |               |          |           |              | _   |
| -  |           |        | Clayey Fill Materia reddish brown, mo                               |            | Grab-1   | 0.0 - 4.0     | 3.0      |           |              | Geoprobe 7730 -<br>DT Rig, 3.25" _<br>HSA with<br>1.125"/2.25" Dual<br>Tube _ |
| r  | 753.5     | 6.0    |   |            | 0        | 40.00         | 0.0      |           |              | 7   |
| -  |           |        | Limestone Gravel<br>Material, gray, dry<br>with some ash            |            | Grab-2   | 4.0 - 8.0     | 2.6      |           |              | -<br>-<br>-   |
| -  |           |        |   |            | Grab-3   | 8.0 - 12.0    | 1.4      |           |              | _   |
| Ł  | 747.2     | 12.3   |   |            |          |               |          |           |              | -   |
| <br> -<br> -<br> -   |           |        | Fly Ash Fill Materia<br>to dark gray, soft,<br>saturated            |            | Grab-4   | 12.0 - 16.0   | 2.6      |           |              | -<br>-<br>-<br>-  |
| -  |           |        |   |            | Grab-5   | 16.0 - 20.0   | 3.0      |           |              | -<br>-<br>-   |
| r  |           |        |   |            | Crob 6   | 20.0 - 22.0   | 2.0      |           |              | 7   |
| L  | 737.5     | 22.0   |   |            | Grab-0   | 20.0 - 22.0   | 2.0      |           |              | _   |
| DT 1/24/18   | 735.5     | 24.0   | Clayey Sand, tan a<br>olive, moist, soft, b<br>increasingly silty w | ecomes     |          |               |          |           |              | -   |
| NNTECFMSM_LEGACY STANDARD GINT DATABASE.GPJ FMSM-GRAPHIC LOG.GDT 1/24/18 |           |        | No Refusal /<br>Bottom of Hole                                      |            |          |               |          |           |              | -   |
| BASE.GPJ FMSI  |           |        |   |            |          |               |          |           |              | -   |
| D GINT DATA  |           |        |   |            |          |               |          |           |              | -<br>-  |
| Y STANDAR  |           |        |   |            |          |               |          |           |              | -   |
| -MSM_LEGAC   |           |        |   |            |          |               |          |           |              | ]   |
| STANTEC/F  |           |        |   |            |          |               |          |           |              | -   |
|  |           |        | <del></del>   | Chamba     |          | tina Services |          | . <u></u> |              | 1/24/18   |



| Project Number                      | er_ 175618610  |                 | Location       | N        | 575719.              | 69, E 24106  | 631.90 (NAD 83)   |
|-------------------------------------|--|-----------------|----------------|----------|----------------------|--------------|---|
| Project Name                        | KIF Stilling Pond                                      |                 | Boring No.     | GF       | P-17-10 <sub>2</sub> | 2 Total Dept | h28.0 ft  |
| County                              | Roane County, TN                                       |                 | Surface Ele    | vation   | 75                   | 6.5 ft       |   |
| Project Type                        | Geotechnical Exploration                               |                 | Date Started   | d 1      | 1/8/17               | Completed    | 11/9/17   |
| Supervisor                          | Edgar Smith Driller S&ME                               | ≣               | Depth to Wa    | ater 1   | 0.2 ft               | Date/Time    | 11/9/17   |
| Logged By                           | Edgar Smith  |                 | Depth to Wa    | ater 1   | 0.4 ft               | Date/Time    | 11/13/17  |
| Lithology                           | Overburde  | n Sample #      | Depth          | Rec. Ft. | Blows                | Mois.Cont. % |   |
| Elevation Depth                     | Description Rock Core                                  | RQD             | Run            | Rec. Ft. | Rec. %               | Run Depth    | Remarks   |
| 756.5 0.0                           | Top of Hole  |                 |                |          |                      |              | _   |
| -<br>-<br>-                         | Clayey Fill Material, dark reddish brown, moist, stiff | Grab-1          | 0.0 - 4.0      | 3.0      |                      |              | Geoprobe 7730 -<br>DT Rig, 3.25" _<br>HSA with<br>1.125"/2.25" Dual<br>Tube |
| -<br>-<br>-                         |  | Grab-2          | 4.0 - 8.0      | 3.0      |                      |              | -<br>-<br>-   |
| -<br> -<br> -                       |  | Grab-3          | 8.0 - 12.0     | 3.0      |                      |              | -<br>-<br>-<br>-  |
|                                     | Fly Ash Fill Material, gray, moist to wet, soft        | Grab-4          | 12.0 - 16.0    | 3.0      |                      |              | -<br>-<br>-   |
| -<br>-<br>-                         |  | Grab-5          | 16.0 - 20.0    | 0.5      |                      |              | -<br>-<br>-   |
| 734.6 21.9                          | Clayey Sand, tan and                                   | Grab-6          | 20.0 - 24.0    | 4.0      |                      |              | -<br>-<br>-   |
| 728.5 28.0                          | olive, wet, clay content increases with depth          | Grab-7          | 24.0 - 28.0    | 4.0      |                      |              | -<br>-<br>-<br>-  |
| 728.5 28.0                          | •  |                 |                |          |                      |              | _   |
| ANTECHNSOLEGACY STANDARDGIN DATABAS | No Refusal /<br>Bottom of Hole                         |                 |                |          |                      |              | -<br>-<br>-<br>-<br>-   |
| 5                                   | 011  | 00 Constitution | Iting Services | lna      |                      |              | 1/24/18   |



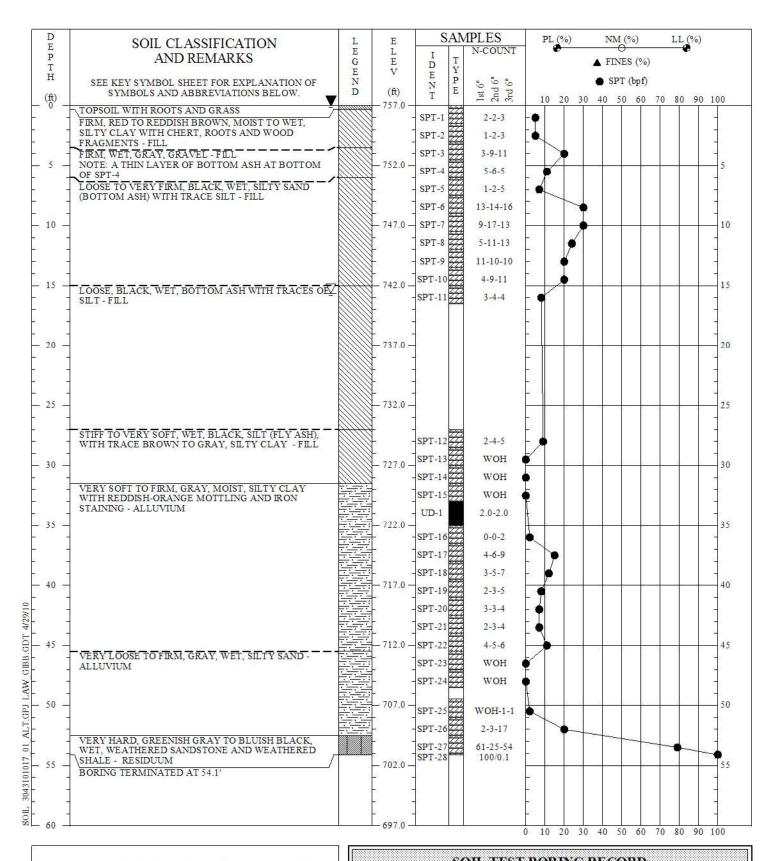
| Project Nu  | umber | 175618610  |                                 |          | Location      | N        | 575791.  | 99, E 24110  | 046.62 (NAD 83)   |
|---|-------|--|---------------------------------|----------|---------------|----------|----------|--------------|---|
| Project Na  | ame - | KIF Stilling Pond  |                                 |          | Boring No.    | GP       | P-17-103 | Total Dept   | h 28.0 ft   |
| County  | _     | Roane County, TN   |                                 |          | Surface Ele   |          |          | 1.2 ft       |   |
| Project Ty  | /pe   | Geotechnical Explo   | ration                          |          | Date Started  |          | 1/6/17   | Completed    | 11/8/17   |
| Superviso   | or –  | Edgar Smith Drill  | ler S&ME                        |          | Depth to Wa   | ater 7.  | 8 ft     | Date/Time    | 11/8/17   |
| Logged B  | y     | Edgar Smith  |                                 |          | Depth to Wa   | ater 7.  | 2 ft     | Date/Time    | 11/13/17  |
| Lithology   | y     |  | Overburden                      | Sample # | Depth         | Rec. Ft. | Blows    | Mois.Cont. % |   |
| Elevation   | Depth | Description  | Rock Core                       | RQD      | Run           | Rec. Ft. | Rec. %   | Run Depth    | Remarks   |
| 751.2   | 0.0   | Top of Hole  |                                 |          |               |          |          |              |   |
| -<br>-<br>-<br>747.2  | 4.0   | Clayey Fill Material<br>dark reddish brown<br>stiff  |                                 | Grab-1   | 0.0 - 4.0     | 2.0      |          |              | Geoprobe 7730 - DT Rig, 3.25" _ HSA with 1.125"/2.25" Dual Tube |
| -   |       | Fly Ash Fill Materia<br>wet, soft to very so   |                                 | Grab-2   | 4.0 - 8.0     | 3.0      |          |              | -<br>-<br>-   |
| 739.2   | 12.0  |  |                                 | Grab-3   | 8.0 - 12.0    | 4.0      |          |              | -<br>-<br>-   |
| 739.2   | 12.0  | Ash (No Recovery)  | )                               |          |               |          |          |              | -   |
|   |       | ,  |                                 | Grab-4   | 12.0 - 16.0   | 0.0      |          |              | -<br>-<br>-   |
| 735.2   | 16.0  | Fly Ash Fill Materia<br>wet to saturated, ve   |                                 | Grab-5   | 16.0 - 20.0   | 4.0      |          |              | -<br>-<br>-   |
| 731.2   | 20.0  | - 1" fat clay lense a<br>∖light grayish brown  | t 20',<br>, soft                |          |               |          |          |              | -<br>-<br>-   |
| ion 1/24/18   |       | Fly Ash Fill Materia<br>wet to saturated, in<br>with black hydric cl<br>at 23.6', soft moist,<br>contains plant matt | terfaced<br>ayey silt<br>er and | Grab-6   | 20.0 - 24.0   | 4.0      |          |              | -<br>-<br>-   |
|   | 28.0  | fine roots, grades to<br>alluvial sandy clay<br>24', gray/olive, wet   | below                           | Grab-7   | 24.0 - 28.0   | 4.0      |          |              | -<br>-<br>-   |
| АИТЕСРИЯМ, LEGACY STANDARD GINT DATABASE GPJ. FMSM-GRAPHICLOGG GDT  — — — — — — — — — — — — — — — — — — — |       | No Refusal /<br>Bottom of Hole   |                                 |          |               |          |          | ,            | -<br>-<br>-<br>-<br>-   |
| STANI   |       |  | Stanton                         | Consul   | ting Services | Inc      |          |              | 1/24/18   |

## **APPENDIX B.4**

**PIEZOMETERS** 

#### **Table of Contents**

| A-1       |    |
|-----------|----|
| B-1       | 2  |
| PZ-C1B    |    |
| C-2       | 4  |
| D-1       | 7  |
| PZ-D1B    | 10 |
| PZ-126    | 11 |
| PZ-E17    |    |
| SPT-17-01 | 14 |
| SPT-17-02 | 16 |
| SPT-17-03 | 19 |
| STN-48    | 22 |
| STN-48B   | 24 |
| STN-75    | 26 |



REMARKS: STANDARD PENETRATION RESISTANCE TESTING PERFORMED USING AN AUTOMATIC HAMMER.

#### SOIL TEST BORING RECORD

**PROJECT:** TVA Kingston Seep Area

DRILLED: March 31, 2010 BORING NO.: A-1

PROJ. NO.: 3043-10-1017 PAGE 1 OF 1

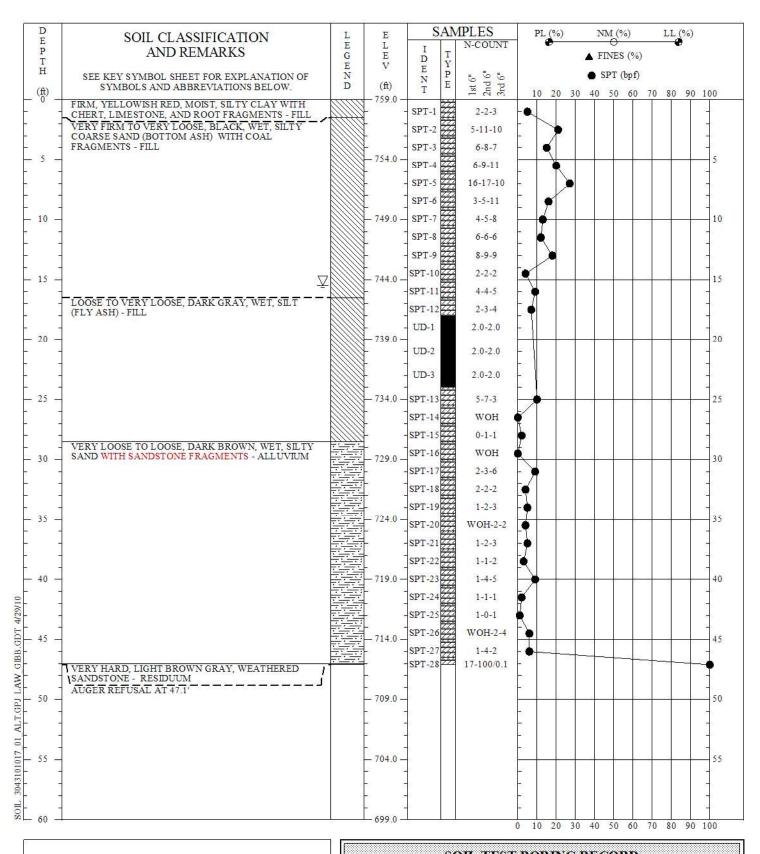
THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION, SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Driller : Tri-State

Logged By: N.J.S.

Checked By:





REMARKS: STANDARD PENETRATION RESISTANCE TESTING PERFORMED USING AN AUTOMATIC HAMMER.

#### SOIL TEST BORING RECORD

PROJECT: TVA Kingston Seep Area

DRILLED: April 1, 2010 BORING NO.: B-1

PROJ. NO.: 3043-10-1017 PAGE 1 OF 1

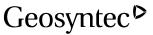
THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION, SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Driller : Tri-State

Logged By: N.J.S.

Checked By:





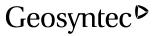
Page 36 of 105

#### consultants

105

Written by: J. Sura / Y. Cao Date: 10/29/10 Reviewed by: Neil Davis Date: 10/29/10

|      | MA   | CT      | EC   | SOIL T | EST BO  | RING FIE | LD REPOR | TBORING NO. PZ-C1B PG. 1 OF 1                                      |
|------|--|---------|--|--------|---------|----------|----------|--|
|      | 1411   | 1/2/0   | 1020   | ·      |         | 7.11     |          | RIG TYPE   |
| JOB  | NO 5   | 7111    | 030  | DR     | ILLER _ | VISTAJ   | 4 George | ALHOURS DRILLING 5 GROUND SURFACE ELEV. AN                         |
| JOB  | NAIVIE_  | TONK    | 57A  | 701000 | STUDY   | 1 1100   | nog (    | Talk OURS WOVING O. S. DATE. Of 21/10 WEATHER                      |
|      | White Street, Square Street, Square, S | AMPLI   | The same of the sa |        | 1       |          |          |  |
| 1    |  | T       |  |        | SCALE   | UD       | REC      | SOIL CLASSIFICATION REMA   |
| INO. | DEPTH  | 1ST 6"  | 2ND 6"   | 3RD 6" |         |          |          |  |
|      |  |         |  |        |         |          |          | Begin drilling from 0.0 w/3/2"                                     |
|      |  |         |  |        |         |          |          | HSA's/Change augers at 5.0'<br>-Driller indicates obstructionshand |
|      |  |         |  | - 1    |         |          |          | -Driller indicates obstractionhardo                                |
| -    |  |         |  |        |         |          |          | at target test depth/drill appx grin                               |
| In I | 55-7.5   | NA      | NA   | NA     | -       | 110-1    | 1,3'     | - Push + ube via piston sampler                                    |
| 00-1 | 00-40  | NA      | 104  | NA     |         | 00-1     | 1,0      | -Wat appx 10 winutes prior to                                      |
|      |  |         |  | 77.10  |         |          |          | pullinga tube/Material is  |
|      |  |         |  |        |         |          |          | brown fat CLAY ((H) W/sone grave)                                  |
| UD.Z | 116-13   | o' NA   | NA   | NA     | /       | 00.2     |          | -Drill to 11.0 / Charge Augers 2010.0                              |
|      |  |         |  |        |         |          |          | -Push tube via piston samples 2.0                                  |
|      |  |         |  |        |         |          |          | - Wait appx. 10 minutes prior                                      |
|      |  |         |  |        |         |          |          | to pulling tube from bocing  |
|      |  |         |  |        | - 1     |          |          | Material is brown fat CLAYA  |
| -    | -/-  | -/      |  |        |         | 111) =   |          | W/some group   |
| 00-3 | 21.0-23  | ONA     | NA   | NA     | /       | 00-3     |          | - Drill to 21.0 / Charge augers 2                                  |
| -    |  |         |  |        |         |          |          | 15.0 \$ 20.0 / push tuber via                                      |
| -    |  |         |  |        |         |          |          | - way apple 10.0' minletes   |
|      |  |         |  |        |         |          |          | prior to pulling tube from   |
|      |  |         |  |        |         |          |          | bonna  |
|      |  |         |  |        |         |          |          | -Drill Oboring to 30.5'  |
|      |  |         |  |        |         |          |          | for installation of  |
| -    |  |         |  |        |         |          |          | piezonoter/Charge Hugers   |
| -    |  |         |  | 1      | 1.15    |          |          | at 25. \$ 30 prior to well   |
| -    |  |         |  | 3.25   | -       |          |          | installation (see piezometer                                       |
| -    |  |         | -  |        |         |          |          | installation record for more                                       |
| -    |  |         |  |        |         |          |          | ae 1 au 13   |
|      |  |         |  |        |         |          |          |  |
|      |  |         |  |        |         |          |          | 2 7  |
|      |  |         |  |        |         | -        |          | 8  |
|      |  |         | 1  |        |         |          |          |  |
|      |  |         |  |        |         |          |          |  |
|      |  |         |  |        | 20      | 1        |          |  |
| BOR  | ING TER  | MINAT   | ED:  | -      | 20      | 5        | 70       | METHOD OF ADVANCING BORING DEPT                                    |
|      | ING REF  | _       |  |        | NH      | t        |          | POWER AUGER  |
|      | ER TOB   |         |  |        | 4.00    | S Zgs    |          | HAND SHOP: W/MUD: W/WATER  |
|      | ER 24 H  |         | H:   | Α.     | IA      |          |          | ROTARY DRILL: W/MUD: W/WATER  DIAMOND CORE                         |
|      | ER LOSS<br>E-IN DEF  |         |  |        | IA      |          |          | CORE SIZE  |
|      |  | 1113: _ |  | 1015   | NGTH    |          | A        | UNDISTURBED SAMPLES No. 3 SIZE 2.5 Tube                            |

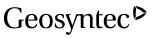


#### consultants

Page 38 of 105

| Written by: | J. Sura / Y. Cao | Date:  | 10/29/10     | Reviewed by: | Neil Davis             | D      | ate: | 10/29/10 |    |
|-------------|------------------|--------|--------------|--------------|------------------------|--------|------|----------|----|
| Client: TV  | 'A Project:      | Dredge | Cells Recove | rv           | Project/ Proposal No.: | GR4327 | Task | No.: 1   | 05 |

| 2   |                       | AMPLIN  | NG      |        | T       |            |            |  | Some    |
|-----|-----------------------|---------|---------|--------|---------|------------|------------|--|---------|
| No  | DEPTH                 | Sec. 1  | "N"     |        | SCALE   | UD         | REC        | SOIL CLASSIFICATION  | REMAR   |
|     |                       | 1ST 6"  | 2ND 6"  | 3RD 6" |         |            |            | 3  |         |
| NA  | 00-15                 |         |         |        |         |            |            | 1.5' OF SURFICIAL GRAVEL   | 1       |
| 1   | 15'30                 | 2       | 3       | 4      |         |            | 1.0'       | grayish brown fat CLAY w/gray  | 11      |
| 1   | 1330                  | _       | 3       |        |         |            | 7.0        | moist, firm, gravel is acquelar  | 1       |
|     |                       |         |         |        |         |            |            | mrostore & Shalo large wood  | GII     |
| 2   | 30-45                 | Y       | 6       | 3      | /       | /          | 1.4.       | Stide FILL MATERIAL  | THE     |
|     |                       |         |         |        |         | Maria Land |            | same as about except   |         |
|     |                       |         |         |        |         |            | et et et   | Stiff, abundant shale  |         |
|     |                       | ,       |         |        |         | 5          | ,          | tagnest's  | 4       |
| 3   | 45-6.0                | 2       | 2       | 2      | /       | 1          | 1.5        | brown fat CLAY(CH) w/gravel,   | -       |
|     |                       |         |         |        |         |            |            | worst soft high plasticition   | Allonio |
|     |                       |         | -       |        | 7       |            | 1          | butoughness gravel is primaril   | -       |
| 21  | CB 7                  | 1       | -       | 3      | -       |            | 0.81       | granule sized. Shall tringwill   |         |
| 4   | 6.0-75                | -       | 3       | 0      |         |            | 000        | Somo as above except (i)   | m       |
|     | 75'90                 | 1       | 1       | 1      | -       | /          | 1.3'       | same as above except   | 1       |
|     | 1240                  | ı       | 1       | -      |         |            | 100        | vora soft * wet  |         |
|     | 9.040.                | C/11/00 | unu     | 1      | 1       | /          | 00         | No recovery catcherintact  |         |
| _   | 1.0 101               | 3 POL   | -       |        |         |            |            | To to the state of | 1111    |
| 7   | 105-120               | WORL    | MON     | 1      | 1       |            | 1.2'       | Same as about  |         |
|     |                       |         |         | 1      |         |            |            | 2 de la granish brown  |         |
| 8   | 12.0°B5               | N       | OF      | -      | 1       |            | 102        | gastic SUT w/sand  |         |
|     | 1                     | y.      |         |        |         |            |            | wisons fine sand wet way sot   | 7       |
| 1   | 13.5450               | 5 11    | 101     | 工      | /       |            | 103        | same as about  |         |
| 10  | in tie                | -/      | 11      | -      |         |            | 100        | 1 11 111 1111  |         |
| D   | 151-16                | 5.5     | 4       | 0      |         |            | 105        | gelowish brown morther wi  |         |
|     |                       |         |         |        |         |            |            | light gray Sul W/Sand NI   |         |
| "   | 16548                 | K I     | 3       | 4      | -       |            | 1.4"       | wen some population  |         |
| 11_ | 10.00                 | /       |         | 1      |         |            | 147        | and fat CIAY Went  | 9       |
|     |                       |         |         | -      |         |            |            | To El mo to From brodings  |         |
| 12  | 180 499               | וכנט    | YZ.     | 4      | -       | _          | 1.53       | plasticities necky notocenos   | 5       |
|     |                       |         | C THUS  |        |         | W.         |            | Vsame as above   |         |
|     |                       |         | 15      |        |         |            |            |  | V       |
|     |                       |         |         | 1      | 13.     | 11         |            | The second secon |         |
| BOR | ING TER               | MINAT   | ED:     |        | 1000    | 1          | 944        | METHOD OF ADVANCING BORING   | DEPTH   |
|     | ING REF               |         |         | 4      | Sal     | 1          | esti ti    | POWER AUGER  | 0.8 TO  |
| NA  | TER TOB               | DEPTH   | : 50    | O bysl | tremic  | pipe) 14   | 9 693/8010 | HAND SHOP: W/MUD: W/WATER  | TO      |
|     |                       |         | H:()0/  |        |         | ej 1088    | bastbookde | A  | TO      |
|     | TER LOSS              | -       | A 1/    | No     |         |            | 22.        | DIAMOND CORE   | TO      |
|     | E-IN DEP<br>ING: SIZE |         | IA      |        | T+ TR   | MIE        | west.      | UNDISTURBED SAMPLES No. NA SIZE NA   | то      |
|     | NDBY,TIN              | . 0     | Lix DUC |        | -       | AVOLITA    | may loud   | BAG SAMPLES No. NA SIZE NA   | - 250   |
| IA  | 1001, III             |         | AINA    |        | JAING L |            | acent to   | TOO SHIVIFEED  | -       |
|     |                       |         | HIN H   | ed!    |         | 7          | 100 de aco | t Dike   |         |

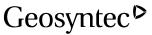


#### consultants

Page 39 of 105

| Written b | y: J. Sura / Y. C | ao       | Date:  | 10/29/10     | Reviewed by: | Neil Davis             | D      | ate: _1 | 10/29/10 |  |
|-----------|-------------------|----------|--------|--------------|--------------|------------------------|--------|---------|----------|--|
|           | -                 |          |        | •            | _            |                        |        |         |          |  |
| Client:   | TVA               | Project: | Dredge | Cells Recove | erv          | Project/ Proposal No.: | GR4327 | Task N  | No.: 105 |  |

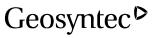
| ОВ  | NAME 7    | IA K<br>AST          | NGSTO<br>DVV                        | LOC  | GGED BY  | _R         | odrey ( | HOURS MOVING   HRS DATE 3/13-16/10 WE |         |      |
|-----|-----------|----------------------|-------------------------------------|------|--|------------|---------|---------------------------------------|---------|------|
|     | -         | AMPLIN               | NAME AND ADDRESS OF THE OWNER, WHEN |      | Т  |            | 1       |                                       | SOM     | erai |
|     | SA        | AIVIPLIN             | "N"                                 | 100  | CCALE  | LID        | DEC     | SOIL CLASSIFICATION                   | DEKA    | DIC  |
| No. | DEPTH     |                      |                                     | "    | SCALE  | UD         | REC     | SOIL CLASSIFICATION                   | REM     | HKKS |
| -   | 9         | 1ST 6"               |                                     |      |  | _          | 100     |                                       | 7 10 40 | /    |
| 3   | 195>      |                      | 3                                   | 5    |  | /          | 1.5     | iplowish coldish brown nottled        | 1,4     | 110/ |
|     | 21.0      |                      |                                     |      |  |            | 1 1     | light group tot CLAY W/SOM            | 1       | 1    |
|     |           |                      |                                     |      | 1  |            | 122     | MOIST-US; YIM WEDER                   | 1       | N. I |
|     |           | 100                  |                                     |      |  |            | 2.      | Nasticity (5-14-10) Stapda            | King    |      |
|     |           |                      |                                     |      |  |            | 100     | (8/16/10) restart doller W.L.         | =       |      |
|     | ,         |                      |                                     | ,    |  |            | ,       | appx 12'695                           |         |      |
| 4   | 21.0 >    | 1                    | 3                                   | 4    | _  | _          | 1.5     | reddish brown fat CLAY (CH)           |         | 0    |
|     | 22.5      |                      |                                     |      | 199  |            |         | w/some sand moist firm                |         |      |
|     |           |                      |                                     |      |  |            |         | medium plasticity, low touch          | 000     |      |
|     |           |                      |                                     |      |  |            |         | (bown fat CLAY cuttings be            |         |      |
|     |           | ģ.                   |                                     |      |  |            |         | to surface from augorsdail            | Kno     |      |
|     |           | W                    |                                     |      |  | 6          | -       | 600m 220°                             | 0       |      |
| 5   | 2253      | 1                    | 1                                   | 2    |  |            | 00      | No recorpry/No catcher                |         |      |
| -   | 24.0      |                      |                                     |      |  |            |         | in split spoot                        | 1       |      |
| 16  | 24.0-     | HOW                  | 1                                   | 1    | 1000   | 1          | 105     | reddish brown fort CLAY W/some        | -       |      |
|     | 25.5      | 200                  |                                     |      |  |            | -       | to few fre sord quotivery soft.       |         |      |
|     |           |                      |                                     |      |  | 1          |         | high plasticity, low touch rest       | 120     |      |
| 17  | 255-      | ubh                  | Way                                 | -Wot | 1  |            | 1.5-    | list rellowish trown elastre          |         | - 3  |
| -   | 270'      |                      | 1                                   |      |  |            | 1       | SILT W. sand wat war                  | -       |      |
|     |           |                      |                                     |      |  |            |         | soft medium plastic                   |         | · ·  |
|     | 84        | . 1                  |                                     |      |  |            |         | butoughess sandisver                  | 2       |      |
|     |           |                      |                                     |      |  |            | 100     | fine 1                                | 1       |      |
| 8   | 27.0      | WOH                  | Wart                                | 1    |  | /          | 1025    | Sam as above                          | 6 7     |      |
|     | 785       |                      |                                     | ,    |  |            | 1 2     | 700                                   | T       |      |
| 19  | 285-      | - VIOR               | WOH                                 | MOH  | and the same of th | -          | 105     | light wellowish brown                 |         |      |
|     | 35,5      |                      |                                     |      |  | 44         | 16.5    | MAND (SC)                             |         |      |
|     |           |                      |                                     | -    | 11.  |            | 1       | MXXXXX VECON POSE                     |         |      |
|     |           |                      |                                     |      |  |            |         | With the New fine au                  | de      | -    |
|     |           | ` ` `                |                                     |      |  |            |         | Find Some fing                        | 1       |      |
| 20  | 300       | 77                   | 1                                   | 2    | -/   | -          | 1001    | Some as atour                         |         |      |
|     | 31.5      | /                    |                                     |      |  | - 11       | 100     |                                       |         |      |
| 21  | 31.54     | -1                   | 5                                   | 6    | _  | 100        | 105     | Same as above except                  |         | 8    |
|     | 33.0      | -                    |                                     |      |  | 6          |         | Flow.                                 | 1       | 1    |
| 22  | 330-      | - j                  | 7                                   | 3    |  | -          | 105     | Same as above except loose            | 1       | 7    |
|     | 34.5      | -                    |                                     |      |  | Kamuunanun |         |                                       |         |      |
| BOR | ING TER   |                      | D:                                  |      |  |            | 1       | METHOD OF ADVANCING BORING            | DEPT    | Н    |
|     | ING REFU  |                      |                                     | /    | -  | 3          | 1)      | POWER AUGER                           | _       | ГО   |
|     | ER TOB    | and the later of the |                                     | /    |  | 1.1        | 11      | HAND SHOP: W/MUD: W/WATER             |         | го   |
|     | ER 24 HI  |                      | -                                   | COU  | 7,00   | all.       | 11      | ROTARY DRILL: W/MUD: W/WATER          | 0 72774 | 0_   |
|     | ER LOSS   |                      |                                     |      | 1  | 0          | /       | DIAMOND CORE                          |         | го   |
|     | E-IN DEP  |                      |                                     | 18   |  |            | 1       | CORE SIZE                             |         | го — |
|     | NG: SIZE  |                      |                                     | 15   | VIGTU  | •          |         | UNDISTURBED SAMPLES No SIZE           | 1—      | _    |
| CHU | ING. SIZE | -                    |                                     |      | -  | YOUT       |         | BAG SAMPLES No. SIZE                  | - 1     |      |



Page \_40 \_ of \_105\_

| Written b | y: J. Sura / Y. Ca | 0        | Date:  | 10/29/10      | Reviewed by: | Neil Davis             | ]      | Date:  | 10/29/ | 10  |
|-----------|--------------------|----------|--------|---------------|--------------|------------------------|--------|--------|--------|-----|
| Client:   | TVA                | Project: | Dredge | Cells Recover | ry           | Project/ Proposal No.: | GR4327 | _ Task | No.:   | 105 |

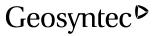
| JOB      | NAME_    | TUA K  | INGS<br>DIK | ODLOG   | GGED BY | Roc                                     | long Ch | RIG TYPE                               | EATHER: 90                               |
|----------|----------|--------|-------------|---------|---------|---|---------|--|--|
| gel I    | S        | AMPLIN | ١G          |         |         |   |         |  | E  |
|          | DEDTIL   |        | "N"         |         | SCALE   | UD                                      | REC     | SOIL CLASSIFICATION                    | REMARKS≥                                 |
| No.      | DEPTH    | 1ST 6" | 2ND 6"      | 3RD 6"  |         |   |         |  | J. J |
| 23       | 345-     | HOUL   | 2           | 4       |         | /                                       | 105'    | light ground from selfen               | AM                                       |
|          | 36.6     |        |             |         |         |   |         | SORID, SM. wet 10858                   | EL S                                     |
|          |          | 6      |             |         |         |   |         | mostly fine quarte sand                | BARREL                                   |
| 24       | 36.0     | WOH    | 4           | 3       |         | /                                       | 1.5     | save as abox instrace                  | IT B                                     |
|          | 37.5     |        |             |         | 7.      |   |         | grown / (shale fragments, quart.       |  |
|          |          |        |             |         |         |   |         | Investore) & dark grayish              | 0.D.                                     |
|          | -        |        |             |         |         |   |         | trover                                 | .2                                       |
| 15       | 375      | 5      | 3           | 6-4     |         |   | 163     | same as above                          | , o                                      |
|          | 39.0     |        |             |         |         |   |         |  | 3/8"                                     |
| 20       | rich     | - AX   | 100         | 3       |         |   | 10      | 1.11 an all constant                   | 1 1                                      |
| ldes     | 到6分      | 6-1    | 18          | 10      |         |   | 100     | light gray Sittly TINUSM               |  |
|          | ~70,0    |        | 766         | 1000    | 1,500   |   |         | and the fact of the factor             | 2 P                                      |
| (d)      |          |        |             |         | 3       |   |         | Let make and Clark Consument           | TONE IS                                  |
|          |          |        |             | - Agent |         |   |         | GARAVES SVALL HARVES                   | 3  |
| 15       | 40.5     | 10     | 5           | a       |         |   | 1 4     | At Un to de to                         | A South                                  |
| ation of | 47.0     | 10     |             | 1       |         |   | 101     | SHALE FRONTS SOUTH                     |  |
|          | t dige   |        |             |         |         |   | 1       | uporto rod plata bed his               | Tan R                                    |
| 23       | 4250     | 15     | 28          | 50%:    | 2/      | /                                       | 1.5     | same as above                          | of 3/4/18                                |
|          | 43.7     |        |             | 1       |         | 17.7                                    |         | Auges Rofugato                         | DW 18                                    |
| (f.,     |          |        |             |         |         |   |         | 43.4                                   | 3 10 m                                   |
|          |          |        |             |         |         |   | *       |  | 1 0                                      |
|          |          | -      |             |         |         |   |         |  | NOS NOS                                  |
|          |          |        |             | -       |         |   |         | ·                                      | 18mhinatas                               |
| la la    |          |        |             |         |         | - 2 5 5 5 5                             |         |  | ANG                                      |
|          |          |        | - 101       |         |         |   | - 10 mg |  | TSIS                                     |
|          | -        |        |             |         |         |   |         |  | N N                                      |
|          | -        |        | Total S     |         |         |   |         |  | NO                                       |
|          |          | 7      |             | 124     | 700-7   |   |         |  | PENETRAT                                 |
| 1000     | 166      | 100    |             | -       | -       | -                                       | -       | A                                      | EZ                                       |
| 72.040   | 100      |        |             |         |         | 4                                       |         |  | 2  |
|          |          |        | ar "        |         | 1.50    |   |         | 7/2-                                   | STANDARD                                 |
| - 61     |          |        |             | - 1     |         |   | e 16.   |  | STAI                                     |
|          | ING TER  |        |             | /       |         | · * * * * * * * * * * * * * * * * * * * | 1       | METHOD OF ADVANCING BORING POWER AUGER | <b>DEPTH</b>                             |
|          | ER TOB   |        |             | _       |         |   | 1       | HAND SHOP: W/MUD: W/WATER              | TO                                       |
|          | ER 24 H  |        | -           | 00      | , pa    | 10                                      | 11      | ROTARY DRILL: W/MUD: W/WATER           | TO                                       |
|          | ER LOSS  |        | 10          | 166     | 1       | 1                                       | 1       | DIAMOND CORE                           | TO                                       |
|          | E-IN DEP |        | 6           |         | , 0     |   | 1       | CORE SIZE                              | TO                                       |
|          | NG: SIZE |        |             | LEI     | NGTH    |   | /       | UNDISTURBED SAMPLES No SIZE            |  |
|          | NDBY TIM |        |             |         | RING LA |   |         | BAG SAMPLES No SIZE                    | -  |



Page <u>43</u> of <u>105</u>

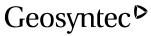
| Written by: | J. Sura / Y. Cao | Date:  | 10/29/10     | Reviewed by: | Neil Davis             | D      | ate: 1 | 0/29/10  |
|-------------|------------------|--------|--------------|--------------|------------------------|--------|--------|----------|
| Client: TV  | 'A Project:      | Dredge | Cells Recove | ry           | Project/ Proposal No.: | GR4327 | Task N | No.: 105 |

| ОВ   | NAME 7                     | UAK      | MGS    | Toplog    | GED BY  | Rodn    | en Clas       | HOURS DRILLING 11.5 HOROUND SURFACE ELEV<br>LE HOURS MOVING 0.5 HOATE: 8/18/10 WEAT       | HER:90  | )°f.                                 |
|------|----------------------------|----------|--------|-----------|---------|---------|---------------|---|---------|--------------------------------------|
|      | THE PERSON NAMED IN COLUMN | AMPLIN   | PIL    | 4         |         |         |               | 8/8/10  | nimaci. | 1-                                   |
| 9-33 | 3/                         | AIVIPLII | "N"    |           | SCALE   | UD      | REC           | SOIL CLASSIFICATION R   | EMARKS  | E                                    |
| No.  | DEPTH                      | 1CT 6"   | 2ND 6" | 2 D D 6 " | JCALL   | OD      | NEC           | 0.3' OF SURFICAL GRAVEL, BORING IN ROADWAY  | 10.3    | 18                                   |
| 1    | 0.0-1.5                    | 1310     | 6      | 10        |         |         | 1.3'          | restrict brown tot CLAY/CH) w/grown   | Sof all | E,                                   |
| /    | 0.0 1.3                    |          | 0      | 10        |         |         | 100           | moist very stiff around is angular chest  |         | L S                                  |
|      |                            |          |        |           |         |         |               | linestone FILL MATERIAL   | 1       | RE                                   |
| 2    | 15.30                      | 3        | 4      | 9         | /       | /       | 1.4'          | same as above except stiff instead  | 1       | 18                                   |
|      | ., 5.0                     |          |        |           |         |         | ,,,           | of vera stiff   | 11      | 12                                   |
| 3    | 30-45                      | 2        | 4      | 3         | /       |         | 1.2'          | same as about exapt firm  | Fill    | 10                                   |
|      | 5                          |          |        |           |         |         |               | instead of parstiff   | 1       | 22                                   |
| 4    | 45-60                      | 1        | 2      | 3         | /       | /       | 1.0           | same as along, except firm  | 1       | Ġ.                                   |
|      |                            |          |        |           |         |         |               | about change & 5.8 to yellowith   | Va.     | 1.00                                 |
| 5    | 60-75                      | 3        | 8      | 4         | /       |         | 1.0           | group ( reddich gray to roddish brow  | n       | 1-3                                  |
|      |                            | S. K. Ir |        | -         |         |         |               | Fat CLAY (CH), moist (increased mor   | stone)  | DRIVE                                |
|      |                            |          |        |           |         |         |               | aygravel, fard material 26.59   | 1       | 0                                    |
| -    | 100                        |          |        |           |         |         |               | (argular grave) is limeston (chart)   | -       | e1                                   |
|      | 487 (41                    |          |        |           |         |         |               | - Driller indicated colble pushing augs   | -       | 38                                   |
| _    | -201                       |          |        | 1         | -       |         | 1-1           | toside  | A       | AND                                  |
| 6    | 75.90                      | 1        | 2      | 1         | /       | /       | 1.2           | brown fat CIAY (CH) ey some   | 11      | 6" A                                 |
| _    |                            |          | 100    |           |         |         |               | argular grave (chot/Impetors)   | 1011    | N.                                   |
| -    | 0 (                        | 1        | 1:     | 3         |         | -       | 1.4'          | moist soft high platicities be todahass   | ITILL   | BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE |
| +    | 96-10.9                    | 1        | 7      | 5         | -       |         | 1.4           | Brocen to dock brown fat CLAY (CH)  | 1       | VS F                                 |
|      |                            |          |        | 3,400     | 1       | - 6     |               | wet zone at apx 10.0-10.2 bgs   | +       | 0                                    |
|      |                            |          |        |           |         | 190     |               | inch plasticitis bee tousines   | .0.     | OF B                                 |
| 2    | 105-120                    | 1        | 1      | 3         |         | -       | 1.5'          | grantsh from for CLAY, CH, moist  | 1       | SUM                                  |
| 0    | 10.7-6                     | 1        | -      |           |         |         | 100           | Soft some angular grave I shall   | tion.   | IS SI                                |
| 0674 | A                          |          |        |           |         |         |               | FILL MATERIAL (Migh plasticity low touting  | w.      | NCE                                  |
| 9    | 12.0-13.                   | 51       | 2      | 7         | -       | /       | 0.5           | Gocun fat (AY w/arasel (CH) WET; SOFT   | Vul     | SA                                   |
| t    | .,,,                       |          |        |           |         | 1       |               |   | Shour   | S                                    |
| 10   | 135'-15.0                  | WOH      | 1      | 1         | /       | /       | 1,5           | same as above except very,  | 15.0    | NO                                   |
|      |                            |          |        | •         |         |         |               | soft instead of soft  | Top of  | 3ATI                                 |
| 11   | 150-16.5                   | WOR      | WOH    | 1         | /       | /       | 0.9           | Went brown for CLAT (CH) as/sorg  | Allovic | TRAIL                                |
|      | N.                         |          |        |           |         |         | 1 - 1 - 4     | shod high plasticity but oughous  | *       | PE                                   |
|      | 100                        | ×        | 7.     |           |         |         | 1             | shale fragments in upper-most   |         | JARE                                 |
|      | USE IL SE                  | -        |        |           |         |         | 1.9           | porting of somple   | 1       | TANDARD                              |
| 12   | 165-18.0                   | D'CUCH   | WOH    | WOH       | /       | _       | 1.2           | chistie SHE (BH) Moist, very soft   | V       | S                                    |
|      |                            |          |        | E         | 7       | 71      |               |   |         |                                      |
|      | ING TERI                   |          | ED:    | _         | 100     | TD      | as            |   | EPTH    |                                      |
|      | ING REFU                   | 100      |        | 5         | 50      | 1 60    | 15            |   | OTO 5   |                                      |
|      | ER TOB                     |          |        | 15        | 0.13    | bay     | 5             | HAND SHOP: W/MUD: W/WATER   | TO      |                                      |
|      | ER 24 HI                   |          | H:     | 15        | 05      | togs(+  | remiep. 4 box | ROTARY DRILL: W/MUD: W/WATER  | TO      |                                      |
|      | ER LOSS                    |          | A 1    | Noi       |         | 0.41    | \             | DIAMOND CORE  | TO      |                                      |
|      | E-IN DEP                   |          | JA     | -         | of tre  | mep     | (Se)          | CORE SIZE   | TO      |                                      |
|      | NG: SIZE                   | -        |        |           | NGTH _  | VOLIT   | 2.6.1         | UNDISTURBED SAMPLES No. <u>NA</u> SIZE <u>NA</u> BAG SAMPLES No. <u>NA</u> SIZE <u>NA</u> |         |                                      |
|      | VUDY IIII                  | /IF: 8   | THE !  | > BAIDO   | DING LA | ATTITLE | IN ELLST      | TOACT TAIVIELES IND. INFO SIZE INT  |         |                                      |



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|     |     |               |        |        |        |        |          | _        |          | Neil Davis                                  |   |          |                                      |
|-----|-----|---------------|--------|--------|--------|--------|----------|----------|----------|---|---|----------|--------------------------------------|
| TVA |     |               | Proje  | ct: _] | Dredge | Cells  | Recove   | ery      |          | Project/ Proposal No.:                      | GR432                                   | 7_ Tas   | k No.                                |
| 7   |     |               |        |        |        |        |          |          |          |   |   |          | ¥.                                   |
|     | 20  | ΝΙΔ           | CT     | FC     | SOIL T | EST BO | RING FIE | LD REPOR | T BORING | NO. D-I                                     | PG. 20                                  | F3       |                                      |
|     |     | 1017          |        | 1026   | 7      |        |          | 11       | RIG TYPE | DRILLING ILS IKS GROUNIS MOVING OS HS DATE: | ER TYPE                                 | AUTO     |                                      |
|     | JOB | NO. <u>50</u> | 4310   | (050   | DRI    | LLER C | 230196   | 2 Hem    | S HOURS  | DRILLING 11.5 HKS GROUN                     | D SUBFACE EL                            | EV. 74   | 8.7                                  |
|     | JOR | NAME _        | UAK    | MOS    | 1000   | GED B. | Rod      | vey (1   | HOUR     | S MOVING OGS HS DATE:                       | PHYLONE                                 | ATHER: 9 | 07                                   |
|     |     | 16            | AMPLI  | 11     | Ne     |        |          | 1        | T        |   | ,                                       | IF HODEL | J=                                   |
|     |     |               |        |        |        | SCALE- | UD       | REC      |          | SOIL CLASSIFICATION                         |   | REMARK   | S                                    |
|     | No. | DEPTH         | 1ST 6" | 2ND 6' | 3RD 6" |        | 1        |          |          |   |   | 1        | PLER                                 |
|     | 13  | 180-195       | WOH    | WOL    | HOW    | /      | /        | 1,3'     | lighto   | ellows brown fat                            | at                                      | HILO     | い動い                                  |
|     | 16  |               |        |        |        |        |          |          | (CH)     | moist, very soft                            | high plan                               | Kete 1   |                                      |
|     | 121 | 10/01         | 10     | -      |        |        |          | 1 -1     | 1000     | toughness, little                           | fine san                                | 2        | BARREL                               |
|     | 14  | 195-21.       | 2      | 5      | 6      |        |          | 1.2      | yellow   | ish brown mottled W                         | light grav                              | 1        | -15                                  |
| 1   |     | 210'20        | 1      |        |        |        |          |          | trace.   | araular shalos from most                    | morst of                                |          | O.D. SPLIT                           |
|     | is  | 1000          | 77     | 9      | 11     |        | 400      | 1.5      |          | esh fine sand SHiff                         | 3 INDITION                              |          | 70                                   |
|     |     | 110           |        |        |        |        | 74.33    |          | 1        | & brown mottled w/ li                       | oft gram                                |          | I.D.,                                |
|     |     |               |        |        |        | 101111 |          |          | Year G   | AY w/sand (CL), more                        | t, some                                 |          | 1.80                                 |
| Į.  | 10  | -             | -      |        |        |        |          |          | fino.    | sand Very stiff                             | /////////////////////////////////////// | -        | TO DRIVE 1-3/8"                      |
| 1   | 16  | 225-24        | 03     | 4      | 5      |        |          | 1.4'     | legh     | typellowel brown                            | 1 1 -                                   | ling     | ORIV                                 |
|     | -   |               |        |        |        |        |          | *,       | tat C    | LAY (CH) w/ sand                            |   |          | - P                                  |
|     | 17  | 24.0'-25      | cra    | 7      | 5      | 1      | _        | 1.5      | Samo     | as above excep                              | t final                                 | 1        | D 6"                                 |
|     | 1   | 27.0-27       | -      | -      | -      |        |          | 1.       | SUNIO    | as above the                                | 1 1-14 80                               |          | D 3RD                                |
|     | 18  | 255-27        | 0 /    | 3      | 5      | /      | /        | 1,5      | Some     | as above, vortica                           | Striction                               | 4        | BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE |
|     |     |               |        |        |        |        |          |          | nott.    | ling  | 101                                     | 1        | ND 6                                 |
|     | 19  | 270-28        | 3      | 5      | 6      | -      | _        | 104      | grad     | edito clayey                                | SANUC                                   | (C)      | FOR 2ND                              |
|     | -   | ,             |        |        |        |        |          |          | WET      | gollowish bowl                              |   | -        | VS F                                 |
|     |     | <u> </u>      |        |        |        |        |          |          | lone     | ina form                                    | TNO(SM)                                 | 0        | BLOWS F                              |
|     | 20  | 28.54         | 1      | 4      | 3      | _      |          | 100      | arado    | s into arain silter                         | SANO                                    | SM)      |                                      |
|     |     | 30.0          |        | ' '    |        |        |          |          | we       | + 10000 mosting                             | fine-                                   |          | IS SUM OF                            |
|     |     |               |        |        |        |        |          | 3.04     |          | offine sand                                 | -                                       | 9 10     | ES                                   |
| 1   | 21  | 30.0'-        |        | 2      | 2      | _      |          | 0.0      |          | he covery cotch                             | er whact                                | 1        | ANG                                  |
|     | 22  | 31.5          |        | ^      | 0      | _      | _        | 1.7      | 1 - 19   | ht gray SANU(SC)                            | -124                                    |          | RESISTANCE                           |
|     | -   | 33.0          | /      | 0      | 0      | _      |          | 107      |          | 1 loose lensin                              | a uveilt                                |          | N N                                  |
|     |     | 20.0          |        |        |        |        | pert .   |          |          | (SM) trace, she                             |   |          | SATIC                                |
|     | 23, | 330-          | WOR    | WOR    | WOH    | _      | /        | 1.5      |          | occurish Grown Bo                           |   |          | JE STATE                             |
|     |     | 345           | 1      |        |        |        | Jan 1    |          |          | w/sand medic                                |   | ,        | O PEI                                |
|     | -   |               | -      |        |        |        |          |          |          | ticity sone clay                            |   | /        | ANDARD PENET                         |
|     | -   |               |        |        |        |        |          |          | BU       | erestine ju                                 | ery Soy                                 | TV       | AN                                   |
|     |     |               |        |        |        |        |          |          |          |   | U                                       | V        | S                                    |
|     | BOR | ING TER       | MINAT  | ED:    |        |        |          |          |          | METHOD OF ADVANCING BO                      | RING                                    | DEPTH    |                                      |
|     |     | ING REF       |        |        |        |        |          | 1.0      | POWER    |   |   | TO       | _                                    |
|     | WA  | TER TOB       | DEPTH  | :      |        |        | - 199    |          |          | HOP: W/MUD: W/WATER                         |   | то       |                                      |
|     |     | ΓER 24 H      |        |        |        |        | OF       | 0        | ROTARY   | DRILL: W/MUD: W/WATER                       |   | TO _     |                                      |
|     |     | TER LOSS      |        |        | -      |        |          |          | DIAMON   |   |   | TO _     | _ /                                  |
|     | CAV | E-IN DEF      | THS    |        |        |        |          |          | CORE SIZ | F   |   | TO       |                                      |



Page <u>45</u> of <u>105</u>

| Written by: | J. Sura / Y. Cao | Date:  | 10/29/10     | Reviewed by: | Neil Davis             | D      | ate: | 10/29/10       |    |
|-------------|------------------|--------|--------------|--------------|------------------------|--------|------|----------------|----|
| Client: T   | VA Project:      | Dredge | Cells Recove | ry           | Project/ Proposal No.: | GR4327 | Task | <b>No.:</b> 10 | 05 |

|      | NAIVIE               | NA K      | INCS   | TONLOG | GGED BY           | Rod    | ney Clar    | RIG TYPE (NESSOAT) HAMMER TYPE ALL HOURS DRILLING (15 HE GROUND SURFACE EL HOURS MOVING 0,5 HE DATE: 8/12/10 WE | ATHER: 9  |
|------|----------------------|-----------|--------|--------|-------------------|--------|-------------|---|-----------|
| -    |                      | AMPLII    |        | =      |                   |        | 7           | 013170  |           |
|      | 3                    | AIVIPLII  | "N"    |        | SCALE             | UD     | REC         | SOIL CLASSIFICATION   | REMARKS   |
| No.  | DEPTH                | 1ST 6"    | 2ND 6" | 3RD 6" | SCALE             |        |             | 43 SOIL CLASSIFICATION  | REIVIARKS |
| 24   | 34.5 ±<br>36.0       | WOR       | WOH    | WOH    |                   | _      | 104         | gray, clastic SILT w/sandi  | Allerrow  |
|      | 36.0                 |           |        |        |                   | -      |             | medium plasticition   |           |
| ac   | 36.5-                | INAF      | Mold   | (Jose) |                   | -      | 1.4         | same as above   |           |
| 42   | 375                  | WUN       | WON    | WVG    |                   |        | 10.1        | Same as desice  |           |
| -    | 37.5                 |           |        | -      |                   |        |             |   |           |
| 76   | 37.5                 | unir      | 1.12/1 | 1      |                   |        | 1.5'        | am all SAND(EAL) with   |           |
|      | 370                  | Moore     | Pilm   |        |                   |        | 1,3         | grant sitte strong some of  | 1         |
|      | 370                  |           |        | -      |                   |        |             | hory los exmost yvery   |           |
| 7-0  | ma                   | - (1 1011 | is mi  | 1      | _                 | _      | 1021        | The same  | V         |
| 4    | 39.0                 | and       | W.F.   | 1      | -                 |        | 105         | 13412 45 4600   | Δ1/       |
| 20   | 415.43               | n telate  | 1.101  | 1      |                   | _      | 1.3'        | uplowish brown , siffer, SAND(SM  | ALL ALL   |
| 60   | 713 75.0             | WUH       | WUT    | 1      |                   |        | 1,3         |   | 11/40/6   |
| 200  |                      |           |        |        |                   |        |             | wet very 1000 mostly  | 11        |
| 70   | - /-                 | -4.1      | parts. | -      | 100               |        | 1.11        | TIME quarte sand ALLINIUM   | V         |
| 27   | 18.6-44              | 51        | 5      | 6      |                   |        | 1.4"        | grayish brown grades to yellowist   | , 1       |
|      |                      | 100 00    |        | 100    |                   | • •    |             | brown silty (SAND (SM) WE   | 5-11      |
|      |                      | Ser.      |        | -      |                   |        | - 8         | Firm, mostly fine quartz sard   | TABAC     |
| -    | enser                | -         |        | 27     | -                 | _      | 1.5         | ACCOULCEMENT AND INCOMENTE  | 10POF     |
| 30   | 445-4                | 505       | 15     | 23     |                   |        | 1.5         | darkgray SILT, ML WEATHE  |           |
|      |                      |           | -      |        |                   |        | 1           | SHACE RESIDOUM, main  | 00445     |
|      |                      |           | -      |        |                   |        |             | platy bedding triable.  | 100       |
|      |                      |           |        | 100    |                   |        | 1           | fisto hard  |           |
| SI   | 4600                 | 10        | 15     | 19     | /                 | /      | 1.3         | dark gray weathered Shay  | The Hor   |
|      | 475                  |           |        |        |                   |        |             | moist platy bedding triable   | Charles   |
| -    |                      | -         |        | - 0    |                   |        | 1.1         | FISSLE  | mare      |
| 32   | 47.5                 |           | 19     | 26     |                   | /      | 1.0         | Same as a box   |           |
|      | 49.0                 | _         |        | - S-27 |                   |        |             |   |           |
|      | 100                  | / -       | 1      |        |                   |        | 1 -1        |   | 100       |
| 53   | 47.0-9               | 5/5       | 23     | 22     | /                 |        | 1,3         | same as about   | -         |
|      |                      | -         |        | 0      |                   |        | -           |   | -874      |
| 34   | 505-5                | 206       | 13     | 7      | /                 | /      | 0.5         | same as above   | 1932      |
| -    | . ,                  | -         | -7-    | EM!    | 00                |        | 1 1 1 1 1 1 |   | 100       |
| 3    | 52.00                | 15        | 30     | 50/6:3 | 5/                | /      | ļ.,         | PC 105371   | X         |
|      | 53.7                 |           |        |        |                   | 4 44   | _           | Kefusal a 53.7 bas  | ,         |
| DOD. | NC TER               | MINIAT    | 7      | * NC   | 77E:0             | biller | s begin     | adding unter a 41.5 to present so   | DEDTHE    |
|      | ING TER              |           |        | 1      | -                 |        | - 2         | METHOD OF ADVANCING BORING  | DEPTH     |
|      | NG REF               |           | 1      | /      |                   | 1      |             | POWER AUGER   | TO        |
|      | ER TOB               |           |        |        | M ==              | 1      |             | HAND SHOP: W/MUD: W/WATER   | TO        |
|      | ER 24 H              |           | H: 15  | CR     | uge               | -1)    |             | ROTARY DRILL: W/MUD: W/WATER  | TO        |
|      | ER LOSS              |           |        | 1      | U                 | -/     | *           | DIAMOND CORE  | TO        |
|      | E-IN DEP             |           |        |        |                   |        |             | CORE SIZE   | TO        |
|      | NG: SIZE<br>IDBY TIN |           |        |        | NGTH _<br>RING LA |        |             | UNDISTURBED SAMPLES No. SIZE BAG SAMPLES No. SIZE   |           |

### Geosyntec<sup>o</sup>

#### consultants

105 Page <u>48</u> of

| VA |            |               | Proje  | ect: _   | Dredg  | ge Cells | Recov               | very   | Project/ Proposal No.: GR43   | <u>527</u> Task N   |
|----|------------|---------------|--|--|--------|----------|---------------------|--|---|---|
|    | 2111       | 7/1/          | СТ   | EC   | SOIL T | EST BOR  | ING FIE             | LD REPOR   | TBORING NO. PZ-D1B PG. 1 O<br>RIG TYPE CME SS O TEXT HAMMER TYPE AC<br>HOURS DRILLING 1.0 GROUND SURFACE EL<br>LA HOURS MOVING 0.25 DATE: 5/25/10 WE    | F 1.  |
|    |            | IATU          |  | LU   |        |          | _                   | 4  | RIG TYPE CME SSO TEXCE HAMMER TYPE A  | JTO_  |
|    | JOB        | NO. <u>30</u> | 43101  | 038  | DRI    | LLER _   | Deorge              | Heins  | HOURS DRILLING 1.0 GROUND SURFACE EL  | EV. Appx 748.   |
|    | JOB        | NAME 7        | WA K   | MGS  | 6NLO   | GGED BY  | Rock                | rey Cha  | HOURS MOVING V. LO DATE: 2/25/10 WE   | ATHER: Jonney !   |
|    | _          |               | AMPLII   |  | 461211 | 51007    | _                   | T  |   | T =   |
|    |            |               |  | "N"  |        | SCALE    | - UD                | REC  | SOIL CLASSIFICATION   | REMARKS \$  |
|    | No.        | DEPTH         | 1ST 6"   | 2ND 6"   | 3RD 6" |          |                     |  |   | PLER  |
|    | 1          | 3-5           |  |  | M      | NA       | 1                   | 1.25   | Dall to 30w/ 3/4"HSA's, push tobe   | SAM   |
|    |            |               |  |  |        |          |                     | - 5  | Via piston samples after charging borning   | REL 9   |
|    | -          |               |  |  |        |          |                     | -  | w/water/wait oppx 10 minutes  | BAR   |
|    | -          |               |  |  |        |          | Y                   | -  | prior to pulling tube Material  | <del>   </del>  |
|    | -          |               | -  |  |        |          | ,                   |  | Via piston samples after charging borning whater / wait appx 10 minutes prior to pulling tube. Material is readish brown fat CLAY (CH) w/ some gravel   | AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER IS FALLING 30 INCHES. |
|    | -          |               |  |  |        |          |                     |  | w/some grover  - Charge boring at 5' interval when adding augers  -At 6' bgs encounter obstruction "large cobble Auger refusal / Offset to new location | 2 0   |
|    |            |               |  |  |        |          |                     | -  | when adding avaers  | o.  |
|    |            |               |  |  |        |          |                     |  | -At 6' bgs encauter   | 18  |
|    |            |               |  |  |        |          |                     |  | obstruction "large cobble   | 2   |
|    | -          |               |  |  |        |          |                     |  | Augor refusal/Offset to   | BLOWS FOR ZND 6" AND 3RD 6" TO DRIVE  |
|    | -          | -             | -  | -  | -      |          |                     | -  | new location  | P 2   |
|    | -          | -             | <del>                                     </del> | -  |        |          |                     |  |   | E D G   |
|    | -          | -             | -  |  |        |          |                     |  |   | ALL ALL   |
|    |            |               |  |  |        |          |                     |  |   | - W   |
|    |            | 3-4           |  |  |        |          |                     |  |   | BLOWS FOR ZND 6   |
|    | _          |               |  |  |        |          |                     |  |   | D H/  |
|    | -          | -             |  | -  |        |          |                     |  |   |   |
|    | -          |               |  | <del>                                     </del> | -      |          |                     |  |   | NO N  |
|    |            |               | <u> </u>   |  |        |          |                     |  |   | Ö   |
|    |            |               |  |  |        |          |                     |  | · · · · · · · · · · · · · · · · · · ·   | SUM   |
|    |            |               |  |  |        |          |                     |  |   | E IS  |
|    |            |               |  |  |        |          |                     | -  |   | RESISTANCE IS   |
|    | -          |               | -  |  | -      | -        |                     | -  |   | ESIST   |
|    | -          | -             | -  |  | -      |          |                     | -  |   | N R   |
|    | -          |               | -  | _  |        |          |                     |  |   | ETRATION  |
|    | -          |               |  |  |        |          |                     |  |   | LETR.   |
|    |            |               |  |  |        |          |                     |  |   | ) PE  |
|    |            |               | ,  |  |        |          |                     |  |   | STANDARD PE   |
|    | -          | -             |  | -  |        |          |                     | -  | •   | TANE  |
|    |            |               |  |  |        |          | Mark Transportation |  |   | S   |
|    | ROD        | RING TER      | MINAT  | FD.  |        | 6        |                     |  | METHOD OF ADVANCING BORING  | DEPTH   |
|    |            | ING TER       |  |  |        | 61       |                     | and the same of th | POWER AUGER   | 0.0 TO 6.0  |
|    |            | TER TOB       |  |  |        | 4.5      | 60                  | 25   | HAND SHOP: W/MUD: W/WATER   | TO  |
|    |            | TER 24 H      |  |  |        | NA       | 0                   |  | ROTARY DRILL: W/MUD: W/WATER  | TO  |
|    | WA         | TER LOS       | SES:   | dia .  |        | NA       |                     |  | DIAMOND CORE  | TO  |
|    |            | E-IN DEF      |  |  |        | NA       |                     | 11   | CORE SIZE   | TO  |
|    | CAS<br>STA | ING: SIZI     | E  | N  | Y LE   | NGTH _   | 0                   | M  | UNDISTURBED SAMPLES NO. NO. NA SIZE NA BAG SAMPLES NO. NO. NA SIZE  | 7   |



|   | Project N        | No.            | 175669015   |                |          | Location     | N        | l 555194.9              | 95, E 24428   | 95.83 (NAD27)                             |
|---|------------------|----------------|---|----------------|----------|--------------|----------|-------------------------|---------------|---|
|   | Project N        | Name           | KIF-TVA; New Dike   | C PZ's         |          | Boring No.   | PZ-      | 126                     | Total Dept    | h 33.0 ft                                 |
|   | Location         | <br>           | Roane County, Ten   | nessee         |          | Surface Elev | vation   | 754                     | 4.0 ft. (NGVI | D29)                                      |
|   | Project 7        | Гуре           | Geotechnical Explo  | ration         |          | Date Started | d        | /6/10                   | Completed     | 7/6/10                                    |
|   | Supervis         | or             | M. Jones Dri  | ller S. Snov   | <i>N</i> | Depth to Wa  | ater 1   | 3.0 ft                  | Date/Time     | 7/6/10                                    |
|   | Logged I         | Ву             | M. Jones  |                |          | Automatic H  | lammer   | ⊠ Safe                  | ety Hammer    | ☐ Other ☐                                 |
|   | Litholo          |                | -   | Overburden     | Sample # | Depth        | Rec. Ft. | Blows                   | Mois.Cont. %  |   |
| F   | Elevation        | Depth          | Description   | Rock Core      | RQD      | Run          | Rec. Ft. | Rec. %                  | Run Depth     | Remarks                                   |
| F   | 754.0'           | 0.0'           | Top of Hole   |                |          |              |          |                         |               |   |
| t   |                  |                | GRAVEL  |                |          |              |          |                         |               | Boring advanced with 4.25" HSA and center |
| F   | 751.0'           | 3.0'           |   |                | _        |              |          |                         |               | plug.                                     |
| L   | 749.0'           | 5.0'           | LEAN CLAY, dark reddis<br>moist, very stiff, trace or<br>sand | •              | SPT-1    | 3.0 - 5.0    | 1.6      | 4-4-7-10                |               |   |
|   | 747.0'           | 7.0'           | SILTY SAND with Botton  | /<br>m Ash and | SPT-2    | 5.0 - 7.0    | 2.0      | 6-20-13-8               |               |   |
| F   |                  |                | Coal Fragments, gray to brown, moist, medium de               | black and      | SPT-3    | 7.0 - 9.0    | 2.0      | 4-7-12-19               |               |   |
| F   |                  |                | BOTTOM ASH with Fly a   |                | SPT-4    | 9.0 - 11.0   | 1.8      | 7-9-7-7                 |               |   |
| F   |                  |                | -increasingly coarse Both below 11 feet                       | tom Ash        | SPT-5    | 11.0 - 13.0  | 2.0      | 5-4-5-5                 |               |   |
| E   |                  |                |   |                | SPT-6    | 13.0 - 15.0  | 2.0      | 5-5-4-4                 |               |   |
| F   | 737.6'           | 16.4'          |   |                | SPT-7    | 15.0 - 17.0  | 1.6      | 5-3-2-2                 |               |   |
| Ė   |                  |                | SILTY SAND, grayish br<br>very loose                          | own, wet,      | SPT-8    | 17.0 - 19.0  | 1.5      | WOH-<br>WOH-            |               |   |
| F   |                  |                |   |                | SPT-9    | 19.0 - 21.0  | 1.0      | WOH-1<br>3-2-1-1        |               |   |
| F   |                  |                |   |                | SPT-10   | 21.0 - 23.0  | 1.4      | WOH-<br>WOH-1-1         |               |   |
| ┢   | 729.9'<br>729.0' | 24.1'<br>25.0' | CANDY OILT brown m  | siat to wat    | SPT-11   | 23.0 - 25.0  | 2.0      | WOH-4-2-3               |               |   |
| E   | 7 20.0           | 2010           | SANDY SILT, brown, mosoft SANDY SILTY CLAY, br                |                | SPT-12   | 25.0 - 27.0  | 2.0      | WOH-<br>WOH-            |               |   |
| F   |                  |                | mottled gray, moist, very                                     |                | SPT-13   | 27.0 - 29.0  | 2.0      | WOH-WOH<br>WOH-<br>WOH- |               |   |
| F   | 723.7'           | 30.3'          | OII TV OAND   |                | SPT-14   | 29.0 - 31.0  | 2.0      | WOH-5<br>4-3-5-5        |               |   |
| F   | 721.0'           | 33.0'          | SILTY SAND, orange broose to medium dense                     | own, wet,      | SPT-15   | 31.0 - 33.0  | 2.0      | 2-4-3-3                 |               |   |
| 7/29/10                                       | 721.0            | 33.0           | No Refusal /  |                |          |              |          |                         |               |   |
| M.GDT   |                  |                | Bottom of Hole  |                |          |              |          |                         |               |   |
| PN FMS  |                  |                |   |                |          |              |          |                         |               |   |
| RINGS.C                                       |                  |                |   |                |          |              |          |                         |               |   |
| CPZBC   |                  |                |   |                |          |              |          |                         |               |   |
| EW DKE  |                  |                |   |                |          |              |          |                         |               | •   |
| SACY N.                                       |                  |                |   |                |          |              |          |                         |               |   |
| MSM_LEGACY NEW DIKE C PZ BORINGS.GPJ FMSM.GDT |                  |                |   |                |          |              |          |                         |               |   |
| É <b> </b> _                                  |                  |                | Stantac (   | Consulting S   | Sarvicas | Inc          |          |                         |               | 7/29/                                     |



### SUBSURFACE LOG (DRAFT)

| Project   | No.   | 175661005                                 |               |   | Location  | Ν                               | l 554950.5   | 52, E 24420   | 01.66 (NAD27)  |
|-----------|-------|---|---------------|---|---|---------------------------------|--|---------------|--|
| Project   | Name  | TVA KIF: Lateral E                        | xpansion      |   | Boring No.  | PZ-                             | E17  | Total Depti   | n 54.0 ft  |
| Location  | 1     | Roane County, Ten                         | nessee        |   | Surface Ele   | vation                          | 762  | 2.5 ft. (NGVI | D29)   |
| Project   | Туре  | Instrumentation Ins                       | tallation     |   | Date Starte   | d 3                             | /30/11   | Completed     | 3/30/11  |
| Supervi   | sor   | M. Jones Dri                              | iller K. Cler | nents                                     | Depth to Wa   | ater N                          | I/A  | Date/Time     | N/A  |
| Logged    | Ву    | M. Jones                                  |               |   | Automatic F   | <br>Hammer                      | Safe   | ety Hammer    | Other  |
| Lithol    |       |   | Overburden    | Sample #                                  | Depth   | Rec. Ft.                        | Blows  | Mois.Cont. %  | 1  |
| Elevation | Depth | Description                               | Rock Core     | RQD                                       | Run   | Rec. Ft.                        | Rec. %   | Run Depth     | Remarks  |
| 762.5'    | 0.0'  | Top of Hole                               |               |   |   |                                 |  |               |  |
|           |       | Blank drill to 30 feet.  OVERBURDEN (Ash) |               |   |   |                                 |  |               | Boring advanced with 4.25" I.D. hollow stell augers. |
| 732.5'    | 37.3' | FLY ASH, gray, wet, ve                    |               | SPT-1<br>SPT-2<br>SPT-3<br>SPT-4<br>SPT-5 | 30.0 - 31.5<br>31.5 - 33.0<br>33.0 - 34.5<br>34.5 - 36.0<br>36.0 - 37.5 | 1.5<br>0.0<br>1.5<br>0.8<br>0.3 | WOH-<br>WOH-WOH-<br>WOH-1<br>1-WOH-1<br>1-WOH-<br>WOH-<br>WOH-WOH-WOH- |               |  |
| 723.5'    | 39.0' | SILTY CLAY, dark gray                     | , moist, very | SPT-6                                     | 37.5 - 39.0   | 0.7                             | WOH-   |               |  |
| - 120.0   | 30.0  | soft, trace organics                      | moiot see     | SPT-7                                     | 39.0 - 40.5   | 0.6                             | WOH-WOH  |               |  |
|           |       | LEAN CLAY, light gray, to medium stiff    | moist, soft   | SPT-8                                     | 40.5 - 42.0   | 0.8                             | WOH-3<br>WOH-2-3   |               |  |
| 719.5'    | 43.0' |   |               | SPT-9                                     | 42.0 - 43.5   | 1.0                             | 2-3-3  |               |  |



### SUBSURFACE LOG (DRAFT)

| Project Name   | 54.0 ft  |
|--|----------|
| Elevation Depth Description Rock Core RQD Run Rec. Ft. Rec. % Run Depth    Continued   Continued   SPT-10   43.5 - 45.0   1.1   2-2-4  |          |
| Elevation Depth Description Rock Core RQD Run Rec. Ft. Rec. % Run Depth    Continued   Con |          |
| T15.0' 47.5' (Continued)  T15.0' 47.5' (Continued)  SPT-11 45.0 - 46.5   | Remarks  |
| gray, moist, medium stiff (Continued)  715.0' 47.5' 47.5' SANDY LEAN CLAY, gray, moist, stiff  713.7' 48.8' SANDY LEAN CLAY, gray, moist, stiff  SILTY SAND, gray, wet, medium dense, fine to medium grained  8PT-12 46.5 - 48.0 1.5 4-4-5  8PT-13 48.0 - 49.5 1.5 3-5-6  8PT-14 49.5 - 51.0 1.5 WOH-WOH-WOH-WOH-WOH-WOH-WOH-WOH-WOH-WOH-  |          |
| 713.7' 48.8' SANDY LEAN CLAY, gray, moist, stiff  SILTY SAND, gray, wet, medium dense, fine to medium grained  SPT-14 49.5 - 51.0  SPT-15 51.0 - 52.5  SPT-16 52.5 - 54.0  WOH-WOH-WOH-WOH-SPT-16 52.5 - 54.0  No Refusal / Bottom of Hole  WOH = Weight of Hammer  Three vibrating wire piezometers installed; tip elevations are at 731.2', 720.2', and 709.2'. See installation log for be a stiff of the state of th |          |
| T13.7'   |          |
| dense, fine to medium grained  SPT-15  SPT-16  |          |
| dense, fine to medium grained  SPT-15  |          |
| No Refusal / Bottom of Hole  WOH = Weight of Hammer  Three vibrating wire piezometers installed; tip elevations are at 731.2', 720.2', and 709.2'. See installation log for by   |          |
| No Refusal / Bottom of Hole  WOH = Weight of Hammer  Three vibrating wire piezometers installed; tip elevations are at 731.2', 720.2', and 709.2'. See installation log for by   |          |
| Bottom of Hole  WOH = Weight of Hammer  Three vibrating wire piezometers installed; tip elevations are at 731.2', 720.2', and 709.2'. See installation log for be  |          |
| WOH = Weight of Hammer  Three vibrating wire piezometers installed; tip elevations are at 731.2', 720.2', and 709.2'. See installation log for b   |          |
| Three vibrating wire piezometers installed; tip elevations are at 731.2', 720.2', and 709.2'. See installation log for b   |          |
|  | backfill |
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| Client B  | orehole    | Identification SP                         | T-17-01    |          |               |               | Stante                | c Boring | No. <b>SPT-17-01</b>                 |
|-----------|------------|---|------------|----------|---------------|---------------|-----------------------|----------|--------------------------------------|
| Client    |            | Tennessee Valley A                        | Authority  |          | Boring Loca   | tion <u>5</u> | 75562.7 N; 2          | 2410537. | 6 E (NAD 83)                         |
| Project   | Number     | 175664009                                 |            |          | Surface Elev  | ation 7       | 55.0 ft E             | levation | Datum_NGVD29                         |
| Project   | Name       | Kington Fossil Plan                       | t          |          | Date Started  | 11            | 0/7/17 C              | complete | d10/7/17                             |
| Project   | Location   | n Roane County,                           | Tennesse   | е        | Depth to Wa   | iter N        | I/A C                 | ate/Time | eN/A                                 |
| Inspecto  | or         | Nate Peterson                             |            |          | Depth to Wa   | iter N        | I/A D                 | ate/Time | e N/A                                |
| Drilling  | Contract   | or Stantec Consult                        | ing Servic | es Inc.  | Drill Rig Typ | e and II      | O CME 55              |          |                                      |
| Overbui   | rden Dril  | ling and Sampling To                      | ols (Type  | and Size | e) Mud Rotar  | y - 5 7/8     | " Bit, 2" Spli        | t Spoon, | NWJ Rods                             |
| Rock Di   | rilling an | d Sampling Tools (Ty                      | pe and Si  | ze) N/A  |               |               |                       |          |                                      |
| Sample    | r Hamm     | er Type Automatic                         | Weigl      | nt 140   | lb Drop       | 30"           | Effic                 | iency    | 90%                                  |
| Borehol   | e Azimu    | th N/A (Vertica                           | ıl)        |          | Borehole In   | clinatio      | n (from Verti         | cal)     | Vertical                             |
| Lithol    | ogy        |   | Overburden | Sample # | Depth         | Rec. Ft.      | Blows/<br>Press.(psi) | NMC %    |                                      |
| Elevation | Depth      | Description                               | Rock Core  | RQD      | Run           | Rec. Ft.      | Rec. %                | Depth    | Remarks                              |
| 755.0'    | 0.0'       | Top of Hole                               |            |          |               |               |                       |          | _                                    |
|           |            | Fat clay (CH), redo                       |            |          |               |               |                       |          | _                                    |
|           |            | chert fragments [C<br>Materials]          |            |          |               |               |                       |          |                                      |
|           |            | iviateriaisj                              |            |          |               |               |                       |          | -                                    |
|           |            |   |            |          |               |               |                       |          | Set 4' of 6" surface casing          |
| -         |            |   |            |          |               |               |                       |          | -                                    |
| F         |            |   |            |          |               |               |                       |          | Augered from 0'-                     |
| _         |            |   |            |          |               |               |                       |          | - 7.5'.                              |
|           |            |   |            |          |               |               |                       |          |                                      |
|           |            |   |            |          |               |               |                       |          | Mud at Start (2                      |
| 746.5'    | 8.5'       |   |            | SPT-1    | 7.5' - 9.0'   | 1.2'          | WOH(16")-             | 21       | batches: Density = 8.3 lb/gal,       |
| -         |            | Ash (ML), dark gra<br>saturated, very loo |            |          |               |               | 1                     |          | Viscosity = 68 s;                    |
| F         |            | saturated [Sluiced                        |            |          |               |               |                       |          | Density = 8.3<br>lb/gal, Viscosity = |
| -         |            |   |            | SPT-2    | 10.0' - 11.5' | 1.6'          | 1-1-WOH               | 47       | 60 s                                 |
|           |            |   |            |          |               |               |                       |          |                                      |
|           |            |   |            |          |               |               |                       |          |                                      |
| -<br>5    |            |   |            | SPT-3    | 12.5' - 14.0' | 0.2'          | 3-WOH-                | 27       | -                                    |
|           |            |   |            |          |               |               | WOH                   |          | -                                    |
| _         |            |   |            |          |               |               |                       |          | _                                    |
| _         |            |   |            | SPT-4    | 15.0' - 16.5' | 1.6'          | WOR-                  | 34       | _                                    |
|           |            |   |            |          |               |               | WOR-WOR               |          |                                      |
|           |            |   |            |          |               |               |                       |          |                                      |
| _         |            |   |            | SPT-5    | 17.5' - 19.0' | 0.7'          | WOR-                  | 32       | -                                    |
| -<br>2    |            |   |            |          |               |               | WOR-WOR               |          | -                                    |
|           |            |   |            |          |               |               |                       |          |                                      |



| Γ                  | Client Borehole Identification SPT-17-01 Stantec Boring No. SPT-17-01 |                |   |  |                 |               |               |                       |            |  |
|--------------------|---|----------------|---|--|-----------------|---------------|---------------|-----------------------|------------|--|
|                    | Client  |                | Tennessee Valley  | Authority  |                 | Boring Loca   | tion <u>5</u> | 75562.7 N; 2          | 410537.    | 6 E (NAD 83)   |
|                    | Project N   | Number         | 175664009   |  |                 | Surface Elev  | ation 7       |                       | levation I | Datum_NGVD29_  |
|                    | Litholo   | ogy            |   | Overburden   | Sample #        | Depth         | Rec. Ft.      | Blows/<br>Press.(psi) | NMC %      |  |
| 1                  | Elevation   | Depth          | Description   | Rock Core  | RQD             | Run           | Rec. Ft.      | Rec. %                | Depth      | Remarks  |
|                    | 734.4'  | 20.6'          | Lean clay with sar  | )  | SPT-6           | 20.0' - 21.5' | 1.5'          | WOR-<br>WOR-WOR       | 40         | -  |
| -                  |   |                | brownish yellow, v<br>soft [Subunit 1]  | vet, very  | SPT-7           | 22.5' - 24.0' | 1.5'          | 1-2-WOH               | 23         | Mud at 22.5': Density = 8.8 - Ib/gal, Viscosity = 64 s             |
| -                  |   |                |   |  | SPT-8           | 25.0' - 26.5' | 1.5'          | WOH-<br>WOH-WOH       | 36         | _<br>-<br>-  |
| -                  | 725.5'  | 29.5'          |   |  | SPT-9           | 27.5' - 29.0' | 1.7'          | WOH-<br>WOH-WOH       | 29         | -<br>-   |
| -                  | 723.0'  | 32.0'          | grained, strong bro   | silty Sand (SM), fine rained, strong brown, vet, medium dense Subunit 2] |                 | 30.0' - 31.5' | 0.9'          | 3-7-9                 | 25         | Mud after lunch: —<br>Density = 8.9<br>lb/gal, Viscosity =<br>62 s |
| -                  | 740.51  | 05.51          | Silty, clayey sand<br>gravel (SC-SM), fi<br>medium grained, I<br>yellowish brown to<br>brownish yellow, v<br>medium dense [Su | ne to<br>ight<br>vet,  | SPT-11          | 32.5' - 34.0' | 0.8'          | 4-6-7                 | 25         | -<br>-   |
| F                  | 719.5'<br>718.5'  | 35.5'<br>36.5' | Weathered shale, gray   |  | SPT-12          | 35.0' - 36.5' | 1.3'          | 33-45-45              | 16         | -  |
| -                  |   |                | Auger Refusal /<br>Bottom of Hole   |  |                 |               |               |                       |            | -  |
| 3.GDT 3/29/18      |   |                | WOR = Weight of<br>WOH = Weight of  | Rods<br>Hammer   |                 |               |               |                       |            | -  |
| MSM-GRAPHIC LOC    |   |                |   |  |                 |               |               |                       |            | <del>-</del>   |
| KIF SEISMIC.GPJ FI |   |                |   |  |                 |               |               |                       |            |  |
| JG LOG 175664009 - |   |                |   |  |                 |               |               |                       |            | -  |
| TVA RO BORIN       |   |                |   | oo Consu   | Ilting Services | Ino           |               |                       | 3/29/18    |  |



| Client I  | Borehole   | Identification SPT                        | Г-17-02         |          |               |               | Stanted               | Boring   | No. <b>SPT-17-02</b>   |
|-----------|------------|---|-----------------|----------|---------------|---------------|-----------------------|----------|--|
| Client    |            | Tennessee Valley A                        | uthority        |          | Boring Loca   | tion <u>5</u> | 76021.6 N; 2          | 2410907. | 0 E (NAD 83)   |
| Project   | Number     | 175664009                                 |                 |          | Surface Elev  | vation 7      | 54.3 ft E             | levation | Datum_NGVD29   |
| Project   | Name       | Kington Fossil Plant                      | t               |          | Date Started  | d <u>1</u>    | 0/22/17 C             | ompleted | d10/22/17_   |
| Project   | Location   | n Roane County, 1                         | Γennesse        | e        | Depth to Wa   | ater N        | I/A D                 | ate/Time | eN/A   |
| Inspec    | tor        | Nate Peterson                             |                 | _        | Depth to Wa   | ater N        | I/A D                 | ate/Time | e N/A  |
| Drilling  | Contract   | or Stantec Consulti                       | ng Servic       | es Inc.  | Drill Rig Typ | e and II      | O CME 55              |          |  |
| Overbu    | ırden Dril | ling and Sampling To                      | ols (Type       | and Size | e) Mud Rotar  | y - 5 7/8     | B" Bit, 2" Spli       | t Spoon, | NWJ Rods   |
| Rock E    | rilling an | d Sampling Tools (Ty                      | pe and Si       | ze) N/A  |               |               |                       |          |  |
| Sample    | er Hamm    | er Type Automatic                         | Weigl           | nt 140   | lb Drop       | 30"           | Effici                | iency    | 90%  |
| Boreho    | le Azimu   | th N/A (Vertical                          | l)              |          | Borehole In   | clinatio      | n (from Verti         | cal)     | Vertical   |
| Litho     | logy       |   | Overburden      | Sample # | Depth         | Rec. Ft.      | Blows/<br>Press.(psi) | NMC %    |  |
| Elevation | Depth      | Description                               | Rock Core       | RQD      | Run           | Rec. Ft.      | Rec. %                | Depth    | Remarks  |
| 754.3'    | 0.0'       | Top of Hole                               |                 |          |               |               |                       |          | _  |
|           |            | Fat clay (CH), redd<br>brown to very dark | lish<br>aravish |          |               |               |                       |          | _  |
|           |            | brown, moist to we                        |                 |          |               |               |                       |          |  |
|           |            | with trace chert fragments, fly ash,      | and             |          |               |               |                       |          | -  |
| -         |            | roots [Cover Mater                        |                 |          |               |               |                       |          | -  |
| -         |            |   |                 |          |               |               |                       |          | Augered from 0' - 7.5'.  |
|           |            |   |                 |          |               |               |                       |          | _  |
| -         |            |   |                 |          |               |               |                       |          | -  |
| -         |            |   |                 |          |               |               |                       |          | -  |
| -         |            |   |                 | SPT-1    | 7.5' - 9.0'   | 0.6'          | WOH-1-2               | 24       | Mud at Start (2 batches: Density                                   |
| _         |            |   |                 | 3F1-1    | 7.5 - 9.0     | 0.0           | VVOII-1-2             | 24       | = 8.3 lb/gal,<br>Viscosity = 68 s;                                 |
|           |            |   |                 |          |               |               |                       |          | Density = 8.3  |
| 742.21    | 11.0'      |   |                 | SPT-2    | 10.0' - 11.5' | 0.4'          | WOH-                  | 26       | lb/gal, Viscosity = 60 s   |
| 743.3'    | 11.0       | Ash (ML), black to                        | verv            | SP1-2    | 10.0 - 11.5   | 0.4           | WOH-WOH               |          | -  |
| _         |            | dark gray, saturate                       | d, very         |          |               |               |                       |          | -  |
| _         |            | loose [Sluiced Ash]                       | J               | CDT 0    | 40.51.44.01   | 0.01          | 4.4.0                 | 200      | _  |
|           |            |   |                 | SPT-3    | 12.5' - 14.0' | 0.9'          | 1-1-2                 | 36       |  |
|           |            |   |                 |          |               |               |                       |          |  |
|           |            |   |                 | SPT-4    | 15.0' - 16.5' | 0.3'          | 1-WOH-<br>WOH         | 58       | Mud after lunch: –<br>Density = 8.7<br>Ib/gal, Viscosity =<br>64 s |
|           |            |   |                 |          |               |               |                       |          | -  |
|           |            |   |                 | SPT-5    | 17.5' - 19.0' | 0.0'          | WOR-<br>WOR-WOR       |          |  |
|           |            |   |                 |          |               |               |                       |          |  |



| ſ                         | Client B  | orehole | Identification SP  | T-17-02    |               |               |                 | Stanted               | Boring N  | No. SPT-17-02  |
|---------------------------|-----------|---------|--|------------|---------------|---------------|-----------------|-----------------------|-----------|--|
|                           | Client    |         | Tennessee Valley   | Authority  |               | Boring Locat  | tion 5          | <br>76021.6 N; 2      | 410907.   | 0 E (NAD 83)   |
|                           | Project I | Number  | 175664009  |            |               | Surface Elev  | ation 7         | 54.3 ft E             | evation [ | Datum NGVD29   |
|                           | Litholo   | ogy     |  | Overburden | Sample #      | Depth         | Rec. Ft.        | Blows/<br>Press.(psi) | NMC %     |  |
| 4                         | Elevation | Depth   | Description  | Rock Core  | RQD           | Run           | Rec. Ft.        | Rec. %                | Depth     | Remarks  |
| -                         |           |         | Ash (ML), black to<br>dark gray, saturate<br>loose [Sluiced Ash<br>(Continued) | ed, very   | SPT-6         | 20.0' - 21.5' | 1.1'            | WOR-<br>WOR-WOR       | 41        | -<br>-<br>-  |
| ŀ                         | 730.5'    | 23.8'   |  |            | SPT-7         | 22.5' - 24.0' | 1.0'            | WOR-<br>WOR-WOR       | 39        | _  |
| -                         | 727.3'    | 27.0'   | Silt with sand (ML<br>gray and black, we<br>loose [Subunit 2]                  |            | SPT-8         | 25.0' - 26.5' | 1.3'            | WOR-<br>WOH-WOH       | 45        | Mud at 25.0': — Density = 9.0 lb/gal, Viscosity = 63 s |
| -                         |           |         | Sandy silty clay (Clight olive brown to moist to wet, medistiff [Subunit 2]    | o gray,    | ST-1          | 27.5' - 29.5' | 2.0'            |                       |           | Pocket – penetrometer = 1.0 tsf                        |
|                           | -         |         |  |            | SPT-9         | 30.0' - 31.5' | 1.4'            | WOR(8")-2-<br>7       | 21        |  |
| -                         |           |         |  |            | SPT-10        | 32.5' - 34.0' | 1.2'            | 1-4-8                 | 20        | -<br>-   |
|                           | -         |         |  |            | SPT-11        | 35.0' - 36.5' | 1.2'            | 4-4-3                 | 18        | <u> </u>   |
| LOG.GDT 3/29/18           | 715.3'    | 39.0'   | Silty sand (SM), fi  | ne         | ST-2          | 37.5' - 39.5' | 2.0'            |                       |           | Pocket – penetrometer = 0.5 tsf –                      |
| J FMSM-GRAPHIC LOG.GDI    | -         |         | grained, gray, wet<br>loose [Subunit 2]  |            | SPT-12        | 40.0' - 41.5' | 1.4'            | WOR-<br>WOR-WOR       | 23        | Mud at 40.0': — Density = 9.2 Ib/gal, Viscosity = 70 s |
| 75664009 - KIF SEISMIC.GP |           |         |  |            | SPT-13        | 42.5' - 44.0' | 1.4'            | WOR(4")-<br>WOR(14")  | 24        | -<br>-   |
| TVA RO BORING LOG 1       | -         |         |  | SPT-14     | 45.0' - 46.5' | 1.7'          | WOR-<br>WOH-WOH | 25                    | _         |  |



Page: 3 of 3

| ſ   | Client B     | orehole         | Identification SP   | T-17-02        |          |               |          | Stante           | c Boring No | SPT-17-02   |
|---|--------------|-----------------|---|----------------|----------|---------------|----------|------------------|-------------|-------------|
| 1   | Client       |                 | Tennessee Valley  | Authority      |          | Boring Locat  | tion 5   | <br>76021.6 N; 2 |             |             |
|   | Project I    | Number          | 175664009   | -              |          | Surface Elev  | ation 7  |                  | levation Da | tum_NGVD29  |
|   | Litholo      |                 |   | Overburden     | Sample # | -             | Rec. Ft. | Press.(psi)      | NMC %       |             |
| 4   | Elevation    | Depth           | Description   | Rock Core      | RQD      | Run           | Rec. Ft. | Rec. %           | Depth       | Remarks     |
|   | 707.3'       | <b>\47.0'</b> / | Silty sand (SM), fir<br>grained, gray, wet<br>[Subunit 3] | loosa          | SPT-15   | 47.5' - 49.0' | 1.2'     | 4-4-5            | 21          | -<br>-<br>- |
| ŀ   | 704.6'       | 49.7'           |   |                |          |               |          |                  |             |             |
|   | <del>-</del> |                 | Auger Refusal /<br>Bottom of Hole                         |                |          |               |          |                  |             | _           |
| -   |              |                 | WOR = Weight of<br>WOH = Weight of                        | Rods<br>Hammer |          |               |          |                  |             | -           |
| -   | -            |                 |   |                |          |               |          |                  |             | _           |
| F   | -            |                 |   |                |          |               |          |                  |             | -           |
| ŀ   | -            |                 |   |                |          |               |          |                  |             | _           |
| İ   |              |                 |   |                |          |               |          |                  |             | _           |
| ŀ   | -            |                 |   |                |          |               |          |                  |             | _           |
| ł   | -            |                 |   |                |          |               |          |                  |             | _           |
|   |              |                 |   |                |          |               |          |                  |             | -           |
| ŀ   |              |                 |   |                |          |               |          |                  |             | -           |
| 29/18   | _            |                 |   |                |          |               |          |                  |             | _           |
| SRAPHIC LOG.GDT 3%  |              |                 |   |                |          |               |          |                  |             | _           |
| VA RO BORING LOG 175664009 - KIF SEISMIC.GPJ FMSM-GRAPHIC LOG.GDT |              |                 |   |                |          |               |          |                  |             | -           |
| 5664009 - KIF SE  |              |                 |   |                |          |               |          |                  |             | -           |
| BORING LOG 17   | -            |                 |   |                |          |               |          |                  |             | _           |
| TVA RO  | -            |                 |   |                |          |               |          |                  |             | _           |



| Client B  | orehole  | Identification SP                    |             | Stantec Boring No. SPT-17-0 |               |               |                       |           |                                    |
|-----------|--|--------------------------------------|-------------|-----------------------------|---------------|---------------|-----------------------|-----------|------------------------------------|
| Client    |  | Tennessee Valley                     | Authority   |                             | Boring Loca   | tion <u>5</u> | 75650.2 N;            | 2411000.  | 1 E (NAD 83)                       |
| Project   | Number   | 175664009                            |             |                             | Surface Elev  | ation 7       | 49.0 ft E             | Elevation | Datum NGVD29                       |
| Project   | Name   | Kington Fossil Plar                  | nt          |                             | Date Started  | 11            | 0/20/17               | Completed | 10/21/17                           |
| Project   | Location   | n Roane County,                      | Tennesse    | e                           | Depth to Wa   | iter N        | I/A [                 | Date/Time | . N/A                              |
| Inspecto  | or   | Nate Peterson                        |             |                             | Depth to Wa   | iterN         | I/A [                 | Date/Time | . N/A                              |
| Drilling  | Contract   | or Stantec Consul                    | ting Servic | es Inc.                     | Drill Rig Typ | e and II      | O CME 55              |           |                                    |
| Overbu    | rden Dril  | ling and Sampling To                 | ools (Type  | and Size                    | e) Mud Rotary | y - 5 7/8     | s" Bit, 2" Spl        | it Spoon, | NWJ Rods                           |
| Rock D    | Rock Drilling and Sampling Tools (Type and Size) _ |                                      |             |                             |               |               |                       |           |                                    |
| Sample    | r Hamme  | er Type Automatic                    | Weigl       | nt140                       | lb Drop       | 30"           | Effic                 | ciency _  | 90%                                |
| Borehol   | e Azimu  | thN/A (Vertica                       |             | Borehole In                 | clinatio      | n (from Vert  | ical)                 | Vertical  |                                    |
| Lithol    | ogy  |                                      | Overburden  | Sample #                    | Depth         | Rec. Ft.      | Blows/<br>Press.(psi) | NMC %     |                                    |
| Elevation | Depth  | Description                          | Rock Core   | RQD                         | Run           | Rec. Ft.      | Rec. %                | Depth     | Remarks                            |
| 749.0'    | 0.0'   | Top of Hole                          |             |                             |               |               |                       |           |                                    |
| _         |  | Fat clay (CH), red brown, with chert | aisn        |                             |               |               |                       |           | _                                  |
|           |  | fragments [Cover Materials]          |             |                             |               |               |                       |           |                                    |
|           |  | Waterials                            |             |                             |               |               |                       |           |                                    |
| 745.01    | 4.01   |                                      |             |                             |               |               |                       |           | -                                  |
| 745.0'    | 4.0'   | Ash (ML), black, v                   | vet verv    |                             |               |               |                       |           | Augered from 0' - 7.5'.            |
| F         |  | loose [Sluiced Asl                   |             |                             |               |               |                       |           | - 7.5.                             |
| _         |  |                                      |             |                             |               |               |                       |           | -                                  |
|           |  |                                      |             |                             |               |               |                       |           | _                                  |
|           |  |                                      |             |                             |               |               |                       |           | Mud at Start (2                    |
| _         |  |                                      |             | SPT-1                       | 7.5' - 9.0'   | 1.1'          | 1-1-WOH               | 57        | batches): Density<br>= 8.7 lb/gal, |
| -         |  |                                      |             |                             |               |               |                       |           | Viscosity = 60 s;<br>Density = 8.7 |
| -         |  |                                      |             |                             |               |               |                       |           | lb/gal, Viscosity =                |
| _         |  |                                      |             | SPT-2                       | 10.0' - 11.5' | 0.5'          | 1-1-1                 | 46        | 75 s                               |
|           |  |                                      |             |                             |               |               |                       |           | _                                  |
| 736.0'    | 13.0'  |                                      |             |                             |               |               |                       |           |                                    |
|           |  | Silt (ML), dark gra                  | y, wet,     | SPT-3                       | 12.5' - 14.0' | 1.4'          | WOR-                  | 44        | -                                  |
| _         |  | loose [Subunit 2]                    |             |                             |               |               | WOR-WOF               | `         | -                                  |
| _         |  |                                      |             |                             |               |               |                       |           | _                                  |
| _         |  |                                      |             | SPT-4                       | 15.0' - 16.5' | 1.5'          | WOR-                  | 52        | -                                  |
|           |  |                                      |             |                             |               |               | WOR-WOF               |           |                                    |
|           |  |                                      |             |                             |               |               |                       |           |                                    |
| _         |  |                                      |             | SPT-5                       | 17.5' - 19.0' | 1.5'          | WOR-                  | 39        | -                                  |
| _         |  |                                      |             |                             |               |               | WOH-WOH               | ו         | -                                  |
|           |  |                                      |             |                             |               |               |                       | 1         |                                    |



| Client B   | orehole   | Identification SP   |                             |               |               | Stanted       | Boring N              | No. <b>SPT-17-03</b> |   |
|--|---|---|-----------------------------|---------------|---------------|---------------|-----------------------|----------------------|---|
| Client   |   | Tennessee Valley  | Authority                   |               | Boring Locat  | tion <u>5</u> | 75650.2 N; 2          | 411000.              | 1 E (NAD 83)  |
| Project  | Number  | 175664009   |                             |               | Surface Elev  | ation 7       | 49.0 ft El            | evation [            | Datum NGVD29  |
| Lithol   | ogy   |   | Overburden                  | Sample #      | Depth         | Rec. Ft.      | Blows/<br>Press.(psi) | NMC %                |   |
| Elevation  | Depth   | Description   | Rock Core                   | RQD           | Run           | Rec. Ft.      | Rec. %                | Depth                | Remarks   |
| _<br>_<br>   | 22.0'   | Silt (ML), dark gra<br>loose [Subunit 2]<br>(Continued)         |                             | SPT-6         | 20.0' - 21.5' | 1.6'          | WOR-<br>WOR-WOR       | 36                   | Mud after lunch: Density = 8.8 lb/gal, Viscosity = 62 s       |
| -  |   | Lean clay (CL), oli<br>brown, wet, very s<br>medium [Subunit    | oft to                      | SPT-7         | 22.5' - 24.0' | 1.9'          | WOH-<br>WOH-WOH       | 33                   | -   |
| -  |   |   |                             |               | 25.0' - 26.5' | 1.6'          | WOH-<br>WOH-WOH       | 23                   | -<br>-<br>-   |
| -  |   |   |                             | SPT-9         | 27.5' - 29.0' | 1.4'          | WOH-2-4               | 20                   | -<br>-  |
| <br>   | 32.0'   |   |                             | ST-1          | 30.0' - 32.0' | 1.9'          |                       |                      | Mud at 30.0': — Density = 9.1 lb/gal, Viscosity = 63 s Pocket |
| -  |   | Sandy silty clay (C<br>light olive brown, v<br>soft [Subunit 2] | CL-ML),<br>wet, very        | SPT-10        | 32.5' - 34.0' | ,             | WOR-<br>WOR-WOR       | 26                   | penetrometer = 1.0 tsf  |
| -  |   |   |                             | SPT-11        | 35.0' - 36.5' | ,             | WOR-<br>WOR-WOR       | 25                   |   |
| 3/23/18  |   |   |                             | ST-2          | 37.0' - 39.0' | 1.6'          |                       |                      | Pocket – penetrometer = 0 tsf –                               |
| 178664009 - KHE SERWICGEN 3780-18  708.00' - WEST SERWICGEN 3780-18  708.00' - 708.00' | 41.0'   | Sandy silt (ML), da   | Sandy silt (ML), dark gray, |               | 40.0' - 41.5' | 1.7'          | WOR(15")-<br>WOH      | 30                   | Mud at 40.0': — Density = 9.5 Ib/gal, Viscosity = 64 s        |
| 704.5'   | 44.5'   | Wot, voly 10036 [0  | abailit 2j                  | SPT-13        | 42.5' - 44.0' | 1.4'          | WOR(4")-<br>WOH(14")  | 41                   | -<br>-  |
| TVA RO BORING LOG 1736   | Silty sand (SM), very dark gray, very loose [Subunit 2] |   | SPT-14                      | 45.0' - 46.5' | 1.4'          | WOH-1-1       | 38                    | <u>-</u>             |   |



Page: 3 of 3

| Client Bo | orehole l | Identification SP  | PT-17-03       |          |               |               | Stante                | Boring No   | SPT-17-0   |
|-----------|-----------|--|----------------|----------|---------------|---------------|-----------------------|-------------|------------|
| Client    |           | Tennessee Valley   | Authority      |          | Boring Loca   | tion <u>5</u> | 75650.2 N; 2          | 2411000.1 I | E (NAD 83) |
| Project N | Number    | 175664009  |                |          | Surface Elev  | ation 7       | 49.0 ft E             | levation Da | tum_NGVD29 |
| Litholo   |           |  | Overburden     | Sample # | Depth         | Rec. Ft.      | Blows/<br>Press.(psi) | NMC %       |            |
| Elevation | Depth     | Description  | Rock Core      | RQD      | Run           | Rec. Ft.      | Rec. %                | Depth       | Remarks    |
| 701.5'    | 47.5'     |  |                |          |               |               |                       |             |            |
| 700.7'    | 48.3'     | Silty sand with gra  | avel           | SPT-15   | 47.5' - 48.3' | 0.8'          | 34-50/3"              | 16          |            |
|           |           | (SM), medium gragerish gray to y brown, wet [Suburation Auger Refusal / Bottom of Hole | ellowish/      |          |               |               |                       |             |            |
|           |           | WOR = Weight of<br>WOH = Weight of   | Rods<br>Hammer |          |               |               |                       |             |            |
|           |           |  |                |          |               |               |                       |             |            |
|           |           |  |                |          |               |               |                       |             |            |
|           |           |  |                |          |               |               |                       |             |            |
|           |           |  |                |          |               |               |                       |             |            |
|           |           |  |                |          |               |               |                       |             |            |
|           |           |  |                |          |               |               |                       |             |            |
|           |           |  |                |          |               |               |                       |             |            |
|           |           |  |                |          |               |               |                       |             |            |
|           |           |  |                |          |               |               |                       |             |            |
|           |           |  |                |          |               |               |                       |             |            |



| Project i                                      | ۷o.   | 175569042  |   |             | Location               | N            | 553773.2                  | .9, E 24411                    | 54.53 (NAD27)  |
|--|-------|--|---|-------------|------------------------|--------------|---------------------------|--------------------------------|--|
| Project i                                      | Vame  | Kingston Ash Pond  | 1                                       |             | Boring No.             | S            | TN-48                     | Total Depti                    | n 54.0 ft  |
| Location                                       | 1     | Kingston, Tenness  | ee                                      |             | Surface Ele            | vation       | 765                       | 5.3 ft. (NGVI                  | D29)   |
| Project <sup>-</sup>                           | Гуре  | Geotechnical Expl  | oration                                 |             | Date Started           | d <u>3</u> / | 31/09                     | Completed                      | 3/31/09  |
| Supervis                                       | sor   | Ben Halada Dr  | iller Kent C                            | lements     | Depth to Wa            | ater 20      | 0.0 ft                    | Date/Time                      | 3/31/09  |
| Logged   | Ву    | Ben Halada   |   |             | Automatic H            | lammer       | ⊠ Saf                     | ety Hamme                      | r□ Other□  |
| Litholo  | gy    |  | Overburden                              | Sample #    | Depth                  | Rec. Ft.     | Blows                     | Mois.Cont. %                   |  |
| Elevation                                      | Depth | Description  | Rock Core                               | RQD         | Run                    | Rec. Ft.     | Rec. %                    | Run Depth                      | Remarks  |
| 765.3'   | 0.0'  | Top of Hole  |   |             |                        |              |                           |                                |  |
|  |       | LEAN CLAY (Fill), red<br>moist, medium stiff, so                         |   | SPT-1       | 0.0 - 1.5<br>1.5 - 3.0 | 1.2<br>1.4   | 1-3-3<br>3-4-5            | 25<br>22                       | Boring advanced – using 3 1/4 " Hollow Stem Augers –       |
| ·  |       |  |   | 01 1 2      | 1.0 0.0                |              |                           |                                | _  |
|  |       |  |   | SPT-3       | 3.0 - 4.5<br>4.5 - 6.5 | 1.1          | 5-6-7                     | 21                             | All ST samples -<br>recovered using a<br>fixed head piston |
| -  |       |  |   | 51-1        | 4.5 - 6.5              | 1.7          |                           |                                | sampler _  |
| enter  |       |  |   | SPT-4       | 6.5 - 8.0              | 1.3          | 5-7-7                     | 24                             | -  |
| 755.8'   | 9.5'  |  | *************************************** | SPT-5       | 8.0 - 9.5              | 1.2          | 3-5-7                     | 25                             | -  |
| -  |       | FAT CLAY (Fill), red b<br>saturated, very soft, lit                      |   | SPT-6       | 9.5 - 11.0             | 1.1          | 3-5-5                     | 28                             | . —  |
| -  |       |  |   | SPT-7       | 11.0 - 12.5            | 1.3          | 3-7-5                     | 31                             | -  |
| _  |       |  |   | SPT-8       | 12.5 - 14.0            | 1.0          | 6-6-7                     | 28                             | -  |
|  |       |  |   | ST-2        | 14.0 - 16.0            | 1.0          |                           | ~~                             |  |
|  |       |  |   | SPT-9       | 16.0 - 17.5            | 0.8          | WOR-1-2                   | 30                             |  |
| <b>-</b>                                       |       |  |   | SPT-10      | 17.5 - 19.0            | 1.2          | WOR-2-2                   | 32                             | ST-3: refused at 1.0                                       |
| 745.3'   | 20.0' |  |   | ST-3        | 19.0 - 21.0            | 1.0          | man reason and the second |                                | ft, ash in bottom of                                       |
| _  |       | Bottom Ash 60% / Fly   |   | SPT-11      | 20.0 - 21.5            | 1.3          | 6-7-7                     | 25                             | tube -   |
| -  |       | (Fill), black, saturated   | , 100se                                 | SPT-12      | 21.5 - 23.0            | 1.2          | 7-9-3                     | 29                             |  |
| 741.3'   | 24.0' |  |   | SPT-13      | 23.0 - 24.5            | 1.1          | 1-WOH-<br>WOH             | 24                             |  |
|  |       | LEAN CLAY, light bro<br>saturated, very soft, s<br>some fine grained sar | ome silt,                               | SPT-14      | 24.5 - 26.0            | 1.4          | WOR-<br>WOR-WOF           | 21                             | SPT-14: roots in tip —<br>of spoon                         |
| § 737.8'                                       | 27.5' | James Granica Sar  |   | SPT-15      | 26.0 - 27.5            | 1.0          | WOR-1-2                   | 23                             |  |
| *  |       | SAND with Clay, light saturated, very loose                              |   | SPT-16      | 27.5 - 29.0            | 1.1          | 2-2-2                     | 22                             |  |
| P. GPU F.                                      |       | some silt  | •                                       |             |                        | 1.4          | 3-1-2                     | 21                             |  |
| ON ASH PON                                     |       |  | SPT-18                                  | 30.5 - 32.0 | 1.2                    | 2-2-3        | 21                        |                                |  |
| KINGSI   |       |  | SPT-19                                  | 32.0 - 33.5 | 0.9                    | WOR-1-1      | 20                        |                                |  |
| LEGACY THESTON MINISTON ASH PONDORD IN PAGE OF |       |  | ST-4                                    | 33.5 - 35.5 | 1.8                    |              | 10 E                      | ST-4: sand in bottom – of tube |  |
| ISM LEG  |       |  | SPT-20                                  | 35.5 - 37.0 | 1.3                    | 1-1-1        | 19                        |                                |  |
| : L  |       | .1   | Contino                                 |             | J                      | £            |                           | 7/16/09                        |  |



| Project No. 175569042  |                |  |   | Location | N           | 553773.2 | 29, E 24411     | 54.53 (NAD27)_ |   |
|--|----------------|--|---|----------|-------------|----------|-----------------|----------------|---|
| Project N  | Name .         | Kingston Ash Pond                                  | i                                       |          | Boring No.  | S        | TN-48           | Total Depth    | າ 54.0 ft                                   |
| Litholo  | gy             |  | Overburden                              | Sample # | Depth       | Rec. Ft. | Blows           | Mois.Cont. %   |   |
| Elevation  | Depth          | Description  | Rock Core                               | RQD      | Run         | Rec. Ft. | Rec. %          | Run Depth      | Remarks                                     |
| 728.3'   | <u>37.0'</u> / | SAND, light brown, sat<br>very loose, fine grained |   | SPT-21   | 37.0 - 38.5 |          | WOR-<br>WOR-WOR | 1              |   |
|  |                |  |   | SPT-22   | 38.5 - 40.0 | 1.1      | WOR-<br>WOH-1   | 23             | clear —                                     |
| and the same of th |                |  |   | SPT-23   | 40.0 - 41.5 | 1.3      | 1-2-2           | 21             |   |
|  |                |  |   | SPT-24   | 41.5 - 43.0 | 1.2      | 1-1-2           | 23             |   |
|  |                |  |   | SPT-25   | 43.0 - 44.5 | 1.3      | WOR-1-1         | 21             |   |
| 719.8'   | 45.5'          |  |   | SPT-26   | 44.5 - 46.0 | 1.2      | 5-6-10          | 21             |   |
| -  |                | SAND, light gray, satu<br>loose, fine grained      | ırated,                                 | SPT-27   | 46.0 - 47.5 | 1.1      | 4-5-5           | 24             | SPT-28: sandstone ~                         |
| _  |                |  |   | SPT-28   | 47.5 - 48.3 | 0.8      | 6-50            | 19             | in tip of spoon                             |
| 716.3'   | 49.0'          |  | *************************************** | SPT-29   | 49.0 - 50.5 | 1.0      | 9-11-17         |                | -<br>-                                      |
| -  |                | Shale, (Augered)                                   |   | SPT-30   | 50.5 - 52.0 | 1.0      | 15-18-17        |                | Boring backfilled with-<br>bentonite cement |
|  |                |  |   | SPT-31   | 52.0 - 52.9 | 0.6      | 35-50/0.4       |                | grout from 0.0 ft to 54.0 ft                |
| 711.3'   | 54.0'          |  |   | <u></u>  |             |          |                 |                |   |
| SKIT KINGSTON ASH DONO GPJ. FINSM GGT. TITRERB   |                | WOH = Weight of Ha<br>WOR = Weight of Ro           | mmer<br>ds                              |          |             |          |                 |                |   |
| ASS. REGACY 1714   |                |  |   |          |             |          |                 |                | 7/16/0                                      |



| Project I | No.   | 175569042             |   |          | Location N 553769.40, E 2441163.30 (N |  |        | 163.30 (NAD27) |   |
|-----------|-------|-----------------------|---|----------|---------------------------------------|--|--------|----------------|---|
| Project I | Name  | Kingston Ash Pond     | d                                       |          | Boring No.                            | S  | TN-48B | Total Dept     | h48.2 ft  |
| Location  | 1     | Kingston, Tenness     | see                                     |          | Surface Elev                          | vation   | 76     | 5.3 ft. (NGV   | D29)  |
| Project " | Туре  | Geotechnical Expl     | oration                                 |          | Date Started                          | 44   | /21/09 | Completed      | 4/21/09   |
| Supervis  | sor   | Ben Halada Dr         | iller Steve I                           | Bradford | Depth to Wa                           | ater N   | /A     | Date/Time      | N/A   |
| Logged    | Ву    | Adam Smith            | *************************************** |          | Automatic H                           | lammer   | ☐ Saf  | ety Hamme      | r Other   |
| Litholo   | ogy   |                       | Overburden                              | Sample # | Depth                                 | Rec. Ft.   | Blows  | Mois.Cont. %   |   |
| Elevation | Depth | Description           | Rock Core                               | RQD      | Run                                   | Rec. Ft,   | Rec. % | Run Depth      | Remarks   |
| 765.3'    | 0.0'  | Top of Hole           |   |          |                                       |  |        |                | wantania and a same and a same and a same and a same and a same and a same and a same and a same and a same and |
| -         |       | Overburden, See log f | or STN-48                               |          |                                       |  |        |                | Boring advanced - using 3 1/4 " Hollow  |
| -         |       |                       |   |          |                                       |  |        |                | using 3 1/4 " Hollow _<br>Stem Augers   |
|           |       |                       |   |          |                                       |  |        |                | _   |
|           |       |                       |   |          |                                       |  |        |                |   |
| _         |       |                       |   |          |                                       |  |        |                |   |
|           |       |                       |   |          |                                       |  |        |                | _   |
|           |       |                       |   |          | ı                                     |  |        |                |   |
| _         |       |                       |   |          |                                       |  |        |                | -   |
| _         |       |                       |   |          |                                       |  |        |                |   |
| -         |       |                       |   |          |                                       |  |        |                |   |
| -         |       |                       |   |          |                                       |  |        |                | -   |
|           |       |                       |   |          |                                       |  |        |                | -   |
|           |       |                       |   |          |                                       |  |        |                | ***************************************   |
| -         |       |                       |   |          |                                       |  |        |                | -   |
| -         |       |                       |   |          |                                       | and the state of t |        |                | _   |
| -         |       |                       |   |          |                                       |  |        |                |   |
| <b>-</b>  |       |                       |   |          |                                       |  |        |                |   |
|           |       |                       |   | 1        |                                       |  |        |                | _   |
|           |       |                       |   |          |                                       |  |        |                | ***************************************   |
| _         |       |                       |   |          |                                       |  |        |                | _   |
| -         |       |                       |   |          |                                       |  |        |                | _   |
| _         |       |                       |   |          |                                       |  |        |                |   |
| _         |       |                       |   |          |                                       |  |        |                | _   |
| ľ         |       |                       |   |          |                                       |  |        |                | _   |
|           |       |                       |   |          |                                       |  |        |                | _   |
|           |       |                       |   |          |                                       |  |        |                | -   |
| _         |       |                       |   |          |                                       |  |        |                |   |
| -         |       |                       |   |          |                                       |  |        |                | _   |
| -         |       |                       |   |          |                                       |  |        |                | -   |
| -         |       |                       |   |          |                                       |  |        |                |   |
|           |       |                       |   |          |                                       |  |        |                | _   |
| <u> </u>  |       |                       |   |          | ~                                     |  |        |                | 7/16/09   |



| Project N            | Vo.         | 175569042                |                         |              | Location     | N        | 553769.4 | IO, E 24411   | 63.30 (NAD27) |
|----------------------|-------------|--------------------------|-------------------------|--------------|--------------|----------|----------|---|---------------|
| Project N            | Vame        | Kingston Ash Pond        | 1                       | · · —        | Boring No.   | S        | TN-48B   | Total Dept  | h48.2 ft      |
| 1 20 1               |             |                          | - عقد بعادی د           | Comple #     | Donth        | Rec. Ft. | Blows    | Mois.Cont. %  |               |
| Litholo<br>Elevation | gy<br>Depth | Description              | Overburden<br>Rock Core | RQD          | Depth<br>Run | Rec. Ft. | Rec. %   | Run Depth   | Remarks       |
| Cievation            | nehm        | Describitors             | TOOK COIL               | 1.00         | 1,011        | 7,00,7 6 |          | - wir seabout   |               |
|                      |             | Overburden, See log f    | or STN-48               |              |              |          |          |   |               |
|                      |             | (Continued)              |                         |              |              |          |          |   |               |
|                      |             |                          |                         |              |              |          |          |   |               |
|                      |             |                          |                         |              |              |          |          |   |               |
| _                    |             |                          |                         |              |              |          |          |   |               |
| -                    |             |                          |                         |              |              |          |          |   |               |
|                      |             |                          |                         |              |              |          |          |   |               |
| <b>-</b>             |             |                          |                         |              |              |          |          | de la constant de la |               |
| <b>-</b>             |             |                          |                         |              |              |          |          | ¥   |               |
| -<br>- 717.1'        | 48.2'       |                          |                         |              |              |          |          |   |               |
|                      |             | No Refusal /             |                         |              | -            |          |          |   |               |
| _                    |             | Bottom of Hole           |                         |              |              |          |          |   |               |
| -                    |             |                          |                         |              |              |          |          |   | max           |
| <u> </u>             |             |                          |                         |              |              |          |          |   |               |
|                      |             |                          |                         |              |              |          |          |   |               |
|                      |             |                          |                         |              |              |          |          |   |               |
| -                    |             |                          |                         |              |              |          |          |   | -             |
| _                    |             | PZ Installed, tip at ele | vation 720.1'           |              |              |          |          |   |               |
| -                    |             | Protective well cover    | and concrete p          | ad installed | d.           |          |          |   | -             |
| -                    |             |                          |                         |              |              |          |          |   |               |
|                      |             |                          |                         |              |              |          |          |   |               |
| L                    |             |                          |                         |              |              |          |          |   |               |
| _                    |             |                          |                         |              |              |          |          |   | **            |
|                      |             |                          |                         |              |              |          |          |   | -             |
| _                    |             |                          |                         |              |              |          |          |   | <del></del>   |
| -                    |             |                          |                         |              |              |          |          |   | <del>-</del>  |
|                      |             |                          |                         |              |              |          |          |   | -             |
| _                    |             |                          |                         |              |              |          |          |   | -             |
|                      |             | ,                        |                         |              |              |          |          |   | 4000          |
|                      |             |                          |                         |              |              |          |          |   | -             |
|                      |             |                          |                         |              |              |          |          |   | -             |
|                      |             |                          |                         |              |              |          |          |   | -             |
|                      |             |                          |                         |              |              |          |          |   | •••           |
|                      |             |                          |                         |              |              |          |          |   | -             |
| W ESSA               |             |                          |                         |              |              |          |          |   | •             |
| žI.                  |             |                          |                         |              |              |          |          |   |               |



| Project N                      | No.                | 175669015   |              | Location | N            | 1 555194.9 |                  |               |   |  |  |
|--------------------------------|--------------------|---|--------------|----------|--------------|------------|------------------|---------------|---|--|--|
| Project I                      | Name               | KIF-TVA; New Dike                                     | C PZ's       |          | Boring No.   | ST         | N-75             | Total Depth   | n33.0 ft                                    |  |  |
| Location                       | 1                  | Roane County, Ten                                     | nessee       |          | Surface Elev | vation     | 754              | 1.0 ft. (NGVI | )29)  |  |  |
| Project 7                      | Туре               | Geotechnical Explo                                    | ration       |          | Date Started | d          | /6/10            | Completed     | 7/6/10                                      |  |  |
| Supervis                       | sor                | M. Jones Dri  | ller S. Snov | N        | Depth to Wa  | ater1      | 3.0 ft           | Date/Time     | 7/6/10                                      |  |  |
| Logged                         | Ву                 | M. Jones  |              |          | Automatic H  | lammer     | ⊠ Safe           | ety Hammer    | ☐ Other ☐                                   |  |  |
| Litholo                        | ogy                |   | Overburden   | Sample # | Depth        | Rec. Ft.   | Blows            | Mois.Cont. %  |   |  |  |
| Elevation                      | Depth              | Description   | Rock Core    | RQD      | Run          | Rec. Ft.   | Rec. %           | Run Depth     | Remarks                                     |  |  |
| 754.0'                         | 0.0'               | Top of Hole   |              |          |              |            |                  |               |   |  |  |
| -                              |                    | GRAVEL  |              |          |              |            |                  |               | Boring advanced with - 4.25" HSA and center |  |  |
| 751.0'                         | 3.0'               |   |              | _        |              |            |                  |               | plug.                                       |  |  |
| _<br>749.0'                    | 5.0'               | LEAN CLAY, dark reddig<br>moist, very stiff, trace or |              | SPT-1    | 3.0 - 5.0    | 1.6        | 4-4-7-10         |               | =   |  |  |
| _                              |                    | sand  | sand         |          |              | 2.0        | 6-20-13-8        |               | _   |  |  |
| 747.0'                         | 7.0'               | SILTY SAND with Botto                                 | SPT-2        |          |              |            |                  | -             |   |  |  |
| -                              |                    | Coal Fragments, gray to brown, moist, medium d        | - 1          | SPT-3    | 7.0 - 9.0    | 2.0        | 4-7-12-19        |               | _   |  |  |
| -                              |                    | BOTTOM ASH with Fly                                   |              | SPT-4    | 9.0 - 11.0   | 1.8        | 7-9-7-7          |               | -   |  |  |
|                                |                    | moist, loose to medium<br>-increasingly coarse Bot    |              | SPT-5    | 11.0 - 13.0  | 2.0        | 5-4-5-5          |               | =   |  |  |
| _                              |                    | below 11 feet   |              | 351-3    | 11.0 - 13.0  | 2.0        | 5-4-5-5          |               | _   |  |  |
| -                              |                    |   |              | SPT-6    | 13.0 - 15.0  | 2.0        | 5-5-4-4          |               | _   |  |  |
| - 737.6'                       | 16.4'              |   |              | SPT-7    | 15.0 - 17.0  | 1.6        | 5-3-2-2          |               |   |  |  |
| -                              |                    | SILTY SAND, grayish bi                                | rown, wet,   |          |              |            |                  |               |   |  |  |
|                                |                    | very loose  |              | SPT-8    | 17.0 - 19.0  | 1.5        | WOH-<br>WOH-     |               | _   |  |  |
| _                              |                    |   |              | SPT-9    | 19.0 - 21.0  | 1.0        | WOH-1<br>3-2-1-1 |               | -   |  |  |
| -                              |                    |   |              | SPT-10   | 24.0.22.0    | 1.4        | WOH-             |               | _   |  |  |
| -                              |                    |   |              | SP1-10   | 21.0 - 23.0  | 1.4        | WOH-1-1          |               | -   |  |  |
| _ 729.9'<br>_ 729.0'           | 24.1'<br>25.0'     | _ SANDY SILT, brown, m                                | oist to wot  | SPT-11   | 23.0 - 25.0  | 2.0        | WOH-4-2-3        |               | -   |  |  |
|                                |                    | soft  | oist to wet, | SPT-12   | 25.0 - 27.0  | 2.0        | WOH-             |               | _   |  |  |
| -                              |                    | SANDY SILTY CLAY, b                                   |              |          |              |            | WOH-<br>WOH-WOH  |               | -   |  |  |
|                                |                    | mottled gray, moist, very                             | / soft       | SPT-13   | 27.0 - 29.0  | 2.0        | WOH-<br>WOH-     |               | _   |  |  |
| _ 723.7'                       | 30.3'              |   |              | SPT-14   | 29.0 - 31.0  | 2.0        | WOH-5<br>4-3-5-5 |               | -   |  |  |
|                                |                    | SILTY SAND, orange br<br>loose to medium dense        | own, wet,    | SPT-15   | 31.0 - 33.0  | 2.0        | 2-4-3-3          |               | _   |  |  |
| 721.0'                         | 33.0'              |   |              | 3F1-13   | 31.0 - 33.0  | 2.0        | 2-4-3-3          |               |   |  |  |
| SDT 8/18/10                    |                    | No Refusal /<br>Bottom of Hole                        |              |          |              |            |                  |               | _   |  |  |
| - FMSM.C                       |                    |   |              |          |              |            |                  |               |   |  |  |
| NGS.GP.                        |                    |   |              |          |              |            |                  |               | -   |  |  |
| PZ BORII                       |                    |   |              |          |              |            |                  |               | _   |  |  |
| DIKE C                         |                    |   |              |          |              |            |                  |               | $\dashv$                                    |  |  |
| EGACY NEW DIKE C PZ BORNOS GPJ |                    |   |              |          |              |            |                  |               | _   |  |  |
| SM_LEG                         | -<br>-             |   |              |          |              |            |                  |               | _<br>_                                      |  |  |
| Ä.                             | Stantec Consulting |   |              |          | Ino          |            |                  |               | 8/18/10                                     |  |  |

# **APPENDIX B.5**PERMANENT WELLS

#### **Table of Contents**

| Subsurface Boring Legend               | 1  |
|--|----|
| 6AR-D                                  | 2  |
| KIF-107                                | 9  |
| AD-2-D                                 | 11 |
| GW-02                                  | 16 |
| MACTEC KEY TO SYMBOLS AND DESCRIPTIONS | 17 |
| MW-AD1                                 | 18 |
| MW-AD2                                 | 19 |
| MW-AD3                                 | 20 |
| KIF-102                                | 21 |
| KIF-102a                               | 22 |
| KIF-103                                | 23 |
| KIF-104                                | 25 |
| KIF-104b                               | 27 |
| KIF-105                                | 29 |
| KIF-105b                               | 32 |
| KIF-106                                | 34 |
| KIF-106b                               | 37 |
| KIF-TB01                               | 39 |
| KIF-TB02                               | 40 |
| KIF-TB03                               | 41 |
| KIF-TB04                               | 42 |
| KIF-TB05                               | 43 |
| KIF-TB05a                              | 44 |
| KIF-TB06                               | 45 |
| KIF-TB07                               | 46 |
| KIF-TB08                               | 47 |
| MW-22C                                 | 48 |
| MW-6AR                                 | 49 |
| KIF-22                                 | 50 |
| KIF-22B                                | 51 |
| KIF-27A                                | 58 |

| KIF-27B |    |
|---------|----|
| KIF-109 | 64 |
| VB-01a  | 67 |
| VB-01b  | 68 |
| VB-02a  | 69 |
| VB-02b  | 70 |
| VB-03a  | 71 |
| VB-03b  | 72 |
|         |    |

#### **Subsurface Boring Legend**

#### **Lithology Graphics**

| Symbol                         | Lithology                              |
|--------------------------------|--|
|                                | Fill                                   |
|                                | Top Soil                               |
| 03030303<br>0000000<br>0000000 | Gravel                                 |
| 8 8 8<br>8 8 8                 | Well Graded Gravel (GW)                |
| 0 0 0 0                        | Poorly Graded Gravel (GP)              |
|                                | Silty Gravel (GM)                      |
|                                | Silty, Clayey Gravel (GC-GM)           |
|                                | Clayey Gravel (GC)                     |
|                                | Well Graded Gravel with Silt (GW-GM)   |
|                                | Well Graded Gravel with Clay (GW-GC)   |
|                                | Poorly Graded Gravel with Silt (GP-GM) |
|                                | Poorly Graded Gravel with Clay (GP-GC) |
| •••••                          | Well Graded Sand (SW)                  |
|                                | Poorly Graded Sand (SP)                |
|                                | Silty Sand (SM)                        |
|                                | Silty, Clayey Sand (SC-SM)             |
|                                | Clayey Sand (SC)                       |
|                                | Well Graded Sand with Silt (SW-SM)     |
|                                | Well Graded Sand with Clay (SW-SC)     |
|                                | Poorly Graded Sand with Silt (SP-SM)   |
|                                | Poorly Graded Sand with Clay (SP-SC)   |
|                                | Silt (ML)                              |
|                                | Silty Clay (CL-ML)                     |
|                                | Lean Clay (CL)                         |
|                                | Organic Silt (OL)                      |
|                                | Elastic Silt (MH)                      |
|                                | Fat Clay (CH)                          |
| ////                           | Organic Clay (OH)                      |
|                                | Non-Durable Shale                      |
|                                | Durable Shale                          |
|                                | Coal                                   |
|                                | Limestone                              |
|                                | Sandstone                              |

#### **Other Graphics**

| Symbol              | Description                                      |
|---------------------|--|
|                     | Denotes environmental analytical sample interval |
|                     | Denotes SS sample interval                       |
|                     | Denotes ST sample interval                       |
|                     | Denotes DP sample interval                       |
|                     | Denotes RS sample interval                       |
|                     | Denotes RC sample interval                       |
| $\overline{\Delta}$ | First water level reading                        |
| Ā                   | Second water level reading                       |

#### **Common Abbreviations**

| Abbreviation | Definition               |
|--------------|--------------------------|
| DP           | Direct Push              |
| HA           | Hand Auger               |
| HSA          | Hollow Stem Auger        |
| N/A          | Not Applicable           |
| NR           | Not Recorded             |
| RC           | Rock Core                |
| RQD          | Rock Quality Designation |
| RS           | Rotary Sonic             |
| SS           | Split Spoon              |
| ST           | Shelby Tube              |
| WH           | Weight of Hammer         |
| WR           | Weight of Rod            |

#### **General Notes**

The boring logs include sample numbering used during drilling. For assigned Environmental Analytical Sample ID numbers, see relevant Environmental Chain-of- Custody forms from the drilling date range listed on each log.

For pH readings and additional field data, see applicable field documentation (e.g., Soil pH Data Form) from the drilling date range listed on each log.



| C    | lient E            | Borehole          | ID N/A       | <u> </u>  | Stantec Boring No. <b>6AR-D</b>                   |      |                       |                       |          |          |           |
|------|--------------------|-------------------|--------------|---|---|------|-----------------------|-----------------------|----------|----------|-----------|
| C    | lient              |                   | Tennes       | see Valley Authority  | Boring Location                                   | on   | 575,317.              | 72 N; 2,411,234       | .32      | E NAD83  |           |
| F    | roject             | Number            | 182603       | 369   | Surface Elevation 754.1 ft Elevation Datum NGVD29 |      |                       |                       |          |          | NGVD29    |
| P    | roject             | Name              | KIF Va       | catur   | Date Started10/4/18 Completed10/10/18             |      |                       |                       |          | /18      |           |
| P    | roject             | Locatio           | n <u>Har</u> | rriman, Tennessee   | Depth to Wate                                     | er_  | 22.5 ft               | Date/Ti               | me       | 10/4/    | 18        |
|      | -                  |                   |              | Logger G. Budd  | Depth to Wat                                      | er_  | N/A                   | Date/Ti               | me       | N/A      |           |
|      | -                  |                   |              | intec Consulting Services Inc.  | Drill Rig Type                                    |      |                       | 850XR, #953           |          |          |           |
|      |                    |                   | -            | Sampling Tools (Type and Size   |   |      |                       |                       |          |          |           |
|      |                    | _                 | -            | ling Tools (Type and Size) NQ   | -3 Wireline, Split B                              | arre | el, Surface S         |                       |          |          |           |
|      |                    |                   |              | and Size) N/A   | - D 6   |      |                       | Overdril              |          |          | N/A       |
|      | -                  |                   |              | Automatic Weight 140 I  |   |      | tion /fram            | Efficiency            | I<br>N/. | N/A<br>^ |           |
|      |                    | le Azimu<br>ed By | J. Sni       |   | Borehole Incli Approved By                        |      | C. Millhollir         | · —                   | IN/      | Α        |           |
|      | eview              | eu by _           | J. OIII      |   | Approved by                                       | _    |                       |                       |          |          |           |
|      |                    | Lithology         |              |   | Overburden:                                       |      | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |          | Rec. Ft  | Blows/PSI |
| Dep  | th Ft <sup>3</sup> | Elevation         | Graphic      | Description   | Rock Core:  |      | RQD %                 | Run Ft                |          | Rec. Ft  | Rec. %    |
| - 0  | 0.0                | 754.1             | ०क०क०क०      | Top of Hole   |   |      |                       |                       |          |          |           |
|      |                    |                   |              | Placed limestone gravel, No. 57 and N sampling conducted through road bed |   |      |                       |                       |          |          |           |
| _ 1  |                    |                   |              | sampling conducted through road bed                                       | material.   |      |                       |                       |          |          | _         |
| - 1  |                    |                   |              |   |   |      |                       |                       |          |          | _         |
|      |                    |                   |              |   |   |      |                       |                       |          |          |           |
| - 2  |                    |                   | 0303030      |   |   |      |                       |                       |          |          | _         |
|      |                    |                   |              |   |   |      |                       |                       |          |          |           |
| - 3  |                    |                   |              |   |   |      |                       |                       |          |          | _         |
|      |                    |                   |              |   |   |      |                       |                       |          |          |           |
|      |                    |                   |              |   |   |      |                       |                       |          |          |           |
| - 4  |                    |                   |              |   |   |      |                       |                       |          |          | _         |
|      |                    |                   |              |   |   |      |                       |                       |          |          |           |
| - 5  |                    |                   |              |   |   |      |                       |                       |          |          | _         |
|      |                    |                   | 0000000      |   |   |      |                       |                       |          |          |           |
| - 6  | 6.0                | 748.1             |              |   |   |      |                       |                       | ΙL       |          | _         |
|      |                    |                   |              | LEAN CLAY, CL, 10YR 4/2 (dark gray  | ,   |      |                       |                       |          |          |           |
|      |                    |                   |              | soft, dry to moist, with some weathere fragments                          | d siltstone                                       |      | SS05                  | 6.0 - 7.5             | 6.0 - 7  | 1.2      | 2-4-4     |
| - 7  |                    |                   |              | Trace organics from 6.0' to 7.5'  |   |      |                       |                       | , to     |          | _         |
|      |                    |                   |              |   |   |      |                       |                       |          | 1        |           |
| - 8  |                    |                   |              |   |   |      |                       |                       | 7.5      |          | -         |
|      |                    |                   |              |   |   |      | SS06                  | 7.5 - 9.0             | - 9.0    | 1.0      | 4-3-4     |
| – 9  |                    |                   |              |   |   |      |                       |                       |          |          | _         |
|      |                    |                   |              | with chert 9.0-10.5'  |   |      |                       |                       |          |          |           |
|      |                    |                   |              |   |   |      | SS07                  | 9.0 - 10.5            | 9.0 - 10 | 1.3      | 3-3-6     |
| - 10 |                    |                   |              |   |   |      |                       |                       | ).5      |          | _         |
|      |                    |                   |              | Stiff with interhodded weethered limes                                    | tone fragments                                    |      |                       |                       |          |          |           |
| - 11 |                    |                   |              | Stiff with interbedded weathered limes at 10.5'                           | none nagments                                     |      |                       |                       | 10.5     |          | _         |
|      |                    |                   |              |   |   |      | SS08                  | 10.5 - 12.0           | 5 - 12.0 | 1.1      | 12-9-13   |
| 40   |                    |                   |              |   |   |      |                       |                       |          |          |           |



| Client I              | Borehole ID N/A        | 1   | Stantec Boring No. 6AR-D                        |                       |                                   |           |          |  |  |  |
|-----------------------|------------------------|---|---|-----------------------|-----------------------------------|-----------|----------|--|--|--|
| Client                | Tennes                 | see Valley Authority  | _ Boring Locatio                                |                       | 72 N; 2,411,234.3                 | 2 E NAD83 | 3        |  |  |  |
| Project               | t Number <u>182603</u> | 369   | Surface Elevation 754.1 ft Elevation Datum NGVI |                       |                                   |           |          |  |  |  |
|                       | Lithology              |   | Overburden:                                     | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>             | Rec. Ft   | Blows/PS |  |  |  |
| Depth Ft <sup>3</sup> | Elevation Graphic      | Description   | Rock Core:                                      | RQD %                 | Run Ft                            | Rec. Ft   | Rec. %   |  |  |  |
| 13 13.5               | 740.6                  | LEAN CLAY, CL, 10YR 4/2 (dark g soft, dry to moist, with some weather fragments (Continued)  Medium stiff at 12.0'  Color change to 7.5YR 4/6 (strong 12.3' | ered siltstone                                  | SS09                  | 12.0 - 13.5                       | 1.1       | 6-3-3    |  |  |  |
| 14                    |                        | FAT CLAY, CH, 7.5YR 4/6 (strong moist, with gray and tan chert fragn  |   | SS10                  | 13.5 - 15.0                       | 1.1       | 2-3-2    |  |  |  |
| 15                    |                        | Very soft at 15.0-16.5'   |   | SS11                  | 15.0 - 16.5                       | 1.1       | WH-2-1   |  |  |  |
| 17                    |                        | Wet, with gray weathered siltstone  | fragments at 16.5'                              | SS12                  | 16.5 - 18.0                       | 0.5       | 3-2-2    |  |  |  |
| 18                    |                        |   |   | SS13                  | 18.0 - 19.5                       | 0.8       | 1-2-1    |  |  |  |
| 20                    |                        |   |   | SS14                  | 19.5 - 21.0 19.5 - 21.0           | 1.2       | 2-2-2    |  |  |  |
| 21                    |                        | Color change to 7.5YR 4/6 (strong 3/1 (very dark grey) from 20.8' to 22 Very soft at 21.0'  |   | SS15                  | 21.0 - 22.5                       | 1.0       | 1-1-1    |  |  |  |
| 23                    |                        | With chert at 22.5'   |   | SS16                  | 22.5 - 24.0                       | 1.1       | WH-1-1   |  |  |  |
| 24                    |                        | Color change to 5YR 4/6 (yellowish fragments of chert at 24.0'  | red) with tan                                   | SS17                  | 24.0 - 25.5                       | 1.5       | WH-WH-   |  |  |  |
| 26                    |                        | With abundant multicolored fragme 25.5'   | nts of chert at                                 | SS18                  | 25.5 - 27.0 <sup>25.5</sup> -27.0 | 1.5       | WH-WH-\  |  |  |  |
| 27                    |                        |   |   | SS19                  | 27.0 - 28.5                       | 1.5       | WH-2-3   |  |  |  |



Page: 3 of 7

| CI           | lient E | Borehole       | ID N/A  |   | Stantec Boring No. 6AR-D       |                       |                       |           |                      |  |  |  |
|--------------|---------|----------------|---------|---|--------------------------------|-----------------------|-----------------------|-----------|----------------------|--|--|--|
| CI           | lient   |                | Tennes  | see Valley Authority  | Boring Locatio                 |                       | 72 N; 2,411,234.3     | 2 E NAD83 | 3                    |  |  |  |
| Pr           | roject  | Number         | 182603  | 369   | Surface Eleva                  | tion 754.1 ft         | Elevation             | Datum_    | NGVD29               |  |  |  |
|              |         | Lithology      |         |   | Overburden:                    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> | Rec. Ft   | Blows/PSI            |  |  |  |
| Dept         | h Ft³   | Elevation      | Graphic | Description   | Rock Core:                     | RQD %                 | Run Ft                | Rec. Ft   | Rec. %               |  |  |  |
|              |         |                |         |   |                                |                       |                       |           |                      |  |  |  |
| - 29         | 30.0    | 725.7<br>724.1 |         | SILT, OL, 10YR 3/1 (very dark gray), to wet   | very soft, moist               | SS20                  | 28.5 - 30.0           | 1.4       | -<br>WH-WH-WH        |  |  |  |
| - 30<br>- 31 | 30.0    | 724.1          |         | SILTY LEAN CLAY, CL, 10YR 3/1 (very soft, moist  Soft, with some very fine sand at 39.0             |                                | SS21                  | 30.0 - 31.5           | 1.5       | —<br>WH-WH-2<br>-    |  |  |  |
| - 32<br>- 33 |         |                |         |   |                                | SS22                  | 31.5 - 33.0           | 1.5       | WH-WH-WH             |  |  |  |
| - 34         | 33.5    | 720.6          |         | SANDY LEAN CLAY, CL, 10YR 4/4 (brown) and 10YR 3/2 (very dark gray soft, moist, with very fine sand |                                | SS23                  | 33.0 - 34.5           | 1.5       | WH-WH-WH<br>-        |  |  |  |
| - 35<br>- 36 |         |                |         |   |                                | SS24                  | 34.5 - 36.0           | 1.5       | <u>-</u><br>WH-WH-WH |  |  |  |
| - 37         |         |                |         |   |                                | SS25                  | 36.0 - 37.5           | 1.5       | WH-WH-WH<br>-        |  |  |  |
| - 38<br>- 39 |         |                |         | Color change to 10YR 5/3 (brown) an (gray), wet at 37.5'  | d 10YR 6/1                     | SS26                  | 37.5 - 39.0           |           | -<br>WH-2-4          |  |  |  |
| - 40         | 40.5    | 713.6          |         |   |                                | SS27                  | 39.0 - 40.5           | 0.9       | 4-5-5<br>—           |  |  |  |
| - 41         |         |                |         | FAT CLAY, CH, 10YR 5/3 (brown) an (gray), soft to medium stiff, moist, wit                          |                                | SS28                  | 40.5 - 42.0           | 1.5       | -<br>3-5-8           |  |  |  |
| - 42<br>- 43 | 43.5    | 710.6          |         |   |                                | SS29                  | 42.0 - 43.5           | 1.5       | 7-5-8<br>-           |  |  |  |
| - 44         | .0.0    | . 10.0         |         | FAT CLAY, CH, 10YR 5/3 (brown) an (gray), soft, moist, with abundant man                            | d 10YR 6/1<br>nganese at 43.5' |                       |                       |           | _                    |  |  |  |



Page: 4 of 7

| С            | lient E            | Borehole       | ID N/A  |   | Stantec Boring No. 6AR-D |              |     |                       |                       |             |         |               |
|--------------|--------------------|----------------|---------|---|--------------------------|--------------|-----|-----------------------|-----------------------|-------------|---------|---------------|
| С            | lient              |                | Tennes  | see Valley Authority  | Вс                       | ring Locatio | on  | 575,317.              | 72 N; 2,411,234       | 1.32        | E NAD83 | <u> </u>      |
| Р            | roject             | Number         | 182603  | 369   | Su                       | ırface Eleva | tio | n <u>754.1 ft</u>     | Elevatio              | on [        | Datum_l | NGVD29        |
|              | l                  | Lithology      |         |   |                          | Overburden:  | 9   | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |             | Rec. Ft | Blows/PSI     |
| Dep          | th Ft <sup>3</sup> | Elevation      | Graphic | Description   |                          | Rock Core:   |     | RQD %                 | Run Ft                |             | Rec. Ft | Rec. %        |
| - 45         |                    |                |         | FAT CLAY, CH, 10YR 5/3 (brown) and (gray), soft, moist, with abundant many (Continued)  |                          |              |     | SS30                  | 43.5 - 45.0           | 43.5 - 45.0 | 1.5     | 3-3-4         |
| - 46         | 45.5               | 708.6          |         | FAT CLAY, CH, 7.5YR 5/1 (gray), soft  | , mo                     | ist          |     | SS31                  | 45.0 - 46.5           | 45.0 - 46.5 | 1.5     | 2-3-4         |
| - 47         |                    |                |         |   |                          |              |     | SS32                  | 46.5 - 48.0           | 46.5 - 48   | 1.5     | –<br>WH-2-3   |
| - 48         |                    |                |         |   |                          |              |     |                       |                       | .0 48       |         | _             |
| - 49         | 49.0               | 705.1          |         | SANDY LEAN CLAY, CL, 10YR 3/1 (v soft, moist, trace organics  | ery o                    | dark gray),  |     | SS33                  | 48.0 - 49.5           | .0 - 49.5   | 1.5     | WH-WH-WH<br>_ |
| - 50         |                    |                |         | Fine sand lens from 49.8' to 50.0'  |                          |              |     | SS34                  | 49.5 - 51.0           | 49.5 - 51.0 | 1.2     | —<br>WH-2-3   |
| - 51<br>- 52 | 51.0               | 703.1          |         | SILTY SAND, SM, 10YR 4/1 (dark gra<br>moist   | y), v                    | ery loose,   |     | SS35                  | 51.0 - 52.5           | 51.0 - 52.5 | 1.5     | WH-2-3        |
| - 53         |                    |                |         |   |                          |              |     | SS36                  | 52.5 - 54.0           | 52.5 - 54.0 | 1.5     | -<br>WH-WH-4  |
| - 54<br>- 55 | 55.3               | 698.8          |         | Very loose to loose, moist to wet at 54   | .0'                      |              |     | SS37                  | 54.0 - 55.5           | 54.0 - 55.5 | 1.5     | 2-5-6         |
| - 56         | 56.3               | 697.8          |         | SILTY SAND, SM, 10YR 6/4 (light yell loose, wet, with weathered siltstone fra wood pieces, fine to medium   |                          |              |     | SS38                  | 55.5 - 56.8           | 55.5 - 56.8 | 1.3     | 3-4-50+/4"    |
| - 57         | 56.6<br>56.8       | 697.5<br>697.3 |         | Shale, dark gray, weathered, fissile  Shale, green, highly weathered, calcar  | eous                     | 5            |     |                       |                       |             |         | _             |
| - 58         | 57.6               | 696.5<br>695.1 |         | Limestone, light gray, hard, medium be<br>Shale, dark gray, soft, laminated to ve<br>highly weathered<br>Vertical fracture, calcite coating, from<br>Fracture, 45°, calcite infilling, open, at | edde<br>ry th            | in bedded,   |     | 0                     | 57.3 - 59.0<br>1.7    | 57.3 - 59.0 | 0.9     | Began Core 53 |
| - 59<br>- 60 | 23.0               | 330.1          |         | Limestone, light gray, fine, hard, thin b<br>weathered<br>Fracture zone from 59.2' to 59.7'   |                          |              |     | 0                     | 59.0 - 60.8<br>1.8    | 59.0 - 60.8 | 0.9     | 50 _          |



Page: 5 of 7

|                      | liont [            | Borehole       | ID N//                                | 1  | Stantas Barin                 | ~ N | lo 6ΔR.               | .n                    |             |          |           |
|----------------------|--------------------|----------------|---------------------------------------|--|-------------------------------|-----|-----------------------|-----------------------|-------------|----------|-----------|
|                      | lient              | sorenoie       |                                       | ssee Valley Authority  | Stantec Borin Boring Location |     |                       |                       | 32          | E NAD83  | <u> </u>  |
|                      |                    | Number         |                                       | <u> </u>   | Surface Eleva                 |     |                       |                       |             |          |           |
|                      |                    |                | 102003                                | 2009   | Juliace Lieva                 |     |                       | _                     | 11 L        | Jaluii _ | NGVD29    |
|                      |                    | Lithology      |                                       |  | Overburden:                   |     | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |             | Rec. Ft  | Blows/PSI |
| Dep                  | th Ft <sup>3</sup> | Elevation      | Graphic                               | Description  | Rock Core:                    |     | RQD %                 | Run Ft                |             | Rec. Ft  | Rec. %    |
|                      |                    |                |                                       | Highly weathered with chlorite mineral 59.2' to 59.4'  | ization from                  |     |                       |                       |             |          |           |
| - 61<br>- 62<br>- 63 | 61.6               | 692.5          |                                       | Fracture, 30°, quartz infilling, healed, a High angle fracture, chlorite coating, a Limestone, light gray, fine, hard, thin be weathered (Continued)  Fracture, 45°, chlorite coating, at 60.8 Fracture, 30°, weathered, stained, at 6 Fracture, 45°, calcite coating, weather | t 59.8'<br>pedded,<br>51.0'   | _   | 14                    | 60.8 - 63.6<br>2.8    | 60.8 - 63.6 | 1.3      | 46        |
|                      |                    |                |                                       | 61.3'<br>With brown from 61.5' to 61.6'  |                               |     |                       |                       |             |          |           |
| - 64<br>- 65         | 64.3<br>64.5       | 689.8<br>689.6 | × × × × × × × × × × × × × × × × × × × | Interbedded Shale And Sandstone, da laminated, Sandstone, brown, very fine, soft   | ark gray, soft,               | -   | 0                     | 63.6 - 65.8<br>2.2    | 63.6 - 65.8 | 1.3      | 59        |
| - 66                 | 65.8               | 688.3          |                                       | Fracture, 45°, weathered, stained, at 6 Bedding breaks from 61.7' to 62.1' alo sandstone contacts, weathered, stained  | ng shale and                  |     |                       |                       |             |          |           |
| - 67                 | 67.1               | 687.0          |                                       | healed with calcite filling Fractured zone in shale, highly weather to 64.0' Breaks along bedding contacts, weather with calcite from 64.0' to 64.3'   |                               | _   | 35                    | 65.8 - 68.1<br>2.3    | 65.8 - 68.1 | 1.0      | 43 _      |
| - 68                 |                    |                |                                       | Limestone, light gray, fine, hard, thin b  | ,                             |     |                       |                       |             |          |           |
| - 69                 |                    |                |                                       | clayey  No recovery  | Catholica,                    |     | 0                     | 68.1 - 70.1<br>2.0    | 68.1 - 70.1 | 0.2      | 10        |
| - 70                 | 70.1               | 684.0          |                                       | Limestone, light gray, fine, hard, Fract chlorite coating, weathered, stained, a   | t 67.1'                       |     |                       |                       |             |          | _         |
| - 71                 |                    |                |                                       | Fracture, 45°, calcite infilling, at 67.4' Fractured, weathered, with chlorite mile 68.1'  | neralization at               |     |                       |                       |             |          | -         |
| - 72                 |                    |                |                                       | No recovery  |                               |     |                       |                       | 70.         |          | -         |
| - 73                 |                    |                |                                       |  |                               |     | 0                     | 70.1 - 75.1<br>5.0    | .1 - 75.1   | 0.0      | 0 -       |
| - 74                 |                    |                |                                       |  |                               |     |                       |                       |             |          | -         |
| <b>-</b> 75          | 75.1<br>-75.2      | 679.0<br>678.9 |                                       | Interbedded Limestone And Siltstone, hard, with calcite  | light gray, fine,             |     |                       |                       |             |          | _         |
| - 76                 |                    |                |                                       | Siltstone, dark reddish brown, very so   | ft                            |     |                       |                       |             |          | -         |



Page: 6 of 7

| С            | Client Borehole ID N/A |           |   | Stantec Boring No. 6AR-D  |   |  |                       |                       |                       |         |                 |
|--------------|------------------------|-----------|---|---|---|--|-----------------------|-----------------------|-----------------------|---------|-----------------|
| С            | lient                  |           | Tennes  | see Valley Authority  | Boring Location                                 |  |                       | 72 N; 2,411,234       | .32                   | E NAD83 |                 |
| Р            | roject                 | Number    | 182603  | 369   | Surface Elevation 754.1 ft Elevation Datum NGVD |  |                       |                       |                       | NGVD29  |                 |
|              |                        | Lithology |   |   | Overburden:                                     |  | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> | Depth Ft <sup>3</sup> |         | Blows/PSI       |
| Dep          | th Ft <sup>3</sup>     | Elevation | Graphic   | Description   | Rock Core:                                      |  | RQD %                 | Run Ft                |                       | Rec. Ft | Rec. %          |
| - 77         |                        |           |   | No recovery (Continued)   |   |  |                       |                       | 75.7                  |         | -               |
| - 78         |                        |           |   |   |   |  | 0                     | 75.1 - 80.1<br>5.0    | - 80.1                | 0.1     | 2 _             |
| - 79<br>- 80 | 80.1                   | 674.0     |   |   |   |  |                       |                       |                       |         | -<br>_          |
| - 81         |                        |           |   | Limestone, light gray, fine, hard, weath fractured, stained, with chlorite mineral surfaces Healed fracture, 15°, quartz infilling, fro 80.8' | ization on                                      |  | 0                     | 80.1 - 82.1<br>2.0    | 80.1 - 82.1           | 0.8     | 40 -            |
| - 82         | 82.1                   | 672.0     | × × × × × × × × × × × × × × ×                       | Siltstone, dark grayish brown, highly we decomposed, clayey   | eathered,                                       |  |                       |                       |                       |         | _               |
| - 83         | 84.0                   | 670.1     |   | decomposed, dayey   |   |  | 0                     | 82.1 - 84.0<br>1.9    | 82.1 - 84.0           | 0.2     | 11 -            |
| - 84         | 85.0                   | 669.1     |   | No recovery   |   |  | 0                     | 84.0 - 85.0<br>1.0    | 84.0 - 85.0           | 0.0     | 0               |
| - 85         | 00.0                   | 000.1     | X X X X<br>X X X X<br>X X X X<br>X X X X<br>X X X X | Interbedded Limestone And Shale, gra<br>soft, vertical bedding, grading to shale  | yish brown,                                     |  |                       |                       |                       |         |                 |
| - 86<br>- 87 | 87.4                   | 666.7     |   | Shale, greenish gray, soft, very thin betweathered Fracture zone from 85.0' to 86.0' Vertical fracture, calcite coating, open,                |   |  | 0                     | 85.0 - 87.4<br>2.4    | 35.0 - 87.4           | 1.5     | 62 -            |
| - 88         |                        |           |   | 86.0' to 86.5' Interbedded Limestone And Shale, ligh very hard,   | t gray, fine,                                   |  |                       |                       |                       |         | _               |
| - 89         |                        |           |   | Shale, greenish gray, soft, very thin be laminated Fracture zone from 87.4' to 87.8'  |   |  | 50                    | 87.4 - 90.0<br>2.6    | 87.4 - 90.0           | 2.6     | 100             |
| - 90         |                        |           |   | Fracture, 40°, calcite and quartz coatin weathered, stained, at 87.8'  Numerous healed, calcite filled fracture                               |   |  |                       |                       | $\frac{1}{2}$         |         |                 |
| - 91         |                        |           |   | 88.8' Fracture, 45°, along shale contact, at 8 Fracture, 45°, partially open, weathered   | d, at 88.7'                                     |  |                       |                       |                       |         | =               |
| - 92         |                        |           |   | Vertical fracture, thin, healed, from 88.4 Fractures, 45°, weathered, with calcite along shale contacts at 89.3', 89.4'                       |   |  | 0                     | 90.0 - 94.2<br>4.2    | 90.0 - 94.2           | 2.3     | 55 <sup>-</sup> |



Page: 7 of 7

| Clier   | nt Borehole              | ID N/A          |  | Stantec Boring                       | No. 6AR-              | -D                    |            |             |
|---|--------------------------|-----------------|--|--------------------------------------|-----------------------|-----------------------|------------|-------------|
| Clier   | nt                       | Tennes          | see Valley Authority   | Boring Locatio                       | n <u>5</u> 75,317.    | 72 N; 2,411,234.3     | 32 E NAD83 | 3           |
| Proje   | ect Number               | 182603          | 369  | Surface Elevat                       | tion <u>754.1 ft</u>  | Elevation Datum NGVD  |            |             |
|   | Lithology                |                 |  | Overburden:                          | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> | Rec. Ft    | Blows/PSI   |
| Depth F   | t <sup>3</sup> Elevation | Graphic         | Description  | Rock Core:                           | RQD %                 | Run Ft                | Rec. Ft    | Rec. %      |
| - 93<br>- 94   94   | 4.2 659.9                |                 | Fractures, 45°, weathered, stained, wi and calcite on surfaces at 89.6', 89.7', Fracture zone from 90.0' to 90.4', wear with some clay Fracture, 20°, weathered, stained, from                             | 89.8'<br>thered, stained,            |                       |                       |            | -           |
|   | 5.2 658.9                |                 | Vertical fracture, calcite and quartz comments weathered, stained, from 90.7' to 91.7' Fracture, 45°, quartz, weathered, stain Fracture, 45°, along shale contact, at 9                                    | ned, at 91.9'                        | 0                     | 94.2 - 95.2           | 0.0        | 0 _         |
| - 96<br>- 97  |                          |                 | No recovery  Interbedded Shale And Limestone, gr soft, laminated, highly weathered, calc stained   | <b>5</b> 3.                          |                       |                       |            | -           |
| - 98  |                          |                 | Limestone, light gray, fine, very hard, v<br>stained<br>Fracture zone, vertical, weathered, iron<br>calcite and quartz on surface from 95.   | n stained, with<br>2' to 96.3'       | NR                    | 95.2 - 100.2<br>5.0   | 2.8        | 56          |
| - 99<br>- 100 100   | 0.0                      |                 | Vertical fracture, slightly open with wer filling and trace quartz, from 96.3' to 90 Fracture zone, highly weathered, iron calcite and quartz on surface from 96.3 Joint, open, weathered, iron stained, a | 6.8'<br>stained, with<br>9' to 97.4' |                       |                       |            | -<br>_      |
| 100   | 0.2 653.9                |                 | Bottom of Hole at 100.2 Ft.  |                                      |                       |                       |            |             |
|   |                          |                 | Top of Rock = 56.8 Ft. Top of Rock Elevation = 697.3 Ft. Begin Core = 57.3 Ft.   |                                      |                       |                       |            | -           |
| 8/22  |                          |                 |  |                                      |                       |                       |            | -           |
| BORING LOG KIF_VACATUR_REV4_20220519.GPJ TDEC SUBSURF DT 20196230.GDT 5/19/22 |                          | G =<br>2: a,b,e | Environmental Sample Custody (two Spl<br>Geotechnical Sample Custody<br>c denote Split Spoon divided between En<br>ths are reported in feet below ground sur   | vironmental and Ge                   |                       |                       | ole)       | -<br>-<br>- |



|  | liest 5            | ) orch = l :     | ID N//        | <b>.</b>   | Ctonton Danie                                      | ~ h' | . KIE.                | 107                   |             |         |           |  |  |
|--|--------------------|------------------|---------------|--|--|------|-----------------------|-----------------------|-------------|---------|-----------|--|--|
| Client Borehole ID N/A Client Tennessee Valley Authority                 |                    |                  |               |  | Stantec Boring No. KIF-107                         |      |                       |                       |             |         |           |  |  |
| Project Number 182603369   |                    |                  |               |  | Boring Location 575,325.18 N; 2,408,959.78 E NAD83 |      |                       |                       |             |         |           |  |  |
|  | -                  |                  | <del></del>   |  |  |      |                       | ion Datum_NGVD29      |             |         |           |  |  |
|  | -                  | Name<br>Location | KIF Va        | rriman, Tennessee  |  |      |                       |                       |             |         |           |  |  |
|  | -                  |                  |               | Logger G. Budd   | - · <u> </u>                                       |      |                       |                       |             |         |           |  |  |
|  |                    |                  |               | intec Consulting Services Inc.                                   | Drill Rig Type and ID CME 850XR, #953              |      |                       |                       |             |         |           |  |  |
|  | -                  |                  |               | Sampling Tools (Type and Size)                                   | 0 ,,   |      |                       |                       |             |         |           |  |  |
|  |                    |                  | •             | ling Tools (Type and Size) N/A                                   |  |      |                       |                       |             |         |           |  |  |
|  |                    | _                |               | and Size) N/A  | Overdrill Depth N/A                                |      |                       |                       |             |         |           |  |  |
|  |                    | -                |               | Automatic Weight 140 lk  | ·  |      |                       |                       |             |         |           |  |  |
| Borehole Azimuth N/A (Vertical) Borehole Inclination (from Vertical) N/A |                    |                  |               |  |  |      |                       |                       |             |         |           |  |  |
| R  | Review             | ed By            | C. Ko         | cka  | Approved By  |      | P. Dunne              |                       |             |         |           |  |  |
|  | l                  | Lithology        |               |  | Overburden:  | 5    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |             | Rec. Ft | Blows/PSI |  |  |
| Dep  | th Ft <sup>3</sup> | Elevation        | Graphic       | Description  | Rock Core:   |      | RQD %                 | Run Ft                |             | Rec. Ft | Rec. %    |  |  |
|  | 0.0                | 759.5            |               | Top of Hole  |  |      |                       |                       |             |         |           |  |  |
| - 0  | -0.2               | 759.3            |               | Topsoil  | _  |      |                       |                       |             |         | -         |  |  |
|  |                    |                  |               | LEAN CLAY, CL, 5YR 4/4 (reddish bro                              | wn), low   |      | SS01                  | 0.0 - 1.5             | 0.0 - 1.5   | 1.4     | 2-5-4     |  |  |
| - 1  |                    |                  |               | plasticity, soft to medium stiff, moist, w                       |  |      |                       |                       | 5           |         |           |  |  |
|  |                    |                  |               | chert fragments, [FILL] With trace coal fragments from 0.2' to 3 | 3 0'   |      |                       |                       |             |         |           |  |  |
| - 2  |                    |                  |               | War adde dod! Haginionio Hein 6.2 to t                           | 5.0  |      | SS02                  | 1.5 - 3.0             | 1.5 - 3.0   | 1.0     | 4-4-6     |  |  |
|  |                    |                  |               |  |  |      |                       |                       | 0           |         |           |  |  |
| - 3  |                    |                  |               |  |  |      |                       |                       |             |         |           |  |  |
|  |                    |                  |               |  |  |      | SS03                  | 3.0 - 4.5             | 3.0 - 4.5   | 1.5     | 5-7-7     |  |  |
| - 4  |                    |                  |               |  |  |      |                       |                       | .5          |         |           |  |  |
| _  |                    |                  |               |  |  |      |                       |                       |             |         |           |  |  |
| - 5  |                    |                  |               |  |  |      | SS04                  | 4.5 - 6.0             | 4.5 - 6.0   | 1.5     | 3-3-4     |  |  |
| •  | 6.0                | 753.5            |               |  |  |      |                       |                       | 0           |         |           |  |  |
| - 6  |                    |                  |               | FAT CLAY, CH, 5YR 4/4 (reddish brow                              | /n), soft, moist,                                  |      |                       |                       |             |         | •         |  |  |
| 7  |                    |                  |               | with chert fragments, [FILL]                                     |  |      | SS05                  | 6.0 - 7.5             | 6.0 - 7.5   | 1.5     | 4-3-5     |  |  |
| - 7  |                    |                  |               |  |  |      |                       |                       | 5           |         |           |  |  |
| - 8  | 8.0                | 751.5            |               |  |  |      |                       |                       |             |         |           |  |  |
| - 8  |                    |                  |               | LEAN CLAY, CL, 10YR 4/2 (dark grayi                              | sh brown),   |      | SS06                  | 7.5 - 9.0             | 7.5 - 9.0   | 1.1     | WH-2-2    |  |  |
| - 9 -  | 9.0                | 750.5            |               | soft, moist, with fragments of siltstone,                        | [FILL]   |      |                       |                       |             |         |           |  |  |
| - 9 -  |                    |                  |               | SILTY SAND, SM, 10YR 4/2 (dark gray                              |  |      |                       |                       | 9           |         |           |  |  |
| - 10   |                    |                  |               | very fine to fine, very loose, moist to was silty clay, [FILL]   | et, with some                                      |      | SS07                  | 9.0 - 10.5            | 0.0 - 10.5  | 1.5     | 1-2-2     |  |  |
| - 10   |                    |                  | 11            | Silty Clay, [i ILL]  |  |      |                       |                       | 5           |         |           |  |  |
| _ 11   |                    |                  |               |  |  |      | SS08a                 | 10.5 - 11.3           | 12          |         |           |  |  |
| - 11   | 11.3               | 748.2            |               | 1 = 1 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1                          |  |      |                       |                       | 10.5 - 12.0 | 1.5     | 1-1-15    |  |  |
| - 12   | 11.9               | 747.6            |               | LEAN CLAY, CL, 10YR 4/2 (dark grayi very soft, moist, [FILL]     | sh brown),   |      | SS08b                 | 11.3 - 11.9           | 0           |         | FO : /4"  |  |  |
| 12   | 12.0               | 747.5            |               | Limestone, light gray, hard, (augered)                           | rell L1  |      | SS09                  | 12.0 - 12.1           | 12.0        | 0.1     | 50+/1"    |  |  |
| - 13   |                    |                  |               | Shale, greenish gray, highly weathered                           |  |      |                       |                       | 12.1        |         |           |  |  |
| 13   |                    |                  | $ $           | (augered) [FILL]   | i, calcal cous,                                    |      |                       |                       |             | ]       |           |  |  |
| 4.4  |                    |                  | $\overline{}$ |  |  |      |                       |                       |             |         |           |  |  |



| Client Borehole ID N/A Stantec Boring No. KIF-107 |  |           |                |  |         |                 |  |                       |                       |             |            |             |  |  |
|---|--|-----------|----------------|--|---------|-----------------|--|-----------------------|-----------------------|-------------|------------|-------------|--|--|
| l   | Client Tennessee Valley Authority Boring Locat                   |           |                |  |         |                 |  |                       |                       |             |            |             |  |  |
| P   | roject   | Number    |                |  |         | •               | vation 759.5 ft Elevation Datum NGVD29 |                       |                       |             |            |             |  |  |
| Lithology   |  |           |                |  |         | Overburden:     | ;                                      | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |             | Rec. Ft    | Blows/PSI   |  |  |
| Dep   | th Ft <sup>3</sup>   | Elevation | Graphic        | Description  |         | Rock Core:      |  | RQD %                 | Run Ft                |             | Rec. Ft    | Rec. %      |  |  |
| - 14<br>- 15                                      | 15.0   | 744.5     | )              | Shale, greenish gray, highly weather (augered) [FILL] (Continued)  | red, ca | ılcareous,      |  | SS10                  | 13.5 - 15.0           | 13.5 - 15.0 | 0.5        | 5-4-6       |  |  |
| - 15<br>- 16                                      |  |           | ))))           | Shale With Limestone, (augered) [FI Shale, dark gray, soft, laminated, we  |         | ed, clayey      |  | SS11                  | 15.0 - 16.5           | 15.0 - 16.5 | 0.6        | 5-9-13<br>- |  |  |
|   | 16.5 743.0 Limestone, light gray, fine grained, hard, weathered, |           |                |  |         |                 |  |                       |                       |             |            |             |  |  |
|   |  |           |                | \trace iron staining  No Refusal /   |         |                 |  |                       |                       |             |            |             |  |  |
|   |  |           |                | Bottom of Hole at 16.5 Ft.   |         |                 |  |                       |                       |             |            | -           |  |  |
|   |  |           |                |  |         |                 |  |                       |                       |             |            |             |  |  |
|   |  |           |                |  |         |                 |  |                       |                       |             |            | _           |  |  |
|   |  |           | Boreh          | ole off center from ~12'. Move rig 6' eas  | t to of | fset            |  |                       |                       |             |            | _           |  |  |
|   |  |           | FILL a         | nnotation is added to the boring log bas   | sed on  | a review of his | stor                                   | ical informat         | tion that indicat     | es th       | ne origina | I           |  |  |
|   |  |           | As-dril        | d surface is at approximately 732 feet N<br>led boring location not surveyed. Horizo   |         |                 |  | on field mea          | asurements. Ve        | rtica       | l coordina | ates        |  |  |
|   |  |           | based          | on survey of KIF-107 Offset.   |         |                 |  |                       |                       |             |            | -           |  |  |
|   |  |           | G =<br>2: a,b, | Environmental Sample Custody (two Specific Specific Sample Custody condensed Split Spoon divided between Eaths are reported in feet below ground specific Sp | Enviror | nmental and G   |  |                       |                       | nple)       | )          | _           |  |  |
|   |  |           | 0. <b>2</b>    | and reported in recording greated  |         |                 |  |                       |                       |             |            | _           |  |  |
|   |  |           |                |  |         |                 |  |                       |                       |             |            | _           |  |  |
|   |  |           |                |  |         |                 |  |                       |                       |             |            |             |  |  |
|   |  |           |                |  |         |                 |  |                       |                       |             |            | _           |  |  |
|   |  |           |                |  |         |                 |  |                       |                       |             |            | _           |  |  |
|   |  |           |                |  |         |                 |  |                       |                       |             |            | _           |  |  |
|   |  |           |                |  |         |                 |  |                       |                       |             |            | _           |  |  |
|   |  |           |                |  |         |                 |  |                       |                       |             |            | _           |  |  |
|   |  |           |                |  |         |                 |  |                       |                       |             |            |             |  |  |
|   |  |           |                |  |         |                 |  |                       |                       |             |            | _           |  |  |
|   |  |           |                |  |         |                 |  |                       |                       |             |            | =           |  |  |
|   |  |           |                |  |         |                 |  |                       |                       |             |            |             |  |  |



|                                   | Client E           | Borehole          | ID N/A        | <u>\</u>   | Stantec Boring No. AD-2-D                     |                    |                             |                        |          |          |           |  |  |
|-----------------------------------|--------------------|-------------------|---------------|--|---|--------------------|-----------------------------|------------------------|----------|----------|-----------|--|--|
| Client Tennessee Valley Authority |                    |                   |               |  |   |                    |                             |                        |          |          |           |  |  |
| F                                 | roject             | Number            | 182603        | 369  | Surface Eleva                                 | n <u>753.9</u> ft  | Elevation                   | Elevation Datum NGVD29 |          |          |           |  |  |
| F                                 | roject             | Name              | KIF Va        | catur  | Date Started                                  | _                  | 10/15/18                    | Completed10/16/18      |          |          |           |  |  |
| F                                 | roject             | Locatio           | n <u>Ha</u> ı | rriman, Tennessee  | Depth to Water19.5 ft Date/Time10/16/18 08:21 |                    |                             |                        |          |          |           |  |  |
|                                   |                    |                   |               | Logger G. Budd   |   |                    |                             |                        |          |          |           |  |  |
|                                   | -                  |                   |               | intec Consulting Services Inc.   |   |                    |                             |                        |          |          |           |  |  |
|                                   |                    |                   | _             | I Sampling Tools (Type and Size  | •   |                    |                             |                        |          |          |           |  |  |
|                                   |                    | _                 | •             | ling Tools (Type and Size) NO  | -3 Wireline, Split B                          | arre               | I, Surface S                |                        |          |          |           |  |  |
|                                   |                    |                   |               | and Size) N/A  | h- D 2  | 2011               |                             | Overdril               |          |          | N/A       |  |  |
|                                   |                    |                   |               | Automatic Weight 140 I   |   |                    |                             | Efficiency             | N/       | N/A<br>^ |           |  |  |
|                                   |                    | le Azimu<br>ed By |               |  | Borehole Incli Approved By                    |                    | .ion (irom<br>C. Millhollir | · —                    | IN/      | Α        |           |  |  |
| Г                                 | Review             | eu by _           | 0. 0111       | <u></u>  | Approved by                                   | _                  |                             |                        |          |          |           |  |  |
|                                   |                    | Lithology         |               |  | Overburden:                                   | ,                  | Sample <sup>1,2</sup>       | Depth Ft <sup>3</sup>  |          | Rec. Ft  | Blows/PSI |  |  |
| Dep                               | th Ft <sup>3</sup> | Elevation         | Graphic       | Description  | Rock Core:                                    | _                  | RQD %                       | Run Ft                 |          | Rec. Ft  | Rec. %    |  |  |
| - 0                               | 0.0                | 753.9             | 0303030       | Top of Hole  |   |                    |                             |                        | $\bot$   |          |           |  |  |
|                                   |                    |                   |               | Placed crush and run stone and riprap collected to 3.0'., [FILL]                     | . No samples                                  |                    |                             |                        |          |          |           |  |  |
| - 1                               |                    |                   |               | conceded to 0.0 ., [FIZE]  |   |                    |                             |                        |          |          | -         |  |  |
| - 2                               |                    |                   | 0000000       |  |   |                    |                             |                        |          |          | _         |  |  |
|                                   |                    |                   |               |  |   |                    |                             |                        |          |          |           |  |  |
| - 3                               | 3.5                | 750.4             |               |  |   |                    |                             |                        |          |          | _         |  |  |
| - 4                               |                    |                   | T X X X X X   | POORLY GRADED SAND, SP, fine to  | coarse, [FILL]                                |                    | SS03                        | 3.0 - 4.5              | 3.0 - 4. | 1.1      | 9-7-5     |  |  |
| i i                               | 4.5                | 749.4             |               |  |   | -                  |                             |                        | 0"       |          |           |  |  |
| - 5                               |                    |                   |               | LEAN CLAY, CL, 7.5YR 4/6 (strong br plasticity, soft, moist                          | rown), low                                    |                    | SS04                        | 4.5 - 6.0              | 4.5 - 1  | 0.3      | 4-2-2     |  |  |
| - 6                               |                    |                   |               | With trace fragments of coal, chert fro  | m 4.5' to 6.0'                                |                    |                             |                        | 3.0      |          | _         |  |  |
| 0                                 |                    |                   |               | Color change to 10YR 4/6 (yellowish b  |   |                    | 0005                        | 00.75                  | 6.0      |          | 0.00      |  |  |
| - 7                               |                    |                   |               | fragments of weathered siltstone at 6.0  | 0'  |                    | SS05                        | 6.0 - 7.5              | - 7.5    | 0.9      | 3-2-3     |  |  |
| - 8                               | 8.0                | 745.9             |               |  |   |                    |                             |                        | 7        |          | _         |  |  |
| - 0                               |                    |                   |               | LEAN CLAY, CL, 10YR 4/2 (dark gray   |   |                    | SS06                        | 7.5 - 9.0              | 5 - 9.0  | 1.1      | 6-5-29    |  |  |
| - 9                               | 9.0                | 744.9             |               | plasticity, medium stiff to very stiff, mo<br>With weathered shale and limestone for | _   | $\left\{ \right\}$ |                             |                        |          | -        | -         |  |  |
| 40                                |                    |                   |               | 8.5'   | raginents at                                  |                    | SS07                        | 9.0 - 10.5             | 9.0 - 10 | 1.0      | 9-10-11   |  |  |
| - 10                              |                    |                   |               | wet, Interbedded limestone and shale,  | light gray to                                 |                    |                             |                        | ).5      |          | _         |  |  |
| - 11                              |                    |                   |               | dark gray, fine, soft to hard, laminated   |   |                    | SS08                        | 10.5 - 12.0            | 10.5     | 0.8      | 8-10-6    |  |  |
|                                   |                    |                   |               | weathered, clayey  |   |                    | 3306                        | 10.5 - 12.0            | - 12.0   | 0.6      | 0-10-0    |  |  |
| - 12                              |                    |                   |               |  |   |                    |                             |                        | 12       |          | _         |  |  |
| - 13                              |                    |                   |               |  |   |                    | SS09                        | 12.0 - 13.5            | 0 - 13   | 0.5      | 2-4-11    |  |  |
|                                   | 13.5               | 740.4             |               |  |   |                    |                             |                        | 5        |          |           |  |  |
| - 14                              |                    |                   |               | LEAN CLAY, CL, 10YR 4/2 (dark gray medium stiff to stiff, moist to wet, high         | ·   |                    | SS10                        | 13.5 - 15.0            | 13.5 - 1 | 1.2      | 5-6-10    |  |  |
| – 15                              | 14.8               | 739.1             |               | interbedded limestone and shale  |   |                    |                             |                        | 5.0      |          | _         |  |  |
| .0                                |                    |                   |               | LEAN CLAY, CL, 10YR 4/4 (dark yello  |   |                    | 0011                        | 150 165                | 15.0     | 0.5      | 12 10 10  |  |  |
| - 16                              | 16.5               | 737.4             |               | low plasticity, stiff, wet, weathered silts  |   |                    | SS11                        | 15.0 - 16.5            | - 16.5   | 0.5      | 12-10-10  |  |  |
| - 17                              | 13.0               | 707.4             |               | Grading to weathered light gray limest   |   | 1                  |                             |                        | 16       |          | _         |  |  |
| ''                                |                    |                   |               | LEAN CLAY, CL, 10YR 4/4 (dark yello low plasticity, soft, moist, with fragmer        |   |                    | SS12                        | 16.5 - 18.0            | .5 - 18. | 0.4      | 2-2-1     |  |  |
| 40                                |                    | 1                 | Y///          | p.aa.a., con, moist, with haginor  | C. Chiotorio                                  |                    |                             |                        | 0        |          |           |  |  |



| Client                | t Borehole | ID N/A  | · · · · · · · · · · · · · · · · · · ·   | Stantec Boring   | Boring No. AD-2-D                                 |                       |         |           |  |  |  |  |
|-----------------------|------------|---------|---|------------------|---|-----------------------|---------|-----------|--|--|--|--|
| Client                | t          | Tennes  | see Valley Authority  |                  | oring Location 574,654.66 N; 2,408,274.19 E NAD83 |                       |         |           |  |  |  |  |
| Proje                 | ct Number  | 182603  | 369   | Surface Eleva    | n Datum_NGVD29                                    |                       |         |           |  |  |  |  |
|                       | Lithology  |         |   | Overburden:      | Sample <sup>1,2</sup>                             | Depth Ft <sup>3</sup> | Rec. Ft | Blows/PSI |  |  |  |  |
| Depth Ft <sup>3</sup> | Elevation  | Graphic | Description   | Rock Core:       | RQD %   | Run Ft                | Rec. Ft | Rec. %    |  |  |  |  |
| - 18<br>- 19          |            |         | LEAN CLAY, CL, 10YR 4/4 (dark yellow plasticity, soft, moist, with fragmen                |                  | SS13  | 18.0 - 19.5           | 0.7     | 1-1-2     |  |  |  |  |
| - 20                  |            |         | (Continued) Very soft, wet at 19.5'   |                  | SS14  | 19.5 - 21.0           | 0.7     | WH-1-1    |  |  |  |  |
| - 21<br>- 22          |            |         |   |                  | SS15  | 21.0 - 22.5           | 0.6     | 1-1-3     |  |  |  |  |
| - 23                  |            |         |   |                  | SS16  | 22.5 - 24.0           | 0.8     | WH-WH-1   |  |  |  |  |
| - 24<br>- 25          |            |         |   |                  | SS17  | 24.0 - 25.5           | 0.5     | WH-WH-1_  |  |  |  |  |
| - 26<br>- 27          |            |         |   |                  | SS18  | 25.5 - 27.0           | 1.0     | WH-WH-WH  |  |  |  |  |
| - 28                  |            |         |   |                  | SS19  | 27.0 - 28.5           | 1.0     | WH-WH-2   |  |  |  |  |
| - 29<br>- 30          | 0 723.9    |         |   |                  | SS20  | 28.5 - 30.0           | 0.5     | WH-WH-WH  |  |  |  |  |
| - 31                  |            |         | FAT CLAY, CH, 10YR 4/1 (dark gray), very soft, wet Color change to 10YR 4/1 (dark gray) a |                  | SS21  | 30.0 - 31.5           | 1.5     | WH-WH-1   |  |  |  |  |
| - 32<br>- 33          |            |         | (brown) at 31.5'  |                  | SS22  | 31.5 - 33.0           | 1.1     | WH-WH-3   |  |  |  |  |
| - 34<br>34.5          | 5 719.4    |         | With fine sand and fragments of siltsto   |                  | SS23  | 33.0 - 34.5           | 1.1     | WH-WH-WH_ |  |  |  |  |
| - 35<br>- 36          |            |         | FAT CLAY, CH, 10YR 5/1 (gray) and 1 (yellowish brown), high plasticity, very sfine sand   | soft, wet, with  | SS24  | 34.5 - 36.0           | 1.3     | WH-WH-2   |  |  |  |  |
| - 37                  |            |         | Very soft to soft, with manganese at 36   | 3.0-37.5'        | SS25  | 36.0 - 37.5           | 1.5     | WH-3-3    |  |  |  |  |
| - 38<br>- 39          |            |         |   |                  | SS26  | 37.5 - 39.0           | 1.5     | WH-WH-4   |  |  |  |  |
| - 40                  |            |         |   |                  | SS27  | 39.0 - 40.5           | 1.5     | 4-4-5 _   |  |  |  |  |
| - 41<br>- 42          |            |         | Medium stiff at 40.5'   |                  | SS28  | 40.5 - 42.0           | 0.6     | 5-6-7     |  |  |  |  |
|                       |            |         | Stantec Consult   | ting Services In | nc.   |                       |         | 5/19/22   |  |  |  |  |



Page: 3 of 5

| Client                | Client Borehole ID N/A |         |  |  | g N | o. AD-2               | ?-D                       |                    |         |                        |
|-----------------------|------------------------|---------|--|--|-----|-----------------------|---------------------------|--------------------|---------|------------------------|
| Client                |                        | Tennes  | see Valley Authority   | Boring Location 574,654.66 N; 2,408,274.19 E NAD83 |     |                       |                           |                    |         |                        |
| Proje                 | ct Number              | 182603  | 369  | Surface Elevation 753.9 ft Elevation Datum NGVD29  |     |                       |                           |                    |         | NGVD29                 |
|                       | Lithology              |         |  | Overburden:  | 5   | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>     |                    | Rec. Ft | Blows/PSI              |
| Depth Ft <sup>3</sup> | Elevation              | Graphic | Description  | Rock Core:   |     | RQD %                 | Run Ft                    |                    | Rec. Ft | Rec. %                 |
| - 43                  |                        |         |  |  |     | SS29                  | 42.0 - 43.5               | 42.0 - 43.5        | 0.8     | 7-5-7                  |
| - 44<br>- 45          | 7 710.2                |         | CLAYEY SILTY SAND, SM, 10YR 3/1 gray), fine, very loose, wet   | (very dark   | -   | SS30                  | 43.5 - 45.0               | 43.5 - 45.0        |         | WH-WH-2                |
| - 46                  |                        |         |  |  |     | SS31                  | 45.0 - 46.5               | 45.0 - 46.5        | 0.9     | WH-2-3                 |
| - 47<br>- 48          |                        |         | POORLY GRADED SAND, SP, loose  | at 46.5'   |     | SS32                  | 46.5 - 48.0               | 46.5 - 48.0        | 1.0     | WH-4-6                 |
| - 49<br>  49.5        | 5 704.4                |         | Cobble in shoe at 48.0'  |  |     | SS33                  | 48.0 - 49.5               | 48.0 - 49.5        | 0.3     | 4-8-12                 |
| - 50                  |                        |         | WELL GRADED SAND, SW, 10YR 3/<br>gray), fine to medium, very dense, we<br>weathered grayish brown sandstone fi | t, with  |     | SS34                  | 49.5 - 51.0               | 49.5 - 51.0        | 1.5     | 50-45-43               |
| - 51<br>- 52<br>52.5  | 5 701.4                |         | Color change to 10YR 4/2 (dark grayis 10YR 5/3 (brown), dense at 51.0'   | sh brown) and                                      |     | SS35                  | 51.0 - 52.5               | 51.0 - 52.5        | 1.3     | 30-22-29               |
| 52.8<br>- 53          | 701.1                  | 1       | ─_Shale, dark gray, soft, laminated, wea   | thered /   |     | SS36                  | 52.5 - 52.8               | 52.5               | 0.3     | 50+/4"<br>Began Core - |
| - 54<br>- 55          |                        |         | Limestone, gray, fine to medium, hard with weathered gray brown clayey silts zone                              | l, fossiliferous                                   |     | 0                     | 52.8 - 55.7<br>2.9        | - 52.8 52.8 - 55.7 | 0.8     | 28                     |
| - 56 55.7             | 698.2                  |         | Limestone, gray, highly weathered, fra   | actured, clayey                                    |     |                       |                           | ╁┠                 |         | _                      |
| - 57                  |                        |         |  |  |     |                       |                           | 55                 |         | _                      |
| - 58<br>- 59          |                        |         |  |  |     | 0                     | 55.7 - 60.7<br>5.0        | 5.7 - 60.7         | 0.5     | 10 -                   |
| - 60                  | 7 602.2                |         |  |  |     |                       |                           |                    |         | _                      |
| - 61 60.7             | 693.2                  |         | Interbedded Limestone And Shale, graweathered,   | ay, hard,  |     |                       |                           | ╽                  |         | _                      |
| - 62                  |                        |         | Shale, dark gray, soft, laminated, high  | ly weathered                                       |     |                       |                           |                    |         | _                      |
| - 63                  |                        |         | Fractured from 60.7' to 62.8'  |  |     | 0                     | 60.7 <b>-</b> 65.7<br>5.0 | 60.7 - 65.7        | 2.1     | 42 -                   |
| - 64                  |                        |         |  |  |     |                       |                           |                    |         | _                      |
| - 65                  |                        |         |  |  |     |                       |                           | <b>│</b> ┃         |         |                        |
| - 66                  |                        |         |  |  |     |                       |                           |                    |         | _                      |



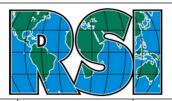
Page: 4 of 5

| Client                | Borehole ID N/A   |   | Stantec Boring No. AD-2-D |                       |  |           |           |  |  |
|-----------------------|-------------------|---|---------------------------|-----------------------|--|-----------|-----------|--|--|
| Client                | Tennes            | see Valley Authority  | Boring Locatio            |                       | 66 N; 2,408,274.1  | 9 E NAD83 |           |  |  |
| Projec                | Number 182603     | 369   | Surface Elevat            | tion <u>753.9 ft</u>  | Elevation  | Datum_r   | NGVD29    |  |  |
|                       | Lithology         |   | Overburden:               | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>  | Rec. Ft   | Blows/PSI |  |  |
| Depth Ft <sup>3</sup> | Elevation Graphic | Description   | Rock Core:                | RQD %                 | Run Ft   | Rec. Ft   | Rec. %    |  |  |
| - 67<br>- 68          |                   | Interbedded Limestone And Shale, gray weathered,  Shale, dark gray, soft, laminated, highly (Continued) |                           | 0                     | 65.7 - 69.7<br>4.0   | 2.2       | -<br>55 - |  |  |
| - 69<br>- 70          |                   | For the delication with and decrease  |                           |                       | 69   |           |           |  |  |
|                       |                   | Fractured, highly weathered, decompose with quartz and calcite on limestone su                          | rface at 69.7'            | 0                     | 69.7 - 70.7<br>1.0   | 0.3       | 30        |  |  |
| - 71<br>- 72<br>- 73  |                   | With quartz and chlorite on limestone s 70.7'   | urfaces at                | 0                     | 70.7 - 73.2  | 0.4       | 16 _      |  |  |
| - 74                  |                   |   |                           | 0                     | 73.2 - 75.7  | 0.8       | 32        |  |  |
| - 75                  |                   |   |                           |                       | 2.5  | 0.0       | _         |  |  |
| - 76                  |                   |   |                           |                       | 75   |           |           |  |  |
| - 77<br>- 78   78.2   | 675.7             |   |                           | 0                     | 75.7 - 78.2   78.2   78.5   78 | 1.3       | 52 _      |  |  |
| - 79                  | 073.7             | Shale, dark gray, soft, highly weathered decomposed   | d, fractured,             |                       | 78.2   |           |           |  |  |
| - 80                  | 070.0             |   |                           | 0                     | 78.2 - 80.7  | 1.3       | 52<br>—   |  |  |
| - 81 <u>80.7</u>      | 673.2             | Interbedded Limestone And Shale, ligh hard, weathered, fractured  | t gray, fine,             |                       |  |           |           |  |  |
| - 82                  |                   | Shale, dark gray, soft, laminated to ver  | y thin bedded,            |                       |  |           | _         |  |  |
| - 83                  |                   | weathered, decomposed, fractured  |                           | 0                     | 80.7 - 85.7<br>5.0   | 1.5       | 30 -      |  |  |
| - 84<br>05            |                   |   |                           |                       |  |           | _         |  |  |
| - 85<br>- 86          |                   |   |                           |                       |  |           |           |  |  |
| - 86<br>- 87          |                   |   |                           |                       |  |           | -         |  |  |
| - 88                  |                   |   |                           | 0                     | 85.7 - 90.7  | 2.3       | 46 -      |  |  |
| - 89                  |                   |   |                           |                       | 5.0  |           | _         |  |  |
| - 90                  |                   |   |                           |                       |  |           | _         |  |  |



Page: 5 of 5

| Client Tennessee Valley Authority Project Number 182003369 Surface Elevation 753.9 ft Elevation Datum Nov0202  Lithology Depth Ft Elevation Graphic Description Project Number 182003369 Overburden: Sample 19 Depth Ft Rec. Ft Rec. 19 Blowe/PSI Rock Core: ROD 19 Run Ft Rec. Ft Rec. 19 Blowe/PSI Rock Core: ROD 19 Run Ft Rec. Ft Rec. 19 Blowe/PSI Rock Core: ROD 19 Run Ft Rec. Ft Rec. 19 Rec.  |  | Client               | Boreho    | le IDN/A       | 1  | Stantec Boring                                | g١ | lo. AD-2              | ?-D                   |              |         |                           |
|--|--|----------------------|-----------|----------------|--|---|----|-----------------------|-----------------------|--------------|---------|---------------------------|
| Lithology  Depth Ft <sup>2</sup> Elevation Graphic  Description  Description  Rock Core: RQD % Run Ft Rec. Ft Rec. %  Rock Core: RQD % Run Ft Rec. Ft Rec. %  Interbedded Limestone And Shale, light gray, fine, hard, weathered, fractured weathered, decomposed, fractured (Continued)  93  94  95  95.7 658.2  Limestone, light gray, fine, hard, weathered, fractured with calcite and quartz on surfaces  100  100.7 653.2  Bottom of Hole at 100.7 Ft.  Top of Rock = 52.5 Ft.  Top of Rock Elevation = 701.4 Ft. Begin Core = 52.8 Ft.  |  | Client               |           | Tennes         | see Valley Authority   |   |    |                       |                       |              |         |                           |
| Depth Ft3 Elevation Graphic Description Rock Core: RQD % Run Ft Rec. Ft Rec. %  Interbedded Limestone And Shale, light gray, fine, hard, weathered, fractured Shale, dark gray, soft, laminated to very thin bedded, weathered, decomposed, fractured (Continued)  93 95.7 658.2  Limestone, light gray, fine, hard, weathered, fractured with calcite and quartz on surfaces  96 0 95.7 100.7 5.0  Bottom of Hole at 100.7 Ft.  Top of Rock = 52.5 Ft. Top of Rock = 52.8 Ft. Top of Rock Elevation = 701.4 Ft. Begin Core = 52.8 Ft.   |  | Proje                | ct Numb   | er182603       | 369  | Surface Elevation 753.9 ft Elevation Datum NG |    |                       |                       |              | NGVD29  |                           |
| Interbedded Limestone And Shale, light gray, fine, hard, weathered, fractured  Shale, dark gray, soft, laminated to very thin bedded, weathered, decomposed, fractured (Continued)  93  94  95  96  97  98  100  100.7 653.2 Bottom of Hole at 100.7 Ft.  Top of Rock = 52.5 Ft. To |  |                      | Lithology | ,              |  | Overburden:                                   |    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |              | Rec. Ft | Blows/PSI                 |
| hard, weathered, fractured  Shale, dark gray, soft, laminated to very thin bedded, weathered, decomposed, fractured (Continued)  95  95.7 658.2  Limestone, light gray, fine, hard, weathered, fractured with calcite and quartz on surfaces  0 95.7 - 100.7  98  99  100  100.7 653.2  Bottom of Hole at 100.7 Ft.  Top of Rock = 52.5 Ft.  Top of Rock Elevation = 701.4 Ft.  Begin Core = 52.8 Ft.  | D  | epth Ft <sup>3</sup> | Elevation | on Graphic     | Description  | Rock Core:                                    |    | RQD %                 | Run Ft                |              | Rec. Ft | Rec. %                    |
| Limestone, light gray, fine, hard, weathered, fractured with calcite and quartz on surfaces  Under the content of the content  | - 9:<br>- 9:<br>- 9:   | 2<br>3<br>4<br>5     |           |                | hard, weathered, fractured  Shale, dark gray, soft, laminated to ve  | ery thin bedded,                              |    | 0                     |                       | 90.7 - 95.7  | 2.3     | 46 -                      |
| Bottom of Hole at 100.7 Ft.  Top of Rock = 52.5 Ft.  Top of Rock Elevation = 701.4 Ft.  Begin Core = 52.8 Ft.  | - 9i<br>- 9i   | 3 3 9 00 00          |           |                |  | thered, fractured                             |    | 0                     |                       | 95.7 - 100.7 | 1.2     | -<br>24 <sup>-</sup><br>- |
|  | i.log Kif_JACATUR, REV 4_20220819.GPJ TDEC SUBSURF DT 20190530.GDT 8/19/22 |                      |           | G =<br>2: a,b, | Top of Rock = 52.5 Ft. Top of Rock Elevation = 701.4 Ft. Begin Core = 52.8 Ft.  Environmental Sample Custody (two Sp. Geotechnical Sample Custody c denote Split Spoon divided between E | nvironmental and G                            |    |                       |                       | mple         | )       | -<br>-<br>-<br>-<br>-     |



## **GW-02**

| Drilling Company: | Tri-State Drilling | Start Date: | 080910 | Logged By:         |  |
|-------------------|--------------------|-------------|--------|--------------------|--|
| Driller:          | G.Akins            | End Date:   | 082310 | R.Josefczyk, R.Lee |  |

| Sample | Blow<br>Counts | Recovery<br>(ft) | PID (ppm) | Depth<br>(ft bgs) | Lithology | Description   |
|--------|----------------|------------------|-----------|-------------------|-----------|---|
| -      | 6656           | 1.6              | 0.0       |                   | 20:20     | gravel (GP) fill  |
|        | 5675           | 1.4              | 0.0       |                   |           | gravel (GP) fill SILTY CLAY (CL) dark yellowish brown (10YR4/4) with less   |
|        | 2443           | 1.2              | 0.0       | 5 <u></u>         |           | than 10% gravel, damp. SILTY CLAY (CL) dark yellowish brown (10YR4/4) with less than 10% gravel, damp.            |
|        | 3588           | 1.8              | 0.0       |                   |           | SILTY CLAY (CL) dark yellowish brown (10YR4/4) and yellowish brown (10YR5/4) with less than 10% gravel, damp.     |
|        | 2579           | 1.8              | 0.0       |                   |           | SILTY CLAY (CL) dark yellowish brown (10YR4/4) and light brownish gray (10YR6/2) with less than 10% gravel, damp. |
|        | NA             | 1.0              | 0.0       | <del>-10-</del>   |           | shelby tube   |
|        | 5 7 7 10       | 2.2              | 0.0       | -                 |           | SILTY CLAY (CL) yellowish red (5YR4/6) manganese staining, with approximately 25% sandstone gravel.               |
|        | 0.045.04       |                  |           |                   |           | CLAY (CL) brown (7.5 YR4/4) minor silt  |
|        | 8 9 15 21      | 1.9              | 0.0       |                   |           | shale dark grayish brown (2.5YR4/2) weathered, friable  |
|        | F 40 47 7      | 4.0              | 0.0       | <del></del>       |           | slough  |
|        | 5 13 17 7      | 1.9              | 0.0       |                   |           | shale dark grayish brown (2.5YR4/2) weathered, friable  |
|        | 7769           | 1.4              | 0.0       |                   |           | sandstone olive brown (2.5Y4/3) fine-medium grained<br>shale dark grayish brown (2.5YR4/2) weathered              |
|        | 7709           | 1.4              | 0.0       |                   | ===       | Shale dark grayish brown (2.5 f K4/2) weathered   |
|        | 9 50/4"        | 1.2              | 0.0       | <u>20</u> _       |           |   |
|        |                |                  |           |                   |           | auger refusal at 20 ft bgs  |
|        |                |                  |           | L _               | 1         |   |
|        |                |                  |           | L -               | 1         |   |
|        |                |                  |           |                   | 1         |   |
|        |                |                  |           | 25                | 1         |   |
|        |                |                  |           | L -               | 4         |   |
|        |                |                  |           | <u> </u>          | -         |   |
|        |                |                  |           |                   | 1         |   |
|        |                |                  |           | <u> </u>          | -         |   |
|        |                |                  |           | <del>30</del>     | -         |   |
|        |                |                  |           | <u> </u>          | -         |   |
|        |                |                  |           | <u> </u>          | +         |   |
|        |                |                  |           | -                 | 1         |   |
|        |                |                  |           | <u> </u>          | 1         |   |
|        |                |                  |           | <del>35</del>     | †         |   |
|        |                |                  |           | <u> </u>          | †         |   |
|        |                |                  |           |                   | 1         |   |
|        |                |                  |           | <u> </u>          | 1         |   |
|        |                |                  |           | <b>–</b>          | 1         |   |

#### Notes:

NA = not applicable solid sample = shelby tube 2-inch steel split spoons used for SPT Drill Rig: Drilling Method: Total Depth (ft bgs): 1st Water Encountered (ft bgs): Water Level after 24 hr (ft bgs): Central Mining Equipment 55 Hollow Stem Auger 20 ft bgs 17 ft bgs NA

#### **Tennessee Valley Authority**

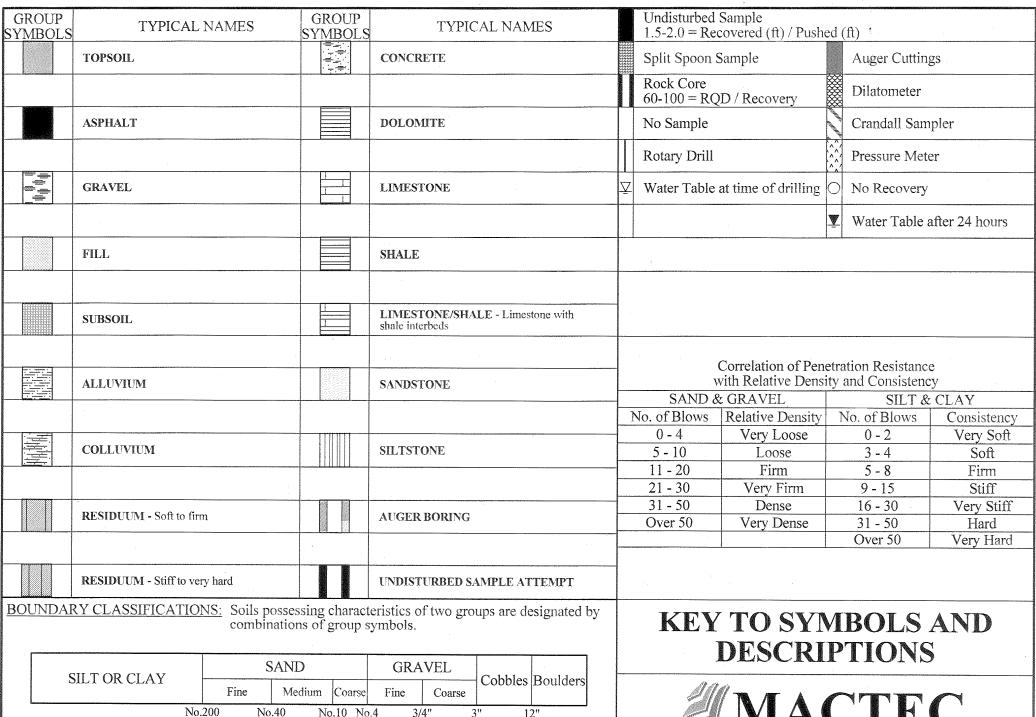
Kingston Fossil Plant

KIF

Harriman, TN, 37748

Page

1



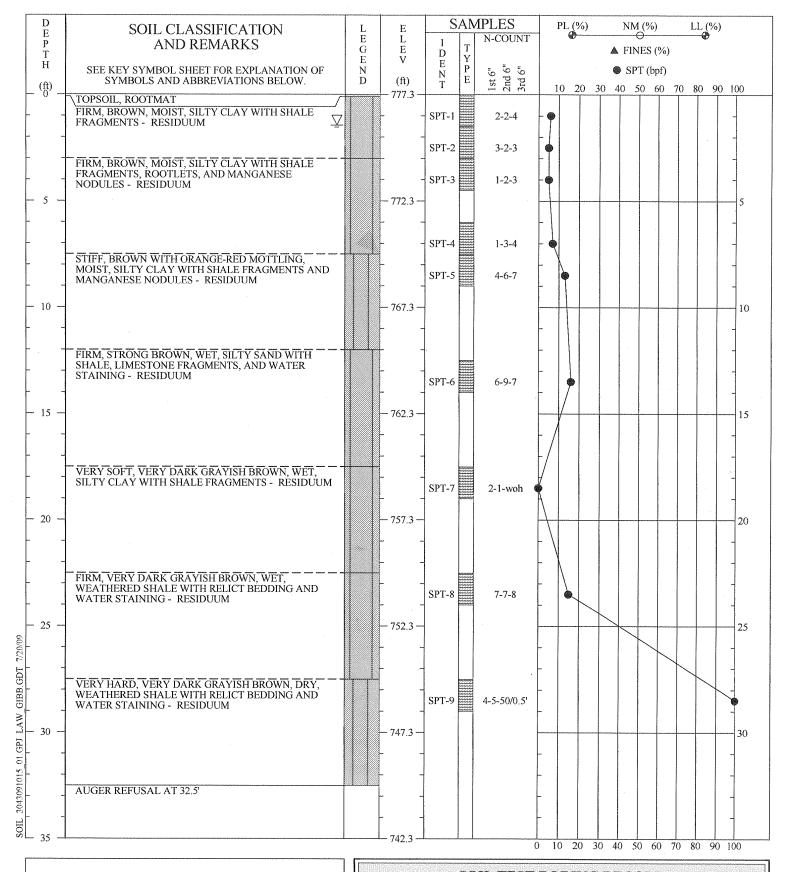
U.S. STANDARD SIEVE SIZE

Reference: The Unified Soil Classification System, Corps of Engineers, U.S. Army Technical

Memorandum No. 3-357, Vol. 1, March, 1953 (Revised April, 1960)

# MACTEC

MACTEC Engineering and Consulting of Georgia, Inc. 9725 Cogdill Road Knoxville, Tennessee 37932 865-588-8544 \* Fax: 865-588-8026



REMARKS: STANDARD PENETRATION RESISTANCE TESTING PERFORMED USING AN AUTOMATIC HAMMER.

#### SOIL TEST BORING RECORD

**PROJECT:** TVA - Kingston Monitoring Well Installation

**DRILLED:** May 5, 2009

**BORING NO.:** MW-AD1

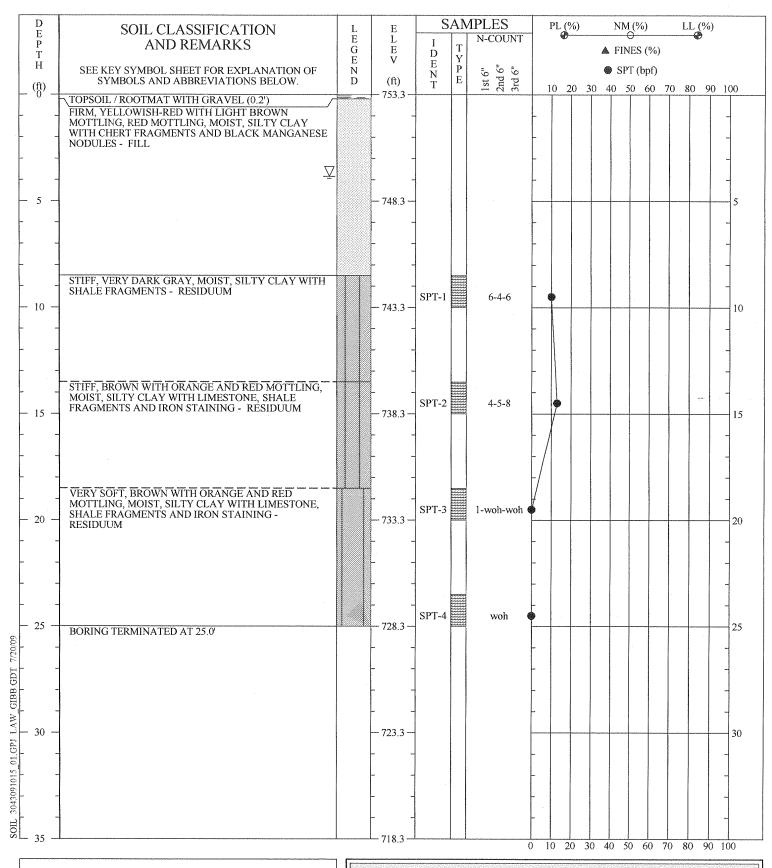
**PROJ. NO.:** 3043-09-1015

PAGE 1 OF 1

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Driller : Tri-State Logged By: N.J.S. Checked By: H.A.B.





REMARKS: STANDARD PENETRATION RESISTANCE TESTING PERFORMED USING AN AUTOMATIC HAMMER.

#### SOIL TEST BORING RECORD

**PROJECT:** TVA - Kingston Monitoring Well Installation

DRILLED: March 18, 2009

**BORING NO.:** MW-AD2

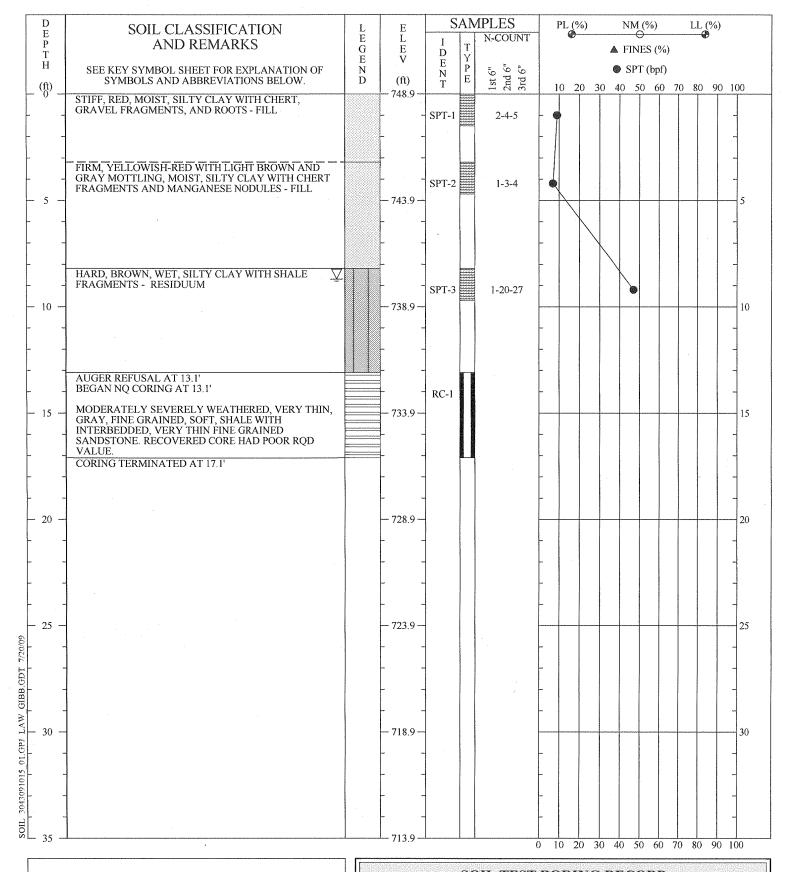
PROJ. NO.: 3043-09-1015

PAGE 1 OF 1

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Driller: Tri-State Logged By: N.J.S. Checked By: H.A.B.





REMARKS: STANDARD PENETRATION RESISTANCE TESTING PERFORMED USING AN AUTOMATIC HAMMER.

## SOIL TEST BORING RECORD

**PROJECT:** TVA - Kingston Monitoring Well Installation

**DRILLED:** April 3, 2009

**BORING NO.:** MW-AD3

**PROJ. NO.:** 3043-09-1015

PAGE 1 OF 1

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Driller: Tri-State Logged By: N.J.S. Checked By: H.A.B





Page: 1 of 1

| Client Borehole ID N/A                                | Stantec Boring No. KIF-102  |
|---|---|
| Client Tennessee Valley Authority                     | Boring Location 576,056.37 N; 2,406,617.47 E NAD83                        |
| Project Number _ 175668043                            | Surface Elevation 790.6 ft Elevation Datum NGVD29                         |
| Project Name KIF TDEC Order                           | Date Started _ 11/5/18 _ Completed _ 11/5/18                              |
| Project Location Harriman, Tennessee                  | Depth to Water N/A Date/Time N/A  |
| Inspector G. Budd Logger G. Budd                      | Depth to Water N/A Date/Time N/A  |
| Drilling Contractor Stantec Consulting Services Inc.  | Drill Rig Type and ID_CME 850XR, #953                                     |
| Overburden Drilling and Sampling Tools (Type and Size | e)4-1/4" HSA, 3" SS w/o liners  |
| Rock Drilling and Sampling Tools (Type and Size)N/    | A   |
| Overdrill Tooling (Type and Size) N/A                 | Overdrill Depth N/A   |
| Sampler Hammer Type Automatic Weight 140              | Drop <u>30</u> Efficiency <u>N/A</u>                                      |
| Borehole AzimuthN/A (Vertical)                        | Borehole Inclination (from Vertical)N/A                                   |
| Reviewed By C. Kocka                                  | Approved By L. Price  |
| Lithology   | Overburden: Sample <sup>1,2</sup> Depth Ft <sup>3</sup> Rec. Ft Blows/PSI |

|            | Littlology         |           | Overburden.                         | ,   | Jampie     | Беритт |       | Nec. I t  | DIOWS/F31 |         |             |
|------------|--------------------|-----------|-------------------------------------|---|------------|--------|-------|-----------|-----------|---------|-------------|
| Dep        | th Ft <sup>3</sup> | Elevation | Graphic                             | Description   | Rock Core: |        | RQD % | Run Ft    |           | Rec. Ft | Rec. %      |
| - 0        | 0.0                | 790.6     |                                     | Top of Hole   |            |        |       |           |           |         |             |
| - 1        | 0.3                | 790.3     |                                     | Grass and Topsoil with gravel, trace aspha<br>LEAN CLAY, CL, 7.5YR 4/4 (brown), low p<br>firm, moist, with fragments of siltstone |            |        | SS01G | 0.0 - 1.5 | 0.0 - 1.5 | 1.3     | 7-4-5       |
| - 2<br>- 3 |                    |           |                                     | Color change to 7.5YR 4/6 (strong brown)  | at 1.5'    |        | SS02G | 1.5 - 3.0 | 1.5-3.0   | 1.4     | 3-6-7       |
| - 4        |                    |           |                                     |   |            |        | SS03G | 3.0 - 4.5 | 3.0 - 4.5 | 1.5     | 5-10-15     |
| - 5<br>- 6 |                    |           |                                     | Color change to 10YR 4/6 (dark yellowish dry, with abundent weathered interbedded shale, sandstone at 4.5'                        | ,.         |        | SS04G | 4.5 - 6.0 | 4.5 - 6.0 | 1.5     | 10-30-28    |
| - 7        | 7.5                | 783.1     |                                     | Color change to 10YR 5/6 (yellowish brown weathered siltstone at 6.0'   | n), hard,  |        | SS05G | 6.0 - 7.5 | 6.0 - 7.5 | 1.5     | 24-36-45    |
| - 8        |                    |           | X                                   | Siltstone, brown and gray, hard, weathered  | d          |        | SS06G | 7.5 - 8.3 | 7.5-8.3   | 0.8     | 31-50+/4" _ |
| - 9        | 9.8                | 780.8     | × × × × × × × × × × × × × × × × × × |   |            |        | SS07G | 9.0 - 9.8 | 9.0 - 9.  | 0.8     | 43-50+/4"   |

Refusal /

Bottom of Hole at 9.8 Ft.

Top of Rock = 7.5 Ft.

Top of Rock Elevation = 783.1 Ft.

<sup>1:</sup> E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody

<sup>2:</sup> a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples

<sup>3:</sup> Depths are reported in feet below ground surface



| C          | lient E   | Borehole    | IDN/A                                   | 4   | Stantec Boring No. KIF-102a                                      |          |   |                       |         |         |              |  |  |  |
|------------|---|-------------|---|---|--|----------|---|-----------------------|---------|---------|--------------|--|--|--|
| _ c        | lient   |             | Tennes                                  | ssee Valley Authority   | Boring Lo  | cation   | 576,046.3   | 37 N; 2,406,617       | 7.47    | E NAD83 | 3            |  |  |  |
| P          | roject  | Number      | 175668                                  | 3043  | Surface E  | levati   | on <u>789.8</u> ft  | Elevation             | on E    | Datum_  | NGVD29       |  |  |  |
| P          | roject  | Name        | KIF TD                                  | EC Order  | Date Star  | ted      | 11/6/18   | Comple                | eted    | 11/6/   | 18           |  |  |  |
| P          | roject  | Location    | n Ha                                    | rriman, Tennessee   | Depth to Water N/A Date/Time N/A                                 |          |   |                       |         |         |              |  |  |  |
| lr         | spect   | or G. B     | udd                                     | Logger G. Budd  | Depth to   | Water    | N/A   | Date/Ti               | me      | N/A     |              |  |  |  |
|            | rilling   | Contract    | tor Sta                                 | antec Consulting Services Inc.                                    | Drill Rig T  | уре а    | ind ID CME  | 850XR, #953           |         |         |              |  |  |  |
| <b> </b> c | verbu   | ırden Dril  | ling and                                | Sampling Tools (Type and Size)                                    | 4-1/4" HS/   | A, 3" SS | S w/o liners  |                       |         |         |              |  |  |  |
| R          | ock D   | rilling an  | d Samp                                  | ling Tools (Type and Size) N/A                                    | ı  |          |   |                       |         |         |              |  |  |  |
| _ c        | verdr   | ill Tooling | g (Type                                 | and Size) N/A   |  |          |   | Overdrill             | l De    | pth _   | N/A          |  |  |  |
|            |   |             |   | Automatic Weight 140  |  |          |   | Efficiency            | _       | N/A     |              |  |  |  |
|            |   |             |   | N/A (Vertical)  |  |          | -   | Vertical) _           | N/      | A       |              |  |  |  |
| R          | eview   | ed By       | C. Ko                                   | ocka  | Approved   | Ву       | L. Price  |                       |         |         |              |  |  |  |
|            |   | Lithology   |   |   | Overbur  | den:     | Sample <sup>1,2</sup>   | Depth Ft <sup>3</sup> |         | Rec. Ft | Blows/PSI    |  |  |  |
| Dep        | th Ft <sup>3</sup>  | Elevation   | Graphic                                 | Description   | Rock C   | ore:     | RQD %   | Run Ft                |         | Rec. Ft | Rec. %       |  |  |  |
| - 0        | 0.0   | 789.8       |   | Top of Hole   | '  |          |   |                       |         |         |              |  |  |  |
| - 0        | 0.3 789.5 Figure 2. Grace and Topcoil with gravel trace asphalt |             |   |   |  |          |   |                       |         |         |              |  |  |  |
| - 1        |   |             |   | LEAN CLAY, CL, 7.5YR 4/4 (brown), low plasticity,                 |  |          |   |                       |         |         |              |  |  |  |
|            |   |             |   | _   | ft, moist, with fragments of siltstone, organics                 |          |   |                       |         |         |              |  |  |  |
| - 2        |   |             |   | Color change to 7.5YR 4/6 (strong bro                             | solor change to 7.5YR 4/6 (strong brown) at 1.5' SS02G 1.5 - 3.0 |          |   |                       |         | 3-3-6   |              |  |  |  |
| - 3        |   |             |   |   |  |          |   |                       | 0       |         | _            |  |  |  |
|            |   |             |   |   |  |          | SS03G   | 3.0 - 4.5             | 3.0-    | 1.5     | 6-9-12       |  |  |  |
| - 4        |   |             |   |   |  |          | 33030   | 3.0 - 4.3             | 4.5     | 1.5     | 0-9-12       |  |  |  |
| - 5        |   |             |   | Color change to 10YR 4/6 (dark yellow                             | vish brown)  |          |   |                       | 4.      | 1       | _            |  |  |  |
| ľ          |   |             |   | with interbedded fragments of siltstone                           | e and shale at   | t        | SS04G   | 4.5 - 6.0             | 5 - 6.0 | 1.5     | 8-9-18       |  |  |  |
| - 6        |   |             |   | 4.5'  |  |          |   |                       |         | -       | _            |  |  |  |
| _          |   |             |   |   |  |          | SS05G   | 6.0 - 7.5             | 6.0 - 7 | 1.5     | 11-15-27     |  |  |  |
| <b>-</b> 7 | 7.3   | 782.5       | $\times \times \times \times$           | 0:11  |  |          |   |                       | .55     |         | _            |  |  |  |
| - 8        |   |             | × × × × × × × × × × × × × × × ×         | Siltstone, brown and gray, very stiff to weathered with some clay | nard, dry,   |          | 00000   | 7.5 0.0               | 7.5     | 4.5     | 20 22 27     |  |  |  |
|            |   |             | × × × × × × × × × × × × × × × ×         | ,   |  |          | SS06G   | 7.5 - 9.0             | 9.0     | 1.5     | 20-32-27     |  |  |  |
| - 9        |   |             | × × × ×                                 |   |  |          |   |                       | 9.0-    | 1       | -            |  |  |  |
| - 10       | 10.2  | 779.6       |   |   |  |          | SS07G   | 9.0 - 10.2            | - 10.2  | 1.2     | 20-41-50+/2" |  |  |  |
|            |   |             | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | No Refusal /  |  |          |   |                       |         |         |              |  |  |  |
|            | Bottom of Hole at 10.2 Ft.                                      |             |   |   |  |          |   |                       |         |         |              |  |  |  |
|            |   |             |   |   |  |          |   |                       |         |         |              |  |  |  |
|            |   |             |   |   |  |          |   |                       |         |         |              |  |  |  |
|            |   |             |   |   |  |          |   |                       |         |         | -            |  |  |  |
|            |   |             |   |   |  |          |   |                       |         |         |              |  |  |  |
|            |   |             |   |   |  |          |   |                       |         |         | _            |  |  |  |
|            |   |             |   |   |  |          |   |                       |         |         | _            |  |  |  |
|            |   |             | 1: E =                                  | Environmental Sample Custody (two Spli                            | it Spoons ma   | y be red | quired to obtai   | n sufficient san      | nple)   | )       |              |  |  |  |
|            |   |             | G =                                     | Geotechnical Sample Custody                                       |  |          |   |                       | . ,     |         | _            |  |  |  |
| l          |   |             |   |   |  | and Gel  | 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples<br>3: Depths are reported in feet below ground surface |                       |         |         |              |  |  |  |



|      | Client Borehole ID N/A Stantec Boring No. KIF-103 |             |          |   |   |       |                           |                       |             |         |             |
|------|---|-------------|----------|---|---|-------|---------------------------|-----------------------|-------------|---------|-------------|
|      | Client  |             | -        | ssee Valley Authority   | Boring Location                                     |       |                           | 43 N; 2,410,351       | .42         | E NAD83 |             |
|      |   | Number      |          |   | Surface Eleva                                       |       |                           | Elevation             |             |         |             |
|      | -   | Name        |          |   | Date Started  |       | 10/2/18 Completed 10/3/18 |                       |             |         |             |
|      | -   | Location    |          | rriman, Tennessee   | Depth to Wate                                       |       | 28.0 ft                   | Date/Tii              |             |         |             |
|      | -   | or G. B     |          | Logger G. Budd  | Depth to Wate                                       |       | N/A                       | <br>Date/Tii          |             |         |             |
|      | •   |             |          | intec Consulting Services Inc.  | Drill Rig Type                                      |       | ID CME                    |                       |             |         |             |
|      | •   |             |          | Sampling Tools (Type and Size)  | 0 7.  |       |                           |                       |             |         |             |
| F    | Rock D  | rilling an  | d Samp   | ling Tools (Type and Size) N/A  |   |       |                           |                       |             |         |             |
| (    | Overdri   | ill Tooling | (Type    | and Size) 8-1/4" HSA overdrill of bo  | ring  |       |                           | Overdrill             | De          | epth _  | 35.5 ft     |
| 5    | Sample  | er Hamme    | er Type  | Automatic Weight 140  | Drop _3   | 30    |                           | Efficiency            |             | N/A     |             |
| E    | 3oreho  | le Azimu    | th       | N/A (Vertical)  | Borehole Incli                                      | natio | on (from                  | Vertical)             | N/          | A       |             |
| F    | Review  | ed By _     | C. Ko    | cka   | Approved By   | L     | . Price                   |                       |             |         |             |
|      | ı   | Lithology   |          |   | Overburden:   | Sa    | ample <sup>1,2</sup>      | Depth Ft <sup>3</sup> |             | Rec. Ft | Blows/PSI   |
| De   | pth Ft <sup>3</sup>                               | Elevation   | Graphic  | Description   | Rock Core:  | F     | RQD %                     | Run Ft                |             | Rec. Ft | Rec. %      |
| - 0  | 0.0   | 756.7       |          | Top of Hole   | ·   |       |                           |                       |             |         | _           |
| - 0  |   |             |          | LEAN CLAY, CL, 5YR 5/6 (yellowish re  | ed), soft, dry,                                     |       | 0004                      | 00.45                 | 0.0         |         | 400         |
| - 1  |   |             |          | with grass sod, [FILL] Fragments of tan chert from 0.0' to 1.5              |   |       | SS01                      | 0.0 - 1.5             | 0.0 - 1.5   | 0.9     | 4-3-2       |
| - 2  |   |             |          | Limestone gravel fragments and chert  |   |       |                           |                       | -           |         | _           |
|      |   |             |          | 3.2'  |   |       | SS02                      | 1.5 - 3.0             | .5 - 3.0    | 0.4     | 2-2-4       |
| - 3  | 3.2   | 753.5       |          |   |   |       |                           |                       |             | - 1     | -           |
| - 4  |   |             | 8 8 8    |   | DORLY GRADED GRAVEL, GP, loose, dry, SS03 3.0 - 4.5 |       |                           |                       |             |         | 6-10-14     |
| - 4  |   |             | 8 8 8    | limestone, [FILL]   |   |       |                           |                       | .5          |         | _           |
| - 5  |   |             | 8 8 8    |   |   |       | SS04                      | 4.5 - 6.0             | 4.5 - 6.0   | 1.0     | <br>11-8-11 |
| - 6  |   |             | 8 8 8    |   |   |       |                           |                       | 6.0         |         |             |
| Ü    |   |             | 8 8 8    |   |   |       | 0005                      | 00.75                 | 6.0         |         | 7.5.0       |
| - 7  | 7.2   | 749.5       |          |   |   |       | SS05                      | 6.0 - 7.5             | 6.0 - 7.5   | 0.8     | 7-5-3       |
| - 8  | 7.7   | 749.0       | ///      | WELL GRADED SAND, SW, loose, dr   | y, [FILL]   |       |                           |                       | 7.5         |         | _           |
| Ü    |   |             |          | LEAN CLAY, CL, 5YR 4/6 (yellowish re  | ed), soft, moist,                                   |       | SS06                      | 7.5 - 9.0             | .5 - 9.0    | 1.0     | 2-1-2       |
| - 9  | 9.4   | 747.3       |          | with coal fragments   |   |       |                           |                       | 9           | 1       | _           |
| - 10 | 9.6   | 747.1       |          | SAND, SM, 10YR 5/1 (gray), fine, loos                                       | e, dry  |       | SS07                      | 9.0 - 10.5            | 9.0 - 10.5  | 0.9     | 1-1-2       |
|      | 11.0  | 745 7       |          | LEAN CLAY, CL, 7.5YR 6/1 (gray) and   | 17.5YR 5/8  |       |                           |                       | 5           | - 1     |             |
| - 11 | 11.0  | 745.7       |          | (strong brown), soft, moist, mottled  |   |       | SS08                      | 10.5 - 12.0           | 10.5 - 12.0 | 1.2     | 2-6-5       |
| - 12 |   |             |          | LEAN CLAY, CL, 10YR 5/4 (yellowish  | <i>'</i>  |       |                           |                       | 2.0         |         | -           |
| -    |   |             |          | stiff, moist, with weathered siltstone fra                                  | agments   |       | SS09                      | 12.0 - 13.5           | 12.0-       | 0.9     | 4-6-7       |
| - 13 | 13.5  | 743.2       |          |   |   |       | 5509                      | 12.0 - 13.3           | 2.0 - 13.5  | 0.9     | 4-0-7       |
| - 14 |   |             |          | LEAN CLAY, CL, 10YR 4/1 (dark gray)   | ), firm to stiff,                                   |       |                           |                       | 13.5        |         | -           |
|      |   |             |          | moist, with interbedded fragments of li                                     | mestone and   |       | SS10                      | 13.5 - 15.0           | 3.5 - 15.0  | 0.9     | 13-13-15    |
| - 15 |   |             |          | siltstone   |   |       |                           |                       |             |         | _           |
| - 16 | 15.9  | 740.8       |          |   |   |       | SS11                      | 15.0 - 16.5           | 15.0 - 16.5 | 1.4     | 10-5-3      |
|      |   |             |          | FAT CLAY, CH, 7.5YR 5/6 (strong browstiff, moist, with trace very fine sand | wn), soft to  |       |                           |                       |             |         |             |
| - 17 |   |             |          | Sun, moist, with trace very line Salid                                      |   |       | SS12                      | 16.5 - 18.0           | 16.5 - 18.0 | 1.4     | 3-4-7       |
| - 18 | 18.0  | 738.7       |          |   |   |       |                           |                       |             |         | -           |
|      |   |             |          | FAT CLAY, CH, 7.5YR 5/6 (strong brown state with transport fine and         | wn), soft,  |       | SS13                      | 18.0 - 19.5           | 18.0 - 19.  | 1.4     | 1-3-3       |
| 49   |   | I           | <u> </u> | moist, with trace very fine sand  |   | шШ    | 5515                      | 10.0 - 13.0           | Ċn          | 1.7     | 1-0-0       |



Page: 2 of 2

Stantec Boring No. KIF-103 Client Borehole ID N/A Client Tennessee Valley Authority **Boring Location** 575,021.43 N; 2,410,351.42 E NAD83 Project Number 175668043 Surface Elevation 756.7 ft Elevation Datum NGVD29

|                         |                    | Lithology      |         |   | Overburden:   | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>   | Rec. Ft | Blows/PSI  |
|-------------------------|--------------------|----------------|---------|---|---------------|-----------------------|-------------------------|---------|------------|
| Dep                     | th Ft <sup>3</sup> | Elevation      | Graphic | Description   | Rock Core:    | RQD %                 | Run Ft                  | Rec. Ft | Rec. %     |
| - 19<br>- 20            |                    |                |         | FAT CLAY, CH, 7.5YR 5/6 (strong brown) moist, with trace very fine sand (Continue                                       |               | SS14                  | 19.5 - 21.0             | 0.6     | 2-3-4 –    |
| - 21<br>- 22            |                    |                |         |   |               | SS15                  | 21.0 - 22.5             | 0.6     | 6-7-7<br>_ |
| - 23<br>- 24            | 23.1               | 733.6          |         | LEAN CLAY, CL, 10YR 4/1 (dark gray), so with interbedded fragments of limestone a                                       |               | SS16                  | 22.5 - 24.0             | 1.5     | 3-4-5      |
| - 25                    |                    |                |         | v   |               | SS17                  | 24.0 - 25.5             | 0.9     | 3-3-4 _    |
| - 26<br>- 27            |                    |                |         |   |               | SS18                  | 25.5 - 27.0 25.5 - 27.0 | 1.5     | 2-3-4      |
| l                       | 728.0<br>28.5      | 728.7<br>728.2 |         | LEAN CLAY, CL, 10YR 4/1 (dark gray), sc   | oft to stiff. | SS19                  | 27.0 - 28.5             | 1.5     | 4-5-5      |
| - 29                    |                    |                |         | moist to wet, with interbedded fragments of and siltstone, with very fine sand  | of limestone  | SS20                  | 28.5 - 30.0             | 1.5     | WH-WH-WH   |
| - 30<br>- 31            |                    |                |         | LEAN CLAY, CL, 10YR 4/6 (dark yellowisl and 10YR 5/2 (grayish brown), soft, moist, with fine sand                       | ,             | SS21                  | 30.0 - 31.5             | 1.5     | WH-3-4     |
| - 32                    | 33.0               | 723.7          |         | Soft to medium stiff from 31.5' to 33.0'  |               | SS22                  | 31.5 - 33.0             | 1.5     | WH-2-7     |
| - 33<br>- 34            | 34.5               | 722.2          |         | SANDY LEAN CLAY, CL, 10YR 4/6 (dark brown) and 10YR 5/2 (grayish brown), sof mottled, with trace fine subrounded gravel | t to stiff,   | SS23                  | 33.0 - 34.5             | 1.5     | 3-4-7      |
| - 35<br>- <del>36</del> | 36.0               | 720.7          |         | CLAYEY SAND, SC, 10YR 5/1 (gray) and (yellowish brown), very loose to loose, mo   |               | SS24                  | 34.5 - 36.0             | 1.5     | 3-5-7      |

No Refusal / Bottom of Hole at 36.0 Ft.

Boring converted to 4-inch monitoring well. See well installation notes.

2/9/20

<sup>1:</sup> E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody

<sup>2:</sup> a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples 3: Depths are reported in feet below ground surface



|      | Client Borehole ID N/A Stantec Boring No. KIF-104 |                |                                       |  |                            |      |                       |                       |          |         |            |
|------|---|----------------|---------------------------------------|--|----------------------------|------|-----------------------|-----------------------|----------|---------|------------|
|      | Client  | oorenoie       |                                       | see Valley Authority   | Boring Location            |      |                       |                       |          |         |            |
|      |   | <br>Number     |                                       |  | Surface Eleva              |      |                       | Elevatio              |          |         |            |
|      | -   | Name           |                                       | <del></del>  |                            |      | -                     | Comple                |          | -       |            |
|      | •   | Location       |                                       | riman, Tennessee   | Date Started Depth to Wate | _    |                       | Comple<br>Date/Ti     |          | 10/1/1  | ,          |
|      | •   | or G. B        |                                       | Logger G. Budd   | Depth to Wate              |      |                       | Date/Til              |          | N/A     |            |
|      | •   |                |                                       | ntec Consulting Services Inc.  | Drill Rig Type             |      |                       | <del></del>           | IIIC     |         |            |
|      | •   |                |                                       | Sampling Tools (Type and Size)   | 0 ,,                       |      |                       |                       |          |         |            |
|      |   |                | •                                     | ling Tools (Type and Size) N/A   | ,                          |      |                       |                       |          |         |            |
|      |   | _              | •                                     | and Size) N/A  |                            |      |                       | Overdrill             | De       | pth N   | N/A        |
|      |   | _              |                                       | Automatic Weight 140   | Drop 3                     | 0    |                       | —<br>Efficiency       | ı        | <br>\/A |            |
| E    | Boreho  | le Azimu       | th                                    | N/A (Vertical)   | Borehole Inclin            | nati | ion (from             | Vertical)             | N/       | A       |            |
| F    | Reviewed By E. Smith Approved By C. Kocka         |                |                                       |  |                            |      |                       |                       |          |         |            |
|      | ı   | _ithology      |                                       |  | Overburden:                | 5    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |          | Rec. Ft | Blows/PSI  |
| De   | oth Ft <sup>3</sup>                               | Elevation      | Graphic                               | Description  | Rock Core:                 |      | RQD %                 | Run Ft                |          | Rec. Ft | Rec. %     |
| - 0  | 0.0   | 754.5          |                                       | Top of Hole  |                            |      |                       |                       |          |         | _          |
| _ 0  |   |                | 0 0 0                                 | POORLY GRADED GRAVEL, GP, loos   | se, dry,                   |      | 00040                 | 00.45                 | 0.0      | 4.0     | -          |
| - 1  |   |                | 8 8 8 8<br>8 8 8                      | limestone, [FILL]  |                            |      | SS01G                 | 0.0 - 1.5             | -1.5     | 1.0     | 5-5-6      |
| - 2  |   |                |                                       |  |                            |      |                       |                       | 12       |         | _          |
|      |   |                | 0 0 0 0                               |  |                            |      | SS02G                 | 1.5 - 3.0             | 5 - 3.0  | 0.8     | 8-6-6      |
| - 3  |   |                |                                       |  |                            |      |                       |                       | (0)      |         | -          |
| - 4  |   |                | 8 8 8 8<br>8 8 8                      |  |                            |      | SS03G                 | 3.0 - 4.5             | .0 - 4.5 | 0.9     | 6-2-3      |
|      |   |                |                                       |  |                            |      |                       |                       |          |         |            |
| - 5  |   |                | 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 |  |                            |      | SS04G                 | 4.5 - 6.0             | 4.5 - 6. | 0.2     | 6-5-7      |
| - 6  |   |                |                                       |  |                            |      |                       |                       | 0        |         | -          |
|      | 6.9   | 747.6          | 8 8 8                                 | Brown sand from 6.0' to 6.9'   |                            |      | SS05aG                | 6.0 - 6.9             | 6.0 -    | 1.3     | 5-8-9      |
| - 7  | 7.3   | 747.2          |                                       | $_{ackslash}$ LEAN CLAY, CL, 7.5YR 3/3 (dark brow                              | n), firm to stiff, /       |      | SS05bG                | 6.9 - 7.5             | 7.5      |         | _          |
| - 8  |   |                |                                       | \dry   | /                          |      | SS06G                 | 7.5 - 9.0             | 7.5-     | 1.3     | 18-17-23   |
| - 9  |   |                |                                       | SILTY SAND, SM, 7.5YR 2.5/1 (black),   | loose, dry,                |      | 00000                 | 7.0 0.0               | 9.0      | 1.0     | 10 17 20   |
| - 9  |   |                |                                       | [CCR] Medium dense from 7.5' to 10.0'  |                            |      | 00070                 | 0.0 10.5              | 9.0      |         | 00.40.44   |
| - 10 | 10.0  | 744.5<br>744.0 |                                       | Moist from 9.0' to 10.0'   |                            |      | SS07G                 | 9.0 - 10.5            | 10.5     | 1.5     | 23-12-11 _ |
| - 11 |   |                |                                       | POORLY GRADED SAND WITH SILT,  | 1 1                        |      |                       |                       | 10.5     |         | _          |
|      |   |                |                                       | 10YR 6/4 (light yellowish brown) to 10Y yellowish brown), fine to medium, mois |                            |      | SS08G                 | 10.5 - 12.0           | 5 - 12.0 | 1.5     | 10-14-12   |
| - 12 | 12.5  | 742.0          |                                       | ¬ POORLY GRADED SAND, SP, 10YR 2   |                            |      | SS09aG                | 12.0 - 12.5           | 12       |         | -          |
| - 13 |   |                |                                       | medium dense, moist, fine to coarse, [6]                                       |                            |      | SS09bG                | 12.5 - 13.5           | .0 - 13. | 1.1     | 11-4-6     |
|      |   |                |                                       | Wet from 12.0' to 12.5'  |                            |      |                       |                       | 5        | 1       |            |
| - 14 | 14.6  | 739.9          |                                       | LEAN CLAY, CL, 10YR 5/4 (yellowish I   |                            |      | SS10G                 | 13.5 - 15.0           | 3.5 - 15 | 1.4     | 3-4-5      |
| - 15 | 15.0  | 739.5          |                                       | stiff, moist, with weathered siltstones, for Soft from 13.5' to 14.6'          | ragments                   |      |                       |                       | 5.0      |         | _          |
|      |   |                | $ \setminus $                         | FAT CLAY, CH, 5YR 4/6 (yellowish red   | ), soft, with              |      | SS11G                 | 15.0 - 16.5           | 15.0 -   | 0.0     | 2-4-4      |
| - 16 | 16.5  | 738.0          |                                       | fine sand  | ,,,                        |      |                       |                       | 16.5     |         | _          |
| - 17 |   |                |                                       | No recovery from 15.0' to 16.5'  |                            |      | SS12G                 | 16.5 - 18.0           | 16.5 -   | 1.5     | 3-7-7      |
| - 18 |   |                |                                       | SANDY FAT CLAY, CH, 5YR 4/6 (yello   | wish red), low             |      | 55,25                 |                       | 18.0 1   |         |            |
| 10   |   |                |                                       | plasticity, soft, moist  |                            |      | SS13G                 | 100 105               | 8.0 - 18 | 1 5     | 224        |
| 49   | 1   |                |                                       |  |                            | Ш    | তত।ত                  | 18.0 - 19.5           | š        | 1.5     | 2-2-4      |



Page: 2 of 2

| Client Boreh | ole ID N/A                 | Stantec Boring No. KIF-104                         |
|--------------|----------------------------|--|
| Client       | Tennessee Valley Authority | Boring Location 575,781.72 N; 2,411,399.23 E NAD83 |
| Project Num  | ber 175668043              | Surface Elevation 754.5 ft Elevation Datum NGVD29  |

|                       | Lithology |         |  | Overburden:  | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>      | Rec. Ft | Blows/PSI |
|-----------------------|-----------|---------|--|--------------|-----------------------|----------------------------|---------|-----------|
| Depth Ft <sup>3</sup> | Elevation | Graphic | Description  | Rock Core:   | RQD %                 | Run Ft                     | Rec. Ft | Rec. %    |
| 19 20 21.0            | 733.5     |         | SANDY FAT CLAY, CH, 5YR 4/6 (yellowis plasticity, soft, moist <i>(Continued)</i> | h red), low  | SS14G                 | 19.5 - 21.0                | 195     | 2-2-3     |
| 21 21.0 22 22.5       | 732.0     |         | CLAYEY SAND, SC, 5YR 4/6 (yellowish refine to fine, loose, moist                 | ed), very    | SS15G                 | 21.0 - 22.5                | 1.5     | 2-3-4     |
| 23                    | 730.5     |         | SANDY FAT CLAY, CH, 5YR 4/6 (yellowis very fine, very soft, moist                | h red),      | SS16G                 | 22.5 - 24.0                | 1.4     | WH-WH-WH  |
| 24 24.0               |           |         | CLAYEY SAND, SC, 5YR 5/8 (yellowish refine to fine, very loose, moist            | ed), very    | SS17G                 | 24.0 - 25.5                | 1.5     | WH-WH-WH  |
| 26                    |           |         |  |              | SS18G                 | 25.5 - 27.0                | 1.5     | WH-WH-WF  |
| 27<br>28<br>V28.5     | 726.0     |         |  |              | SS19G                 | 27.0 - 28.5                | 1.5     | WH-WH-WH  |
| 29                    | 720.0     |         | SILTY SAND, SM, 7.5YR 4/1 (dark gray), fine, very loose, wet                     | very fine to | SS20G                 | 28.5 - 30.0                | 385-300 | WH-WH-1   |
| 31                    |           |         |  |              | SS21G                 | 30.0 - 31.5                | 1.5     | WH-WH-WH  |
| 32                    |           |         |  |              | SS22G                 | 31.5 - 33.0                | 1.5     | WH-WH-WH  |
| 33 33.7<br>34         | 720.8     |         | SANDY LEAN CLAY, CL, 10YR 5/1 (gray)   | and 10VP     | SS23aG<br>SS23bG      | 33.0 - 33.7<br>33.7 - 34.5 | 1.5     | WH-2-2    |
| 35 36.0               | 718.5     |         | 3/4 (dark yellowish brown), very soft to sof with trace manganese                |              | SS236G<br>SS24G       | 34.5 - 36.0                | 1.5     | WH-2-3    |

No Refusal /

Bottom of Hole at 36.0 Ft.

Boring abandoned and backfilled with grout due to presence of CCR material. An off-set boring was advanced using 4-1/4 HSA and 8-1/4 HSA to 20'. 10-inch PVC casing is set to 20' bgs and backfilled with grout. The boring was then advanced to depth through the casing using 6"x8" roto-sonic drilling methods. The boring was advanced to a final depth of 36' bgs to facilitate the installation of monitoring well KIF-104.

7/7/20

<sup>1:</sup> E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody

<sup>2:</sup> a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples

<sup>3:</sup> Depths are reported in feet below ground surface



| С            | lient E            | Borehole  | IDN/A   | 4   | St             | tantec Borin      | g N  | lo. KIF-              | 104b                  |      |          |           |
|--------------|--------------------|-----------|---------|---|----------------|-------------------|------|-----------------------|-----------------------|------|----------|-----------|
| С            | lient              |           | Tennes  | ssee Valley Authority                                 |                | oring Locatio     |      |                       | 61 N; 2,411,402.      | 90 I | E NAD83  |           |
| Р            | roject             | Number    | 175668  | 3043  | Sı             | urface Eleva      | tio  | 755.1 ft              | Elevatio              | n D  | atum_r   | NGVD29    |
| Р            | roject             | Name      | KIF TD  | EC Order  | Da             | ate Started       |      | 10/29/18              | Complet               | ed   | 10/30    | /18       |
| Р            | roject             | Location  | Hai     | rriman, Tennessee                                     | De             | epth to Wate      | er _ | N/A                   | Date/Tin              | пе   | N/A      |           |
| Ir           | rspect             | or B. Ev  | ans     | Logger B. Evans                                       | De             | epth to Wate      | er _ | N/A                   | Date/Tin              | пе   | N/A      |           |
| D            | rilling            | Contract  | or Sta  | intec / M&W Drilling                                  | Dr             | rill Rig Type     | an   | d ID CME              | 850XR #853/Ge         | opr  | obe 8150 | )LS Sonic |
|              |                    |           | -       | Sampling Tools (Type and                              | Size) <u>4</u> | I-1/4" & 8-1/4" I | HS/  | 4 to 20'; 6"x         | 8" Sonic to depth     | 1    |          |           |
|              |                    | •         | •       | ling Tools (Type and Size)                            | N/A            |                   |      |                       |                       |      |          |           |
|              |                    |           |         | and Size) N/A   |                |                   |      |                       | Overdrill             |      |          | N/A       |
|              |                    |           | • •     |   | N/A            | Drop <u>N</u>     |      |                       | Efficiency            |      | N/A      |           |
|              |                    | le Azimut |         |   |                | orehole Incli     |      | •                     | Vertical)             | N/A  | Α        |           |
| K            | eview              | ed By _   | E. Sm   | 11LT1   | Ap             | oproved By        |      | C. Kocka              |                       |      |          |           |
|              |                    | _ithology |         |   |                | Overburden:       | ;    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |      | Rec. Ft  | Blows/PSI |
| Dep          | th Ft <sup>3</sup> | Elevation | Graphic | Description   |                | Rock Core:        |      | RQD %                 | Run Ft                |      | Rec. Ft  | Rec. %    |
| - 0          | 0.0                | 755.1     |         | Top of Hole   |                |                   |      |                       |                       |      |          |           |
| - 1          |                    |           |         | Boring offset due to CCR encour                       |                |                   |      |                       |                       |      |          | _         |
| - 2          |                    |           |         | Overburden not sampled. See K<br>overburden sampling. | .IF-104 DOI    | ring log for      |      |                       |                       |      |          | -         |
| - 3          |                    |           |         | 1 3   |                |                   |      |                       |                       |      |          | -         |
| - 4          |                    |           |         |   |                |                   |      |                       |                       |      |          | -         |
| - 5          |                    |           |         |   |                |                   |      |                       |                       |      |          | _         |
| - 6          |                    |           |         |   |                |                   |      |                       |                       |      |          | -         |
| - 7          |                    |           |         |   |                |                   |      |                       |                       |      |          | -         |
| - 8          |                    |           |         |   |                |                   |      |                       |                       |      |          | -         |
| - 9          |                    |           |         |   |                |                   |      |                       |                       |      |          | _         |
| - 10<br>     |                    |           |         |   |                |                   |      |                       |                       |      |          |           |
| - 11         |                    |           |         |   |                |                   |      |                       |                       |      |          | _         |
| - 12<br>- 13 |                    |           |         |   |                |                   |      |                       |                       |      |          | _         |
| - 13<br>- 14 |                    |           |         |   |                |                   |      |                       |                       |      |          | _         |
| – 15         |                    |           |         |   |                |                   |      |                       |                       |      |          | _         |
| – 16         |                    |           |         |   |                |                   |      |                       |                       |      |          | _         |
| - 17         |                    |           |         |   |                |                   |      |                       |                       |      |          | _         |
| - 18         |                    |           |         |   |                |                   |      |                       |                       |      |          | _         |
| - 19         |                    |           |         |   |                |                   |      |                       |                       |      |          | _         |
| - 20         |                    |           |         |   |                |                   |      |                       |                       |      |          | _         |
| - 21         |                    |           |         |   |                |                   |      |                       |                       |      |          | -         |
| - 22         |                    |           |         |   |                |                   |      |                       |                       |      |          | -         |
| - 23         |                    |           |         |   |                |                   |      |                       |                       |      |          | -         |
| - 24         |                    |           |         |   |                |                   |      |                       |                       |      |          | -         |
| - 25         |                    |           |         |   |                |                   |      |                       |                       |      |          | _         |
| - 26         |                    |           |         |   |                |                   |      |                       |                       |      |          | _         |
| - 27         |                    |           |         |   |                |                   |      |                       |                       |      |          | _         |
| - 28         |                    |           |         |   |                |                   |      |                       |                       |      |          | _         |
| - 29         |                    |           |         |   |                |                   |      |                       |                       |      |          | _         |



|   |             |                           | CC IVA   |                  |                       |                       | Page:   | 2 of 2           |
|---|-------------|---------------------------|--|------------------|-----------------------|-----------------------|---------|------------------|
| Client I  | Borehole II | ) N/A                     |  | Stantec Boring   | No. KIF-1             | 104b                  |         |                  |
| Client  |             | Tennes                    |  | Boring Locatio   |                       | 31 N; 2,411,402.90    | E NAD83 |                  |
| Project   | Number_     | 175668                    | 043  | Surface Elevat   | tion <u>755.1 ft</u>  | Elevation             | Datum_r | NGVD29           |
|   | Lithology   |                           |  | Overburden:      | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> | Rec. Ft | Blows/PSI        |
| Depth Ft <sup>3</sup>                           | Elevation ( | Graphic                   | Description  | Rock Core:       | RQD %                 | Run Ft                | Rec. Ft | Rec. %           |
| - 30<br>- 31<br>- 32<br>- 33<br>- 34<br>- 35 .0 | 720.1       |                           | Boring offset due to CCR encountered i<br>Overburden not sampled. See KIF-104<br>overburden sampling. (Continued)  |                  |                       |                       |         | -<br>-<br>-<br>- |
| 35   35.0                                       | 720.1       |                           | No Refusal / Bottom of Hole at 35.0 Ft.  |                  |                       |                       |         | _                |
|   |             | 1: E =<br>G =<br>2: a,b,o | ring Well KIF-104 installed in boring. Refe<br>Environmental Sample Custody (two Split<br>Geotechnical Sample Custody<br>c denote Split Spoon divided between Env<br>ths are reported in feet below ground surfa | Spoons may be re | equired to obtai      | n sufficient sampl    |         | -                |
|   |             |                           |  |                  |                       |                       |         |                  |



| С    | lient E            | Borehole   | ID N/A            | \<br>\   | Sta       | antec Boring     | a N  | o. KIF-               | 105                   |           |         |           |
|------|--------------------|------------|-------------------|--|-----------|------------------|------|-----------------------|-----------------------|-----------|---------|-----------|
|      | lient              |            |                   | see Valley Authority   |           | ring Locatio     |      |                       | 16 N; 2,408,437       | '.15      | E NAD83 |           |
| P    | roject             | Number     | 175668            | 043  | Su        | ırface Eleva     | tior | 751.5 ft              | Elevation             | on E      | atum ı  | NGVD29    |
|      | -                  | Name       |                   |  | Da        | ate Started      |      | 10/23/18              | —<br>Comple           | ted       | 10/23   | /18       |
|      | -                  | Location   |                   | rriman, Tennessee  |           | epth to Wate     | _    |                       | <br>Date/Ti           |           |         | /18 12:38 |
|      | •                  | or G. B    |                   | Logger G. Budd   |           | epth to Wate     |      |                       | <br>Date/Ti           | me        | N/A     |           |
| D    | rilling            | Contract   | or Sta            | ntec Consulting Services Inc.  | Dr        | ill Rig Type     | and  | d ID CME              | 850XR, #953           |           |         |           |
| С    | verbu              | rden Dril  | ling and          | Sampling Tools (Type and Size  | e)4       | -1/4" HSA, 2" \$ | SS v | v/o liners, 3         | " Shelby Tubes        |           |         |           |
| R    | ock D              | rilling an | d Samp            | ling Tools (Type and Size) $$  | Ά         |                  |      |                       |                       |           |         |           |
| С    | verdri             | II Tooling | (Type             | and Size) N/A  |           |                  |      |                       | Overdrill             | De        | pth _   | N/A       |
| S    | ample              | r Hamm     | er Type           | Automatic Weight 140   |           | Drop <u>_</u> 3  |      |                       | Efficiency            |           | N/A     |           |
|      |                    | le Azimu   |                   |  |           |                  |      | ion (from             | Vertical) _           | N/        | Α       |           |
| R    | eview              | ed By _    | C. Ko             | cka  | Ap        | proved By        | _    | L. Price              |                       |           |         |           |
|      | I                  | _ithology  |                   |  |           | Overburden:      | 9    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |           | Rec. Ft | Blows/PSI |
| Dep  | th Ft <sup>3</sup> | Elevation  | Graphic           | Description  |           | Rock Core:       |      | RQD %                 | Run Ft                |           | Rec. Ft | Rec. %    |
| - 0  | 0.0                | 751.5      |                   | Top of Hole  |           |                  |      |                       |                       | Ш         |         | _         |
|      |                    |            | $\land \land$     | Placed crushed run and rip rap stone collected, [FILL]                   | e, no s   | ample            |      |                       |                       | 0.0       |         |           |
| - 1  |                    |            | $  \setminus /  $ | collected, [FILL]  |           |                  |      | SS01                  | 0.0 - 1.5             | 1.5       |         | N/A<br>-  |
|      |                    |            | $  \ \ \  $       |  |           |                  |      |                       |                       |           |         |           |
| - 2  |                    |            | $  / \rangle  $   |  |           |                  |      |                       |                       | ±         |         | _         |
|      |                    |            | /                 |  |           |                  |      | SS02                  | 1.5 - 3.0             | 5-3.0     |         | N/A       |
| - 3  | 3.0                | 748.5      | /                 |  |           |                  |      |                       |                       |           |         | _         |
|      |                    |            |                   | SP, Placed sand fill, fine to coarse gr                                  | rained    | , [FILL]         |      |                       |                       | ယ္        |         |           |
| - 4  | 4.0                | 7.47.0     |                   |  |           |                  |      | SS03                  | 3.0 - 4.5             | 1.0 - 4.5 | 1.0     | 12-4-6    |
|      | 4.3                | 747.2      | ///               | LEAN CLAY, CL, 10YR 4/4 (dark yell                                       | lowish    | hrown)           |      |                       |                       |           |         |           |
| - 5  |                    |            |                   | firm to stiff, moist, [CCR]  | IOWISI    | i biowii),       |      |                       |                       | 4         |         | _         |
|      |                    |            |                   | With bottom ash from 4.3' to 4.6'  |           |                  |      | SS04                  | 4.5 - 6.0             | 5 - 6.0   | 1.2     | 2-1-4     |
| - 6  | 6.0                | 745.5      |                   | Soft, with organics, fragmented shale from 4.5' to 4.6'                  | e and s   | siltstone        |      |                       |                       |           |         | _         |
|      |                    |            |                   | LEAN CLAY, CL, 10YR 4/6 (dark yell                                       | lowish    | hrown)           |      |                       |                       | 6         |         |           |
| - 7  |                    |            |                   | firm to stiff, moist   | IOWISI    | i biowii),       |      | SS05                  | 6.0 - 7.5             | 0 - 7.5   | 0.8     | 5-5-8     |
|      | 7.5                | 744.0      |                   | Fragments of weathered siltstone and                                     | d shal    | e from 6.0'      |      |                       |                       |           |         |           |
| - 8  |                    |            |                   | \to 7.5'   |           | /                |      |                       |                       | 7.        |         | _         |
|      |                    |            |                   | LEAN CLAY, CL, 10YR 4/1 (dark gra<br>moist                               | ay), firr | n to stiff,      |      | SS06                  | 7.5 - 9.0             | 5-9.0     | 0.6     | 5-3-6     |
| – 9  |                    |            |                   | Fragments of limestone from 7.5' to 9                                    | 9.0'      |                  |      |                       |                       |           |         | _         |
|      |                    |            |                   | Stiff with fragments of limestone and                                    | siltsto   | one from         |      |                       |                       | بو        |         |           |
| - 10 |                    |            |                   | 9.0' to 10.5'  |           |                  |      | SS07                  | 9.0 - 10.5            | 0-10.     | 1.0     | 3-10-13   |
| 10   |                    |            |                   |  |           |                  |      |                       |                       | 0         |         |           |
| - 11 |                    |            |                   | Very stiff to hard with highly weathere                                  | ed sha    | ale from         |      |                       |                       | 10        |         |           |
| ''   |                    |            |                   | 10.5' to 12.0'   |           |                  |      | SS08                  | 10.5 - 12.0           | .5 - 12   | 1.1     | 9-11-39   |
| - 12 | 12.0               | 739.5      |                   |  |           |                  |      |                       |                       | 0         |         |           |
| 12   |                    |            |                   | WELL GRADED SAND, SW, 10YR 4   | ,         | 0 ,,.            |      |                       |                       | 12        |         |           |
| - 13 |                    |            |                   | medium dense, wet, angular to subar fragments of wood, shale, and limest |           | r, with          |      | SS09                  | 12.0 - 13.5           | 20 - 13   | 0.6     | 15-11-13  |
| 13   | 13.5               | 738.0      |                   | nagments of wood, stidle, and iifflest                                   | OIIC      |                  |      |                       |                       | 55        |         |           |
|      |                    |            |                   |  |           |                  |      |                       |                       |           |         |           |



Page: 2 of 3

| С                         | lient E            | Borehole  | ID N/A  | 1   | Stantec Boring   | g No. | KIF-                | 105                   |             |          |               |
|---------------------------|--------------------|-----------|---------|---|------------------|-------|---------------------|-----------------------|-------------|----------|---------------|
| С                         | lient              |           | Tennes  | see Valley Authority  | Boring Location  |       |                     | 16 N; 2,408,437       | 7.15        | E NAD83  |               |
| Р                         | roject             | Number    | 175668  | 043   | Surface Eleva    | tion  | 751.5 ft            | Elevation             | on E        | oatum_ r | NGVD29        |
|                           |                    | Lithology |         |   | Overburden:      | Sa    | mple <sup>1,2</sup> | Depth Ft <sup>3</sup> |             | Rec. Ft  | Blows/PSI     |
| Dep                       | th Ft <sup>3</sup> | Elevation | Graphic | Description   | Rock Core:       | R     | QD %                | Run Ft                |             | Rec. Ft  | Rec. %        |
| - 14<br>- 15              |                    |           |         | LEAN CLAY, CL, 10YR 4/2 (dark gray<br>to very stiff, wet, interbedded weather<br>shale, and siltstone (Continued)                           |                  |       | SS10                | 13.5 - 15.0           | 13.5 - 15.0 | 1.3      | 16-11-19<br>— |
| - 16                      | 16.5               | 735.0     |         | Fragments of wood from 13.5' to 13.8 Stiff to medium stiff from 15.0' to 16.5   |                  |       | SS11                | 15.0 - 16.5           | 15.0 - 16.5 | 1.2      | 13-7-5        |
| - 17                      | 18.0               | 733.5     |         | Limestone Shale, moderately hard, hi<br>wet, interbedded, clayey  | ghly weathered,  |       | SS12                | 16.5 - 18.0           | 16.5 - 18.0 | 0.5      | 6-7-7         |
| – 18<br>– 19 <sub>7</sub> | 7                  | 733.3     |         | LEAN CLAY, CL, 10YR 4/2 (dark gray soft, wet, with highly weathered shale wood pieces from 18.0' to 19.5'                                   |                  |       | SS13                | 18.0 - 19.5           | 18.0 - 19.5 | 0.7      | 3-3-4         |
| - 20                      | <del>*</del>       |           |         | Soft to medium stiff with highly weath fragments from 19.5' to 21.0'  | ered shale       |       | SS14                | 19.5 - 21.0           | 19.5 - 21.0 | 0.5      | 3-8-6         |
| - 21<br>- 22              | 21.0               | 730.5     |         | Limestone Shale, moderately hard, w interbedded   | eathered, wet,   |       | SS15                | 21.0 - 22.5           | 21.0 - 22.5 | 0.4      | 3-5-8<br>-    |
| - 23                      |                    |           |         | Soft with some clay from 22.5' to 24.0  | ,                |       | SS16                | 22.5 - 24.0           | 22.5 - 24.0 | 0.8      | 2-4-4         |
| - 24<br>- 25              |                    |           |         | Highly weathered and soft from 24.0'  | to 26.7'         |       | SS17                | 24.0 - 25.5           | 24.0 - 25.5 | 0.7      | 3-1-2         |
| - 26                      | 26.7               | 724.8     |         |   |                  |       | SS18                | 25.5 - 27.0           | 25.5 - 27.0 | 1.3      | -<br>1-1-1    |
| - 27                      | 27.0               | 724.5     |         | SILTY FAT CLAY, CH, 10YR 4/2 (dark brown), soft, wet, trace very fine sand FAT CLAY, CH, 10YR 4/2 (dark grayi                               |                  |       | SS19                | 27.0 - 28.5           | 27.0 - 2    | 1.2      | -<br>WH-WH-3  |
| - 28                      | 28.5               | 723.0     |         | soft, wet, with trace organics  |                  |       |                     |                       | 8.5         |          | _             |
| - 29<br>- 30              |                    |           |         | FAT CLAY, CH, 10YR 5/4 (yellowish soft, wet With some very fine sand from 28.5' t   |                  |       | SS20                | 28.5 - 30.0           | 28.5 - 30.0 | 1.4      | WH-WH-2       |
| - 31                      | 31.0               | 720.5     |         | Soft from 30.0' to 31.5'  | uioh hreum) d    |       | SS21                | 30.0 - 31.5           | 30.0 - 31.5 | 1.5      | 2-2-1         |
| - 32                      | 31.5               | 720.0     |         | CLAYEY SAND, SC, 10YR 5/4 (yellow 10YR 5/1 (gray), fine, very loose, wet POORLY GRADED SAND, SP, 10YR brown), fine to medium, very loose to | R 5/4 (yellowish |       | SS22                | 31.5 - 33.0           | 31.5 - 33.0 | 1.4      | WH-3-5        |



Page: 3 of 3

| Client l              | Borehole  | ID N/A  | , s   | tantec Borin   | g No. KI            | F-105                 |                         |                |                     |
|-----------------------|-----------|---------|---|----------------|---------------------|-----------------------|-------------------------|----------------|---------------------|
| Client                |           | Tennes  | ssee Valley Authority B   | oring Location | on <u>574,8</u>     | 07.16 N; 2,408,437    | <sup>7</sup> .15        | E NAD83        | i                   |
| Project               | Number    | 175668  | 3043 S  | urface Eleva   | ition <u>751.5</u>  | ft Elevation          | on C                    | oatum <u>r</u> | NGVD29              |
|                       | Lithology |         |   | Overburden:    | Sample <sup>1</sup> | Depth Ft <sup>3</sup> |                         | Rec. Ft        | Blows/PSI           |
| Depth Ft <sup>3</sup> | Elevation | Graphic | Description   | Rock Core:     | RQD %               | Run Ft                |                         | Rec. Ft        | Rec. %              |
| - 33<br>- 34<br>- 35  |           |         | POORLY GRADED SAND, SP, 10YR 5/4 brown), fine to medium, very loose to loos (Continued) Shale fragments from 33.4' to 33.9' Trace manganese from 34.6' to 34.8' | ()             | SS23                |                       | 33.0 - 34.5 34.5 - 36.0 | 1.5            | 1-3-4<br>-<br>7-5-4 |
| 36.0                  | 715.5     |         |   |                |                     |                       |                         |                |                     |

No Refusal / Bottom of Hole at 36.0 Ft.

Boring abandoned backfilled with grout due to presence of CCR material, relocate boring  $\sim$ 5' south and advance 4-1/4 HSA and 8-1/4 HSA to 12' and set 10-inch PVC casing backfilled with grout. The boring was then advanced to depth through the casing using 6"x8" roto-sonic drilling methods. The boring was advance to a final depth of 45' bgs to facilitate the installation of monitoring well KIF-105.

As-drilled location not surveyed. Horizontal coordinates based on proposed boring location and vertical coordinates based on 2017 LIDAR surfaces.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface



| C            | lient E            | Borehole  | IDN/A   | 4  | St      | tantec Borin      | gΝ   | lo. KIF-              | 105b                  |      |           |           |
|--------------|--------------------|-----------|---------|--|---------|-------------------|------|-----------------------|-----------------------|------|-----------|-----------|
| C            | lient              |           | Tennes  | ssee Valley Authority  |         | oring Locatio     |      |                       | 38 N; 2,408,462.      | 83 I | E NAD83   |           |
| Р            | roject             | Number    | 175668  | 3043   | Sı      | urface Eleva      | tio  | 753.0 ft              | Elevatio              | n C  | oatum_r   | NGVD29    |
| Р            | roject             | Name      | KIF TD  | EC Order   | Da      | ate Started       | _    | 10/23/18              | Complet               | ed   | 10/31     | /18       |
| Р            | roject             | Location  | ן Ha    | rriman, Tennessee  | De      | epth to Wate      | er _ | N/A                   | Date/Tin              | ne   | N/A       |           |
| Ir           | nspect             | or B. Ev  | ans     | Logger B. Evans  | De      | epth to Wate      | er _ | N/A                   | Date/Tin              | ne   | N/A       |           |
|              | rilling            | Contract  | or Sta  | antec / M&W Drilling   | Dr      | rill Rig Type     | an   | d ID CME              | 850XR #853/Ge         | opr  | robe 8150 | )LS Sonic |
|              |                    |           | -       | Sampling Tools (Type and   | Size)_4 | I-1/4" & 8-1/4" I | HS/  | 4 to 12'; 6"x         | 8" Sonic to depth     | 1    |           |           |
|              |                    | •         | •       | ling Tools (Type and Size)                                       | N/A     |                   |      |                       |                       |      |           |           |
|              |                    |           |         | and Size) N/A  |         |                   |      |                       | Overdrill             |      |           | N/A       |
|              |                    |           | • •     | N/A Weight   | N/A     | Drop <u>N</u>     |      |                       | Efficiency            | _    | N/A       |           |
|              |                    | le Azimu  |         |  |         | orehole Incli     |      | •                     | Vertical)             | N/   | Α         |           |
| F            | eview              | ed By _   | E. Sm   | 11th   | Ap      | oproved By        |      | C. Kocka              |                       |      |           |           |
|              |                    | _ithology |         |  |         | Overburden:       |      | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |      | Rec. Ft   | Blows/PSI |
| Dep          | th Ft <sup>3</sup> | Elevation | Graphic | Description  |         | Rock Core:        |      | RQD %                 | Run Ft                |      | Rec. Ft   | Rec. %    |
| - 0          | 0.0                | 753.0     |         | Top of Hole  |         |                   |      |                       |                       |      |           |           |
| - 1          |                    |           |         | Boring offset due to CCR encou                                   |         |                   |      |                       |                       |      |           |           |
| - 2<br>- 3   |                    |           |         | Overburden not sampled. See K<br>overburden sampling to 36.0' bg |         | ring log for      |      |                       |                       |      |           | _         |
| - 4          |                    |           |         |  | ,       |                   |      |                       |                       |      |           | _         |
| - 5          |                    |           |         |  |         |                   |      |                       |                       |      |           | _         |
| - 6<br>- 7   |                    |           |         |  |         |                   |      |                       |                       |      |           | _         |
| - 8          |                    |           |         |  |         |                   |      |                       |                       |      |           | -         |
| - 9<br>- 40  |                    |           |         |  |         |                   |      |                       |                       |      |           | _         |
| - 10<br>- 11 |                    |           |         |  |         |                   |      |                       |                       |      |           | _         |
| - 12         |                    |           |         |  |         |                   |      |                       |                       |      |           | _         |
| - 13<br>- 14 |                    |           |         |  |         |                   |      |                       |                       |      |           | _         |
| - 15         |                    |           |         |  |         |                   |      |                       |                       |      |           | _         |
| - 16         |                    |           |         |  |         |                   |      |                       |                       |      |           | -         |
| - 17<br>- 18 |                    |           |         |  |         |                   |      |                       |                       |      |           | _         |
| - 19         |                    |           |         |  |         |                   |      |                       |                       |      |           | -         |
| - 20         |                    |           |         |  |         |                   |      |                       |                       |      |           | _         |
| - 21<br>- 22 |                    |           |         |  |         |                   |      |                       |                       |      |           | _         |
| - 23         |                    |           |         |  |         |                   |      |                       |                       |      |           | _         |
| - 24         |                    |           |         |  |         |                   |      |                       |                       |      |           | _         |
| - 25<br>- 26 |                    |           |         |  |         |                   |      |                       |                       |      |           | _         |
| - 27         |                    |           |         |  |         |                   |      |                       |                       |      |           | -         |
| - 28         |                    |           |         |  |         |                   |      |                       |                       |      |           | -         |
| - 29<br>- 30 |                    |           |         |  |         |                   |      |                       |                       |      |           | _         |
| - 31         |                    |           |         |  |         |                   |      |                       |                       |      |           | -         |
| - 32         |                    |           |         |  |         |                   |      |                       |                       |      |           | -         |
| - 33<br>- 34 |                    |           |         |  |         |                   |      |                       |                       |      |           | _         |
| - 35         |                    |           |         |  |         |                   |      |                       |                       |      |           | _         |
| - 36<br>- 37 |                    |           |         |  |         |                   |      |                       |                       |      |           | _         |
| - 37<br>- 38 |                    |           |         |  |         |                   |      |                       |                       |      |           |           |
| - 39<br>40   |                    |           |         |  |         |                   |      |                       |                       |      |           |           |



Page: 2 of 2

| Clie                                       | ent E           | Borehole  | ID N/A  | 4   | Stantec Borin  | g No. KIF-            | 105b                  |           |                       |
|--|-----------------|-----------|---------|---|----------------|-----------------------|-----------------------|-----------|-----------------------|
| Clie                                       | ent             |           | Tennes  | ssee Valley Authority   | Boring Locati  | on <u>574,819.</u>    | 38 N; 2,408,462.83    | 3 E NAD83 | }                     |
| Pro  | ject            | Number    | 175668  | 3043  | Surface Eleva  | ation <u>753.0 ft</u> | Elevation             | Datum_    | NGVD29                |
|  | L               | ₋ithology |         |   | Overburden:    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> | Rec. Ft   | Blows/PSI             |
| Depth                                      | Ft <sup>3</sup> | Elevation | Graphic | Description   | Rock Core:     | RQD %                 | Run Ft                | Rec. Ft   | Rec. %                |
| - 40<br>- 41<br>- 42<br>- 43<br>- 44<br>45 | 45.0            | 708.0     |         | Boring offset due to CCR encountered in Overburden not sampled. See KIF-105 overburden sampling to 36.0' bgs. (Co | boring log for |                       |                       |           | -<br>-<br>-<br>-<br>- |
| 40   |                 |           |         | No Refusal /  |                | · · · · ·             |                       |           | _                     |

Bottom of Hole at 45.0 Ft.

Monitoring Well KIF-105 installed in boring. Refer to KIF-105b Well Installation Detail dated 10/30/18.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

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| C    | Client E           | Borehole    | ID N/A            | \  | Sta     | antec Borin                | a N  | lo. KIF-              | 106                   |         |         |            |
|------|--------------------|-------------|-------------------|--|---------|----------------------------|------|-----------------------|-----------------------|---------|---------|------------|
|      | Client             |             |                   | see Valley Authority   |         | ring Location              |      |                       | 76 N; 2,408,031       | .06     | E NAD83 |            |
|      |                    | Number      |                   |  |         | ırface Eleva               |      |                       | Elevation             |         |         | _          |
|      | -                  | Name        |                   | EC Order   |         | te Started                 |      |                       | <del></del>           |         |         | -          |
|      | •                  | Location    |                   | rriman, Tennessee  |         | epth to Wate               | _    |                       | Date/Ti               |         |         | /18 15:00  |
|      | •                  | or G. B     |                   | Logger G. Budd   |         | epth to Wate               | _    |                       | <br>Date/Ti           | me      | N/A     |            |
|      | Orilling           | Contract    | or Sta            | ntec Consulting Services Inc.  | Dr      | ill Rig Type               | an   | d ID CME              | 850XR, #953           |         |         |            |
| C    | verbu              | ırden Dril  | ling and          | Sampling Tools (Type and Size  | e)4     | -1/4" HSA, 2" :            | SS \ | w/o liners, 3         | " Shelby Tubes        |         |         |            |
| F    | Rock D             | rilling an  | d Samp            | ling Tools (Type and Size) $$  | /A      |                            |      |                       |                       |         |         |            |
| C    | Overdri            | ill Tooling | (Type             | and Size)N/A   |         |                            |      |                       | Overdrill             | De      | pth _   | N/A        |
|      |                    |             | • •               | Automatic Weight 140   |         | Drop _3                    |      |                       | Efficiency            | !       | N/A     |            |
|      |                    | le Azimu    |                   |  |         |                            |      | -                     | Vertical) _           | N/      | Α       |            |
| F    | Review             | ed By _     | C. Ko             | cka  | Ap      | proved By                  | _    | L. Price              |                       |         |         |            |
|      | l                  | Lithology   |                   |  |         | Overburden:                | ,    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |         | Rec. Ft | Blows/PSI  |
| Dep  | th Ft <sup>3</sup> | Elevation   | Graphic           | Description  |         | Rock Core:                 |      | RQD %                 | Run Ft                |         | Rec. Ft | Rec. %     |
| - 0  | 0.0                | 748.6       |                   | Top of Hole  |         |                            |      |                       |                       | Ш       |         |            |
|      |                    |             | $\Lambda$         | Placed crush and run and riprap stor                                     | ne, no  | sample                     |      |                       |                       | 0       |         |            |
| - 1  |                    |             | $  \setminus /  $ | collected, [FILL]  |         |                            |      | SS01                  | 0.0 - 1.5             | 0 - 1.5 |         | N/A        |
|      |                    |             | $  \ \ \ \  $     |  |         |                            |      |                       |                       |         |         |            |
| - 2  |                    |             | $  \ / \  $       |  |         |                            |      |                       |                       | -       |         | _          |
|      |                    |             | /                 |  |         |                            |      | SS02                  | 1.5 - 3.0             | 5-3.0   |         | N/A        |
| - 3  | 3.0                | 745.6       |                   |  |         |                            |      |                       |                       |         |         | _          |
|      |                    |             |                   | Placed sand auger cuttings, no samp [FILL]                               | ole col | lected,                    |      |                       |                       | 3.0     |         |            |
| - 4  |                    |             |                   | [1122]   |         |                            |      | SS03                  | 3.0 - 4.5             | - 4.5   | 0.0     | 5-5-2<br>_ |
|      | 4.5                | 744.1       |                   |  |         |                            |      |                       |                       |         |         |            |
| - 5  |                    |             |                   | LEAN CLAY, CL, 5YR 4/6 (yellowish with fragments of siltstone            | red),   | soft, moist,               |      |                       |                       | 4.5     |         | –          |
|      |                    |             |                   | with raginerite of situations  |         |                            |      | SS04                  | 4.5 - 6.0             | - 6.0   | 0.8     | 1-1-2      |
| - 6  |                    |             |                   |  |         |                            |      |                       |                       |         |         | -          |
|      |                    |             |                   | Color change to 10YR 5/6 (yellowish                                      | browr   | n) at 6.0'                 |      | 0005                  | 00.75                 | 6.0     |         |            |
| - 7  |                    |             |                   |  |         |                            |      | SS05                  | 6.0 - 7.5             | -7.5    | 0.6     | 1-1-1      |
|      |                    |             |                   |  |         |                            |      |                       |                       |         |         |            |
| - 8  |                    |             |                   | Color change to 5YR 4/6 (yellowish r                                     | red) at | 7.5                        |      | SS06                  | 7.5 - 9.0             | 7.5     | 0.3     | 4 \\\(\)   |
|      |                    |             |                   | Dattern calcat 0.01 (CCD1  |         |                            |      | 3306                  | 7.5 - 9.0             | 9.0     | 0.3     | 1-WH-WH    |
| - 9  | 9.0                | 739.6       |                   | Bottom ash at 8.9', [CCR]  | ,       |                            |      |                       |                       |         | -       | -          |
|      | 9.7                | 738.9       |                   | SANDY LEAN CLAY, CL, 10YR 5/6 (<br>and 10YR 4/2 (dark grayish brown),    | 13      | ,                          |      | SS07                  | 0.0 10.5              | 9.0-    | 1.5     | 111        |
| - 10 |                    |             |                   | fragments of shale and trace bottom                                      |         |                            |      | 3307                  | 9.0 - 10.5            | 10.5    | 1.5     | 1-1-1 _    |
|      |                    |             |                   | LEAN CLAY, CL, 5YR 4/6 (yellowish  | red),   | soft, moist,               |      |                       |                       |         |         |            |
| - 11 |                    |             |                   | with abundant chert fragments  | ijah hr | own) otiff                 |      | SS08                  | 10.5 - 12.0           | 10.5-   | 1.0     | 2-10-14    |
|      |                    |             |                   | Color change to 10YR 4/2 (dark gray wet, with fragments of limestone and |         |                            |      | 3300                  | 10.5 - 12.0           | 12.0    | 1.0     | 2-10-14    |
| - 12 |                    |             |                   | Color change to 5YR 4/2 (dark reddis                                     |         |                            |      |                       |                       |         |         | _          |
|      |                    |             |                   | stiff, with fragments of shale at 12.0'                                  | on yra  | y <sub>/</sub> , 111111 tO |      | SS09                  | 12.0 - 13.5           | 12.0-   | 1.1     | 5-5-5      |
| - 13 |                    |             |                   | Color change to 10YR 3/1 (very dark                                      | r grav) | hard with                  |      |                       | 12.0 10.0             | 13.5    | '''     | -          |
|      |                    |             |                   | weathered interbedded shale and sill                                     |         |                            |      |                       |                       |         |         |            |



Page: 2 of 3

| Clie                  | ent E           | Borehole  | ID N/A  | 1  | Stantec Boring  | No. KIF               | <sup>-</sup> -106     |             |          |                   |
|-----------------------|-----------------|-----------|---------|--|-----------------|-----------------------|-----------------------|-------------|----------|-------------------|
| Clie                  | ent             |           | Tennes  | see Valley Authority   | Boring Location |                       | 7.76 N; 2,408,03°     | 1.06        | E NAD83  |                   |
| Pro                   | ject            | Number    | 175668  | 043  | Surface Eleva   | tion <u>748.6 f</u>   | t Elevation           | on [        | oatum_ r | NGVD29            |
|                       | l               | _ithology |         |  | Overburden:     | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |             | Rec. Ft  | Blows/PSI         |
| Depth                 | Ft <sup>3</sup> | Elevation | Graphic | Description  | Rock Core:      | RQD %                 | Run Ft                |             | Rec. Ft  | Rec. %            |
| - 14<br>- 15          |                 |           |         | LEAN CLAY, CL, 5YR 4/6 (yellowish with abundant chert fragments (Con   |                 | SS10                  | 13.5 - 15.0           | 13.5 - 15.0 | 0.7      | _<br>22-49-27<br> |
| - 16                  | 16.5            | 732.1     |         | Stiff, moist, with highly weathered sha  | lle at 15.0'    | SS11                  | 15.0 - 16.5           | 15.0 - 16.5 | 0.6      | 11-11-12          |
| - 17                  |                 |           |         | No recovery  |                 | SS12                  | 16.5 - 18.0           | 16.5 - 18.0 | 0.0      | _<br>11-12-15     |
| - 18<br>- 19          | 19.5            | 729.1     |         |  |                 | SS13                  | 18.0 - 19.5           | 18.0 - 19.5 | 0.0      | 12-11-9<br>-      |
| - 20                  | 10.0            | 720.1     |         | LEAN CLAY, CL, 10YR 3/1 (very dark<br>moist<br>Weathered shale from 19.5' to 19.9'                             |                 | SS14                  | 19.5 - 21.0           | 19.5 - 21.0 | 1.0      | 2-4-4             |
| - 21<br>- 22          |                 |           |         | Soft, red brown weathered siltstone fr 21.0' Color change to 10YR 4/3 (brown), willimestone and shale at 21.0' |                 | SS15                  | 21.0 - 22.5           | 21.0 - 22.5 | 0.8      | 3-5-3             |
| - 23                  |                 |           |         | Firm to stiff, wet, with fragments of sill and limestone from 22.5' to 25.5'                                   | istone, shale,  | SS16                  | 22.5 - 24.0           | 22.5 - 24.0 | 0.6      | 6-13-5            |
| - 24<br>- 25 <u>V</u> |                 |           |         | Soft at 24.0'  |                 | SS17                  | 24.0 - 25.5           | 24.0 - 25.5 | 0.3      | 3-2-3             |
| - 26                  |                 |           |         | Fragments of siltstone and shale from  | 25.5' to 28.5'  | SS18                  | 25.5 - 27.0           | 25.5 - 27.0 | 0.2      | 1-1-WH            |
| - 27<br>- 28          |                 |           |         |  |                 | SS19                  | 27.0 - 28.5           | 27.0 - 28.5 | 0.7      | WH-2-2            |
| - 29                  | 28.5            | 720.1     |         | No recovery  |                 | SS20                  | 28.5 - 30.0           | 28.5 - 30.0 | 0.0      | 1-3-4             |
| - 30   3<br>- 31      | 30.0            | 718.6     |         | LEAN CLAY, CL, 10YR 4/3 (brown), s<br>Fragments of siltstone, shale, and lim<br>30.0' to 31.5'                 |                 | SS21                  | 30.0 - 31.5           | 30.0 - 31.5 | 0.6      | 1-3-1             |
| - 32                  |                 |           |         | Fragments of siltstone and shale from  | 31.5' to 36.0'  | SS22                  | 31.5 - 33.0           | 31.5 - 33.0 | 1.1      | 1-3-3             |



Page: 3 of 3

| Client                            | Borehole  | ID N/A  | \   | Stantec Borin   | g No. KIF-            | 106                        |         |                              |
|-----------------------------------|-----------|---------|---|-----------------|-----------------------|----------------------------|---------|------------------------------|
| Client                            |           | Tennes  | see Valley Authority                            | Boring Location | on <u>574,427.</u>    | 76 N; 2,408,031.06         | E NAD8  | 3                            |
| Projec                            | t Number  | 175668  | 043   | Surface Eleva   | ation 748.6 ft        | Elevation                  | Datum_  | NGVD29                       |
|                                   | Lithology |         |   | Overburden:     | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>      | Rec. Ft | Blows/PSI                    |
| Depth Ft <sup>3</sup>             | Elevation | Graphic | Description                                     | Rock Core:      | RQD %                 | Run Ft                     | Rec. Ft | Rec. %                       |
| - 33<br>- 34<br>- 35<br>- 36 36.0 | 712.6     |         | LEAN CLAY, CL, 10YR 4/3 (brown), so (Continued) | ft, wet         | SS23<br>SS24          | 33.0 - 34.5<br>34.5 - 36.0 | 0.4     | WH-WH-WH<br>-<br>-<br>WH-1-1 |
| 30                                |           |         | No Refusal /<br>Bottom of Hole at 36.0 Ft.      |                 |                       |                            |         |                              |

Boring abandoned backfilled with grout due to presence of CCR material, relocate boring  $\sim$ 5' north and advance 4-1/4 HSA, and 8-1/4 HSA to 15' and set 10-inch PVC casing backfilled with grout. The boring was then advanced to depth using 6"x8" roto-sonic drilling methods. The boring was advanced to 40' bgs to facilitate the installation of the monitoring well.

As-drilled location not surveyed. Horizontal coordinates based on proposed boring location and vertical coordinates based on 2017 LIDAR surfaces.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface



| (            | Client E            | Borehole    | IDN/A    | 4                              | S           | Stantec Boring    | g N  | o. KIF-               | 106b                  |     |           |           |
|--------------|---------------------|-------------|----------|--------------------------------|-------------|-------------------|------|-----------------------|-----------------------|-----|-----------|-----------|
| (            | Client              |             | Tennes   | ssee Valley Authority          | E           | Boring Location   | n    | 574,439.0             | 09 N; 2,408,024.      | 18  | E NAD83   |           |
| F            | Project             | Number      | 175668   | 3043                           | S           | Surface Eleva     | tio  | 757.6 ft              | Elevatio              | n E | Datum_r   | NGVD29    |
| F            | Project             | Name        | KIF TD   | EC Order                       |             | Date Started      |      | 10/22/18              | Complet               | ed  | 11/1/1    | 8         |
| F            | Project             | Location    | ך Ha     | rriman, Tennessee              |             | epth to Wate      | er _ | N/A                   | Date/Tin              | ne  | N/A       |           |
| I            | nspect              | or B. Ev    | ans      | Logger B. Evans                |             | Depth to Wate     | r_   | N/A                   | Date/Tin              | ne  | N/A       |           |
|              | Drilling            | Contract    | or Sta   | antec / M&W Drilling           |             | Orill Rig Type    | an   | d ID CME              | 850XR #853/Ge         | eop | robe 8150 | LS Sonic  |
| (            | Overbu              | ırden Drill | ling and | Sampling Tools (Type and       | d Size)_    | 4-1/4" & 8-1/4" H | HS/  | to 15'; 6"x8          | 8" Sonic to depth     | 1   |           |           |
| F            | Rock D              | rilling and | d Samp   | ling Tools (Type and Size)     | N/A         |                   |      |                       |                       |     |           |           |
| (            | Overdri             | ill Tooling | (Туре    | and Size)N/A                   |             |                   |      |                       | Overdrill             | De  | epth _    | N/A       |
| ξ            | Sample              | er Hamme    | er Type  | N/A Weight _                   | N/A         | Drop N            | /A   |                       | Efficiency            |     | N/A       |           |
| E            | Boreho              | le Azimut   | th       | N/A (Vertical)                 | E           | Borehole Incli    | nat  | ion (from             | Vertical)             | N/  | A         |           |
| F            | Review              | ed By       | E. Sn    | nith                           | A           | Approved By       |      | C. Kocka              |                       |     |           |           |
|              |                     | Lithology   |          |                                |             | Overburden:       |      | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |     | Rec. Ft   | Blows/PSI |
|              | pth Ft <sup>3</sup> |             | Graphic  | Description                    |             | Rock Core:        |      | RQD %                 | Run Ft                |     | Rec. Ft   | Rec. %    |
| Del          |                     | 757.6       | Grapriic | Top of Hole                    |             | Nock Core.        | Т    | NQD /0                | Kuii i t              |     | Nec. 11   | Nec. 70   |
| - 0          | 0.0                 | 707.0       |          | Boring offset due to CCR enco  | ountered in | KIE-106           | +    |                       |                       |     |           | _         |
| - 1          |                     |             |          | Overburden not sampled. See    |             |                   |      |                       |                       |     |           | -         |
| - 2<br>- 3   |                     |             |          | overburden sampling to 36.0' l |             |                   |      |                       |                       |     |           | _         |
| - 4          |                     |             |          |                                |             |                   |      |                       |                       |     |           | _         |
| - 5          |                     |             |          |                                |             |                   |      |                       |                       |     |           | _         |
| - 6          |                     |             |          |                                |             |                   |      |                       |                       |     |           | -         |
| - 7          |                     |             |          |                                |             |                   |      |                       |                       |     |           | -         |
| - 8          |                     |             |          |                                |             |                   |      |                       |                       |     |           | -         |
| - 9          |                     |             |          |                                |             |                   |      |                       |                       |     |           | _         |
| - 10         |                     |             |          |                                |             |                   |      |                       |                       |     |           | _         |
| - 11<br>- 12 |                     |             |          |                                |             |                   |      |                       |                       |     |           | _         |
| - 13         |                     |             |          |                                |             |                   |      |                       |                       |     |           | _         |
| - 14         |                     |             |          |                                |             |                   |      |                       |                       |     |           | -         |
| - 15         |                     |             |          |                                |             |                   |      |                       |                       |     |           | _         |
| - 16         |                     |             |          |                                |             |                   |      |                       |                       |     |           | -         |
| - 17         |                     |             |          |                                |             |                   |      |                       |                       |     |           | -         |
| - 18         |                     |             |          |                                |             |                   |      |                       |                       |     |           | -         |
| - 19         |                     |             |          |                                |             |                   |      |                       |                       |     |           | _         |
| - 20<br>- 21 |                     |             |          |                                |             |                   |      |                       |                       |     |           | _         |
| - 22         |                     |             |          |                                |             |                   |      |                       |                       |     |           | _         |
| - 23         |                     |             |          |                                |             |                   |      |                       |                       |     |           | -         |
| - 24         |                     |             |          |                                |             |                   |      |                       |                       |     |           | -         |
| - 25         |                     |             |          |                                |             |                   |      |                       |                       |     |           | _         |
| - 26         |                     |             |          |                                |             |                   |      |                       |                       |     |           | -         |
| - 27         |                     |             |          |                                |             |                   |      |                       |                       |     |           | -         |
| - 28<br>- 20 |                     |             |          |                                |             |                   |      |                       |                       |     |           | -         |
| - 29<br>- 30 |                     |             |          |                                |             |                   |      |                       |                       |     |           | _         |
| - 31         |                     |             |          |                                |             |                   |      |                       |                       |     |           | _         |
| - 32         |                     |             |          |                                |             |                   |      |                       |                       |     |           | -         |
| - 33         |                     |             |          |                                |             |                   |      |                       |                       |     |           | -         |
| - 34         |                     |             |          |                                |             |                   |      |                       |                       |     |           | -         |



Page: 2 of 2

| Client                                       | Borehole  | IDN/A   | <u> </u>  | Stantec Boring                                     | g No. <b>  NIF-</b>   | เบชม                  |                               |                  |  |  |  |
|--|-----------|---------|---|--|-----------------------|-----------------------|-------------------------------|------------------|--|--|--|
| Client                                       |           | Tennes  | ssee Valley Authority   | Boring Location 574,439.09 N; 2,408,024.18 E NAD83 |                       |                       |                               |                  |  |  |  |
| Project                                      | t Number  | 175668  | 3043  | Surface Eleva                                      | tion <u>757.6 ft</u>  | Elevation             | Datum_                        | NGVD29           |  |  |  |
|  | Lithology |         |   | Overburden:  | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> | Depth Ft <sup>3</sup> Rec. Ft |                  |  |  |  |
| Depth Ft <sup>3</sup>                        | Elevation | Graphic | Description   | Rock Core:   | RQD %                 | Run Ft                | Rec. Ft                       | Rec. %           |  |  |  |
| - 35<br>- 36<br>- 37<br>- 38<br>- 39<br>40.0 | 717.6     |         | Boring offset due to CCR encountered ir<br>Overburden not sampled. See KIF-106 b<br>overburden sampling to 36.0' bgs. <i>(Con</i> | ooring log for                                     |                       |                       |                               | -<br>-<br>-<br>- |  |  |  |
| 40   |           |         | No Refusal /<br>Bottom of Hole at 40.0 Ft.  |  |                       |                       |                               | -<br>-<br>-      |  |  |  |

Monitoring Well KIF-106 installed in boring. Refer to KIF-106 Well Installation Detail dated 10/31/18.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples 3: Depths are reported in feet below ground surface



| Client Borehole ID N/A  | Stantec Boring            | No. KIF-1             | ГВ01                  |           |               |
|---|---------------------------|-----------------------|-----------------------|-----------|---------------|
| Client Tennessee Valley Authority   | Boring Location           |                       | 94 N; 2,406,720.2     | 4 E NAD83 |               |
| Project Number 175668043  | Surface Elevat            |                       | Elevation             |           |               |
| Project Name KIF TDEC Order   | Date Started              | 7/10/19               | <br>Complete          | d 7/10/   | 19            |
| Project Location Harriman, Tennessee  | Depth to Water            |                       | Date/Time             | •         |               |
| Inspector C. Sexton Logger C. Sexton  | Depth to Water            |                       | Date/Time             |           |               |
| Drilling Contractor Hawkston (Subcontractor)  | Drill Rig Type a          |                       |                       |           |               |
| Overburden Drilling and Sampling Tools (Type and Size   | 0 7.                      |                       |                       | /C liners |               |
| Rock Drilling and Sampling Tools (Type and Size)  | •                         |                       |                       |           |               |
| Overdrill Tooling (Type and Size) N/A   |                           |                       | Overdrill D           | epth !    | N/A           |
| Sampler Hammer Type GH70 Direct Push Weight N/A   | Drop N/                   | 'A                    | Efficiency            | N/A       |               |
| Borehole Azimuth N/A  | Borehole Inclin           |                       | -                     | N/A       |               |
| Reviewed By C. Kocka  | Approved By               | •                     | ,                     |           |               |
| Lithology   | Overburden:               | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> | Rec. Ft   | Blows/PSI     |
| Depth Ft <sup>3</sup> Elevation Graphic Description   | Rock Core:                | RQD %                 | Run Ft                | Rec. Ft   | Rec. %        |
| no 7760 Top of Hole   | TROOK COIC.               | TIGE 70               | ranre                 | 1100.11   | 100. 70       |
| CLAYEY SILT WITH GRAVEL, ML, 1 (brown) and 10GY 6/1 (greenish gray medium plasticity, loose, dry, iron oxi medium plasticity, | /), low to<br>de staining | DP01                  | 0.0 - 5.0             | 4.6       | -<br>N/A<br>- |
| SILTY FAT CLAY SOME GRAVEL, C gray), medium to high plasticity, soft, oxide staining  6 6.4 769.6  SILTY FAT CLAY WITH GRAVEL, C (greenish gray), very soft to very firm  | moist, iron  H, 10GY 5/1  |                       | 5.0                   |           | -             |
| iron oxide staining Wet from 6.8' to 7.1' Organic material from 8.2' to 8.5'  SILT, ML, 2.5Y 6/1 (gray), coarse, loc dense, dry, fissured, Weathered shall  | ose to very               | DP02                  | 5.0 - 10.0            | 4.7       | N/A           |
| Bright green mineralization at 8.8', ve<br>Bedrock Refusal /<br>Bottom of Hole at 10.0 Ft.  | y illie                   |                       |                       |           | _             |
| Top of Rock = 10.0 Ft. Top of Rock Elevation = 766.0 Ft.  |                           |                       |                       |           | _             |
| 1: E = Environmental Sample Custody (two Sp<br>G = Geotechnical Sample Custody<br>2: a,b,c denote Split Spoon divided between E<br>3: Depths are reported in feet below ground su   | nvironmental and Ge       | •                     | ·                     | e)        | -<br>-<br>-   |



| CI                | ient E | Borehole  | ID N/A   |   | Stantec Boring    | a N | o. KIF-1              | ГВ02                   |           |         |                  |
|-------------------|--------|-----------|--|---|-------------------|-----|-----------------------|------------------------|-----------|---------|------------------|
| l                 | ient   |           |  | see Valley Authority  | Boring Location   |     |                       | 95 N; 2,406,699        | ).77      | E NAD83 |                  |
| l                 |        | Number    |  |   | Surface Eleva     |     |                       | Elevation              |           |         |                  |
| I                 | -      | Name      |  |   | Date Started      |     |                       | Comple                 |           |         |                  |
|                   | -      | Location  |  | riman, Tennessee  | Depth to Wate     | _   |                       |                        |           |         |                  |
|                   | •      |           |  | Logger C. Sexton  | Depth to Wate     | _   |                       |                        |           |         |                  |
|                   | -      |           |  | vkston (Subcontractor)  | Drill Rig Type    | _   |                       |                        | IIIC      |         |                  |
| l                 | •      |           |  | Sampling Tools (Type and Size)  | • • • •           |     |                       |                        | PV        | Cliners |                  |
|                   |        |           | _  | ling Tools (Type and Size) N/A  |                   |     | ср9                   |                        |           |         |                  |
|                   |        | _         | -  | and Size) N/A   |                   |     |                       | Overdrill              | De        | enth N  | N/A              |
|                   |        | _         |  | GH70 Direct Push Weight N/A   | Drop N            | N/A |                       | Cveranii<br>Efficiency |           | N/A     |                  |
| l                 |        | le Azimu  | • •  | N/A   | Borehole Inclin   |     |                       | •                      | N/        |         |                  |
| I                 |        | ed By     | C. Ko  |   | Approved By       |     | L. Price              | V 01 (10d1)            |           |         | _                |
|                   |        |           |  |   | Overburden:       |     |                       | D 41- E43              |           | D       | Blows/PSI        |
|                   |        | _ithology |  |   |                   |     | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>  |           | Rec. Ft |                  |
| Dept              |        | Elevation | Graphic  | Description   | Rock Core:        |     | RQD %                 | Run Ft                 | П         | Rec. Ft | Rec. %           |
| - 0               | 0.0    | 778.2     | <del>                                     </del> | Top of Hole   | N/D 5/0           |     |                       |                        | 1 10      | 1       |                  |
| - 1<br>- 2        | 2.6    | 775.6     |  | CLAYEY SILT WITH GRAVEL, ML, 10 (brown) and 10GY 6/1 (greenish gray); medium plasticity, loose, dry, iron oxide   | , low to          |     | DP01                  | 0.0 - 5.0              | 0.0-6     | 4.7     | -<br>N/A         |
| - 3<br>- 4        | 4.8    | 773.4     |  | SILTY FAT CLAY SOME GRAVEL, CL gray), medium to high plasticity, soft, n oxide staining   | ,                 |     |                       |                        | 5.0       |         | _                |
| - 5<br>- 6<br>- 7 | 8.8    | 769.4     |  | SILT, ML, 2.5Y 6/1 (gray), coarse, loos<br>dense, dry, fissured, weathered shale  | se to very        |     | DP02                  | 5.0 - 8.8              | 5.0 - 8.8 | 3.8     | <br><br>N/A      |
|                   |        |           |  | Bedrock Refusal /   |                   |     |                       |                        |           |         | _                |
|                   |        |           |  | Bottom of Hole at 8.8 Ft.   |                   |     |                       |                        |           |         | _                |
|                   |        |           |  | Top of Rock = 8.8 Ft. Top of Rock Elevation = 769.4 Ft.   |                   |     |                       |                        |           |         | _                |
|                   |        |           | G =<br>2: a,b,                                   | Environmental Sample Custody (two Spli<br>Geotechnical Sample Custody<br>c denote Split Spoon divided between En<br>ths are reported in feet below ground sur | vironmental and G |     |                       |                        | nple)     | )       | -<br>-<br>-<br>- |



|   |                 |            |       |               |  |                                  |      | IZIE 3                |                       |          |           |  |
|---|-----------------|------------|-------|---------------|--|----------------------------------|------|-----------------------|-----------------------|----------|-----------|--|
| Clie  | ent B           | orehole    | ID .  | N/            | Α  | Stantec Boring No. KIF-TB03      |      |                       |                       |          |           |  |
| Clie  | ent             |            | Te    | nne           | ssee Valley Authority  | Boring Location                  | n    | 575,905.4             | 7 N; 2,406,816.38     | E NAD83  |           |  |
| Proj  | ject            | Number     | 17    | 566           | 8043   | Surface Eleva                    | tio  | n <u>769.5 ft</u>     | Elevation [           | Datum_ r | NGVD29    |  |
| Proj  | ject            | Name       | KI    | F TC          | DEC Order  | Date Started                     | _    | 7/10/19               | Completed             | 7/10/    | 19        |  |
| Proj  | ject            | Location   | າ .   | На            | arriman, Tennessee   | Depth to Water N/A Date/Time     |      |                       |                       |          |           |  |
| Insp  | pecto           | or C. Se   | extor | 1             | Logger C. Sexton   | Depth to Water N/A Date/Time N/A |      |                       |                       |          |           |  |
| Drill   | ling            | Contract   | or .  | На            | awkston (Subcontractor)  | Drill Rig Type                   | an   | d ID Geop             | robe 3230DT           |          |           |  |
| Ove   | erbu            | rden Drill | ling  | and           | d Sampling Tools (Type and Size)   | DT37 Dual Tube                   | e So | oil Sampling          | System w/ 60" PV      | C liners |           |  |
|   |                 | •          |       |               | oling Tools (Type and Size) <u>N/A</u>                                       |                                  |      |                       |                       |          |           |  |
|   |                 | _          |       |               | and Size) N/A  |                                  |      |                       | _ Overdrill De        | . –      | N/A       |  |
|   | -               |            |       | ype           | GH70 Direct Push Weight N/A  | Drop <u>\</u>                    |      |                       |                       | N/A      |           |  |
| 1   |                 | e Azimu    | -     |               | N/A  | Borehole Inclin                  |      | •                     | Vertical) N           | Ά        |           |  |
| Rev   | /iew            | ed By _    |       | C. Ko         | ocka   | Approved By                      |      | L. Price              |                       |          |           |  |
|   | L               | ithology   |       |               |  | Overburden:                      |      | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> | Rec. Ft  | Blows/PSI |  |
| Depth I   | Ft <sup>3</sup> | Elevation  | Gra   | phic          | Description  | Rock Core:                       |      | RQD %                 | Run Ft                | Rec. Ft  | Rec. %    |  |
|   | 0.0             | 769.5      | 0.300 | 20-200        | Top of Hole  |                                  |      |                       |                       |          |           |  |
|   | 0.3             | 769.2      |       |               | Rock fill  |                                  |      |                       | (                     |          |           |  |
| - 1   |                 |            |       |               | SILT, ML, 2.5Y 6/1 (gray), coarse, loos                                      | se to very                       |      |                       | _                     | 1        | -         |  |
| - 2   |                 |            |       |               | dense, dry, fissured, weathered shale  |                                  |      | DP01                  | 0.0 - 3.5             | 2.6      | N/A       |  |
| 2   |                 |            |       |               |  |                                  |      |                       | G                     | )        |           |  |
| - 3   | 3.5             | 766.0      |       |               |  |                                  |      |                       | \( \)                 | <b>\</b> | _         |  |
|   | 5.5             | 700.0      | шш    |               | Bedrock Refusal /  |                                  |      |                       | W                     | 11       |           |  |
|   |                 |            |       |               | Bottom of Hole at 3.5 Ft.  |                                  |      |                       |                       |          | _         |  |
|   |                 |            |       |               | Top of Rock = 3.5 Ft.  |                                  |      |                       |                       |          | _         |  |
|   |                 |            |       |               | Top of Rock Elevation = 766.0 Ft.  |                                  |      |                       |                       |          |           |  |
|   |                 |            |       |               |  |                                  |      |                       |                       |          | _         |  |
|   |                 |            |       |               |  |                                  |      |                       |                       |          | _         |  |
|   |                 |            |       |               |  |                                  |      |                       |                       |          |           |  |
|   |                 |            |       |               |  |                                  |      |                       |                       |          | _         |  |
|   |                 |            | 1     | : E =         | Environmental Sample Custody (two Spl  | t Spoons may be r                | equ  | ired to obtai         | n sufficient sample   | )        | _         |  |
|   |                 |            |       | G=            | = Geotechnical Sample Custody ``<br>,c denote Split Spoon divided between En |                                  | •    |                       | •                     | ,        |           |  |
| 02/8/   |                 |            | 3     | . а,в<br>: De | pths are reported in feet below ground sur                                   | face                             | eou  | ecillicai Sali        | ripies                |          | _         |  |
| 2   |                 |            |       |               |  |                                  |      |                       |                       |          | _         |  |
| X60910  |                 |            |       |               |  |                                  |      |                       |                       |          |           |  |
| 2   |                 |            |       |               |  |                                  |      |                       |                       |          | _         |  |
| 00000   |                 |            |       |               |  |                                  |      |                       |                       |          |           |  |
|   |                 |            |       |               |  |                                  |      |                       |                       |          | _         |  |
| 1<br>1<br>1   |                 |            |       |               |  |                                  |      |                       |                       |          | -         |  |
| - I   |                 |            |       |               |  |                                  |      |                       |                       |          |           |  |
| 21 pt   |                 |            |       |               |  |                                  |      |                       |                       |          | _         |  |
| 0000  |                 |            |       |               |  |                                  |      |                       |                       |          | _         |  |
| BORING LOG 175669043_TVA_KIF_TDEC.GPJ. TDEC SUBSURF DT 20190530.GDT 29920 |                 |            |       |               |  |                                  |      |                       |                       |          |           |  |
| P BORIT   |                 |            |       |               |  |                                  |      |                       |                       |          | -         |  |
| ΛΑ<br>Ε   |                 |            |       |               |  |                                  |      |                       |                       |          |           |  |



|     |                    |                 |     | <b>.</b> |  |  | 5 .             |      | VIE 3                 | rpn4                  |       |           |              |
|-----|--------------------|-----------------|-----|----------|--|--|-----------------|------|-----------------------|-----------------------|-------|-----------|--------------|
| l   |                    | Borehole        | -   |          |  |  | tantec Boring   |      |                       |                       |       |           |              |
| l   | lient              |                 |     |          | ssee Valley Authority  | -  | oring Locatio   |      |                       | 22 N; 2,406,649       |       |           |              |
| l   | -                  | Number          |     |          |  | -  | urface Elevat   | tior | -                     | Elevatio              |       |           |              |
|     | -                  | Name            |     |          | EC Order   | -  | ate Started     | _    | 7/10/19               | Comple                |       |           | 9            |
|     | •                  | Location        | -   |          | rriman, Tennessee  | Depth to Water N/A Date/Time N/A  Depth to Water N/A Date/Time N/A |                 |      |                       |                       |       |           |              |
|     | •                  | or <u>C. Se</u> |     |          | Logger C. Sexton wkston (Subcontractor)                                      | -  | rill Rig Type   | _    |                       |                       | ne    | - IN/A    |              |
|     | -                  |                 | _   |          | Sampling Tools (Type and Siz   | _  | • • •           |      |                       |                       | PVC   | : liners  |              |
|     |                    |                 | -   |          | ,                                      | ارے.<br>ا/A  | D107 Duai Tube  | , 00 | on Camping            | Cystem w/ 00          | 1 00  | 7 1111013 |              |
| I   |                    | •               |     | •        | and Size) N/A  | .,,,   |                 |      |                       | Overdrill             | De    | nth N     |              |
|     |                    | _               | • • | •        | GH70 Direct Push Weight N//  | A  | Drop N          | /A   |                       | Efficiency            |       | ν/Α       |              |
|     | •                  | le Azimu        |     | , -      | N/A  | В  | orehole Inclir  |      | ion (from             | •                     | N/A   | 4         |              |
| R   | eview              | ed By           | C   | C. Ko    | ocka   | _  | pproved By      |      | •                     | ,                     |       |           |              |
|     |                    | _ithology       |     |          |  |  | Overburden:     | - 5  | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |       | Rec. Ft   | Blows/PSI    |
| Dep | th Ft <sup>3</sup> | Elevation       | Gra | ohic     | Description  |  | Rock Core:      |      | RQD %                 | Run Ft                |       | Rec. Ft   | Rec. %       |
|     | 0.0                | 781.3           |     |          | Top of Hole  |  |                 |      |                       |                       |       |           |              |
| - 0 |                    |                 |     |          | CLAYEY SILT WITH GRAVEL, ML,   |  |                 |      |                       |                       |       |           |              |
| - 1 | 1.4                | 779.9           |     |          | (brown) and 10GY 6/1 (greenish gramedium plasticity, loose, dry, iron o      | • / ·  |                 |      |                       |                       | )))   |           | -            |
|     |                    | 770.0           |     |          |  |  |                 |      | 5504                  | 00.40                 | 0.0   | 0.7       | <b>N</b> 1/A |
| - 2 |                    |                 |     |          | SILT, ML, 2.5Y 6/1 (gray), coarse, lo<br>dense, dry, fissured, weathered sha |  | o very          |      | DP01                  | 0.0 - 4.0             | - 4.0 | 3.7       | N/A -        |
| - 3 |                    |                 |     |          | , ,,   |  |                 |      |                       |                       | (((   |           | _            |
|     | 4.0                | 777.3           |     |          |  |  |                 |      |                       |                       | (((   |           |              |
| -4- | 4.0                | 111.5           |     |          | Bedrock Refusal /  |  |                 |      |                       |                       | 1 111 |           |              |
|     |                    |                 |     |          | Bottom of Hole at 4.0 Ft.  |  |                 |      |                       |                       |       |           | _            |
|     |                    |                 |     |          | Top of Rock = 4.0 Ft.  |  |                 |      |                       |                       |       |           |              |
|     |                    |                 |     |          | Top of Rock Elevation = 777.3 Ft.  |  |                 |      |                       |                       |       |           | _            |
|     |                    |                 |     |          |  |  |                 |      |                       |                       |       |           | _            |
|     |                    |                 |     |          |  |  |                 |      |                       |                       |       |           |              |
|     |                    |                 |     |          |  |  |                 |      |                       |                       |       |           | -            |
|     |                    |                 |     |          |  |  |                 |      |                       |                       |       |           | _            |
|     |                    |                 | 1:  | E =      | Environmental Sample Custody (two S  | Split S <sub>l</sub>   | poons may be re | equ  | ired to obtai         | n sufficient sam      | ıple) |           |              |
|     |                    |                 | 2:  |          | Geotechnical Sample Custody<br>c denote Split Spoon divided between          | Enviro   | onmental and Ge | eote | echnical Sar          | nples                 |       |           | _            |
|     |                    |                 |     |          | oths are reported in feet below ground s                                     |  |                 |      |                       | •                     |       |           | _            |
|     |                    |                 |     |          |  |  |                 |      |                       |                       |       |           |              |
|     |                    |                 |     |          |  |  |                 |      |                       |                       |       |           | _            |
|     |                    |                 |     |          |  |  |                 |      |                       |                       |       |           | _            |
|     |                    |                 |     |          |  |  |                 |      |                       |                       |       |           |              |
|     |                    |                 |     |          |  |  |                 |      |                       |                       |       |           | -            |
|     |                    |                 |     |          |  |  |                 |      |                       |                       |       |           | _            |
|     |                    |                 |     |          |  |  |                 |      |                       |                       |       |           | _            |
|     |                    |                 |     |          |  |  |                 |      |                       |                       |       |           | -            |
|     |                    |                 |     |          |  |  |                 |      |                       |                       |       |           |              |
|     |                    |                 |     |          |  |  |                 |      |                       |                       |       |           |              |
|     |                    |                 |     |          |  |  |                 |      |                       |                       |       |           |              |



| Client                | Borehole     | ID N/A         | Δ   | Stantec Boring                   | No KIF-               | TB05                  |           |                       |  |  |
|-----------------------|--------------|----------------|---|----------------------------------|-----------------------|-----------------------|-----------|-----------------------|--|--|
| Client                |              |                | ssee Valley Authority   | Boring Locatio                   |                       |                       | 3 E NAD83 |                       |  |  |
|                       | t Number     |                |   | Surface Elevat                   |                       |                       |           |                       |  |  |
| _                     | t Name       |                | DEC Order   | Date Started                     | •                     | Complete              | -         |                       |  |  |
| ,                     | t Locatio    |                | rriman, Tennessee   | Depth to Wate                    | -                     |                       | -         |                       |  |  |
| _                     | ctor C. S    |                | Logger C. Sexton  | Depth to Water N/A Date/Time N/A |                       |                       |           |                       |  |  |
|                       |              |                | wkston (Subcontractor)  | Drill Rig Type                   | _                     |                       |           |                       |  |  |
|                       | -            |                | d Sampling Tools (Type and Size)  | 0 ,,                             |                       |                       | /C liners |                       |  |  |
|                       |              | •              | oling Tools (Type and Size) N/A   |                                  |                       |                       |           |                       |  |  |
| Overd                 | rill Tooling | g (Type        | and Size) N/A   |                                  |                       | Overdrill D           | epth _!   | N/A                   |  |  |
| Samp                  | ler Hamm     | er Type        | GH70 Direct Push Weight N/A   | Drop _N                          | /A                    | Efficiency            | N/A       |                       |  |  |
| Boreh                 | ole Azimu    | th             | N/A   | Borehole Inclin                  | nation (from          | Vertical)             | I/A       |                       |  |  |
| Revie                 | wed By       | C. Ko          | ocka  | Approved By                      | L. Price              |                       |           |                       |  |  |
|                       | Lithology    |                |   | Overburden:                      | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> | Rec. Ft   | Blows/PSI             |  |  |
| Depth Ft <sup>3</sup> | Elevation    | Graphic        | Description   | Rock Core:                       | RQD %                 | Run Ft                | Rec. Ft   | Rec. %                |  |  |
| 0.0                   | 773.6        |                | Top of Hole   | ·                                |                       |                       |           | _                     |  |  |
| - 1<br>- 2<br>- 3     |              |                | CLAYEY SILT WITH GRAVEL, ML, 10 (brown) and 10GY 6/1 (greenish gray) medium plasticity, loose to dense, dry oxide staining                                    | , low to                         | DP01                  | 0.0 - 5.0             | 4.5       | N/A                   |  |  |
| - 4<br>- 5.0          | 768.6        |                | SILT, ML, 2.5Y 6/1 (gray), coarse, loos<br>dense, dry, fissured, weathered shale  | se to very                       |                       |                       |           | _                     |  |  |
| 5                     |              |                | Bedrock Refusal / Bottom of Hole at 5.0 Ft.  Top of Rock = 5.0 Ft.  Top of Rock Elevation = 768.6 Ft.   |                                  |                       |                       |           | -<br>-<br>-           |  |  |
|                       |              | G =<br>2: a,b, | Environmental Sample Custody (two Splie Geotechnical Sample Custody<br>of denote Split Spoon divided between En<br>oths are reported in feet below ground sur | vironmental and Ge               |                       |                       | e)        | -<br>-<br>-<br>-<br>- |  |  |



| С   | lient E            | Borehole   | ID N/A   | \<br>\  | Stantec Borin                    | g No.    | KIF-1               | ГВ05а                 |             |           |  |
|-----|--------------------|------------|----------|---|----------------------------------|----------|---------------------|-----------------------|-------------|-----------|--|
| c   | lient              |            | Tennes   | see Valley Authority  | Boring Location                  |          |                     | 1 N; 2,406,721.7      | 6 E NAD83   | <u> </u>  |  |
| Pi  | roject             | Number     | 175668   | 043   | Surface Eleva                    |          |                     | Elevation             |             |           |  |
| Pi  | roject             | Name       | KIF TD   | EC Order  | Date Started                     | 7.       | /10/19              | —<br>Complete         | ed 7/10/    | 19        |  |
|     | •                  | Location   | n Hai    | rriman, Tennessee   | Depth to Wate                    |          | I/A                 | '<br>Date/Tim         |             | _         |  |
|     | -                  | or C. Se   |          | Logger _C. Sexton   | Depth to Water N/A Date/Time N/A |          |                     |                       |             |           |  |
| D   | rilling            | Contract   | or Hav   | wkston (Subcontractor)  | Drill Rig Type                   | and II   | ) Geop              | robe 3230DT           |             |           |  |
| 0   | verbu              | rden Dril  | ling and | Sampling Tools (Type and Size)  | DT37 Dual Tub                    | e Soil S | ampling             | System w/ 60" P       | VC liners   |           |  |
| R   | ock D              | rilling an | d Samp   | ling Tools (Type and Size) <u>N/A</u>   |                                  |          |                     |                       |             |           |  |
| 0   | verdri             | II Tooling | g (Type  | and Size)N/A  |                                  |          |                     | Overdrill [           | Depth _     | N/A       |  |
|     | •                  |            | • •      | GH70 Direct Push Weight N/A   | Drop <u></u>                     |          |                     | Efficiency            | N/A         |           |  |
| I   |                    | le Azimu   |          | N/A   | Borehole Incli                   |          | •                   | Vertical)             | N/A         |           |  |
| R   | eview              | ed By _    | C. Ko    | cka   | Approved By                      | L. F     | Price               |                       |             |           |  |
|     | L                  | ₋ithology  |          |   | Overburden:                      | Sam      | nple <sup>1,2</sup> | Depth Ft <sup>3</sup> | Rec. Ft     | Blows/PSI |  |
| Dep | th Ft <sup>3</sup> | Elevation  | Graphic  | Description   | Rock Core:                       | RQ       | D %                 | Run Ft                | Rec. Ft     | Rec. %    |  |
| - 0 | 0.0                | 774.1      |          | Top of Hole   |                                  |          |                     |                       | <u> </u>    | _         |  |
|     |                    |            |          | CLAYEY SILT WITH GRAVEL, ML, 10   |                                  |          |                     |                       |             |           |  |
| - 1 |                    |            |          | (brown) and 10GY 6/1 (greenish gray) medium plasticity, loose, dry, iron oxid |                                  |          |                     |                       | <i>\\\\</i> | -         |  |
| - 2 |                    |            |          | •                                       | 3                                |          |                     |                       | <b>)</b> )) | _         |  |
|     | 2.7                | 771.4      |          |   |                                  |          | DP01                | 0.0 - 5.0             | 4.5         | N/A       |  |
| - 3 |                    |            |          | SILTY FAT CLAY SOME GRAVEL, CI  | •                                |          |                     | į č                   |             | _         |  |
| - 4 | 3.8                | 770.3      |          | gray), medium to high plasticity, soft, notice staining                       | noist, iron                      |          |                     |                       |             |           |  |
| - 4 | - 0                | 700.4      |          | SILT, ML, 2.5Y 6/1 (gray), coarse, loos                                       | se to verv                       |          |                     |                       |             | _         |  |
| - 5 | 5.0                | 769.1      |          | dense, dry, fissured, weathered shale   |                                  |          |                     |                       | <u> </u>    |           |  |
|     |                    |            |          | Bedrock Refusal /   |                                  |          |                     |                       |             | _         |  |
|     |                    |            |          | Bottom of Hole at 5.0 Ft.   |                                  |          |                     |                       |             |           |  |
|     |                    |            |          | Top of Rock = 5.0 Ft.   |                                  |          |                     |                       |             | -         |  |
|     |                    |            |          | Top of Rock Elevation = 769.1 Ft.   |                                  |          |                     |                       |             | _         |  |
|     |                    |            |          |   |                                  |          |                     |                       |             |           |  |
|     |                    |            |          |   |                                  |          |                     |                       |             | -         |  |
| l   |                    |            |          |   |                                  |          |                     |                       |             | _         |  |
|     |                    |            | 1: E =   | Environmental Sample Custody (two Spli  | t Spoons may be r                | equired  | I to obtai          | n sufficient samp     | ole)        |           |  |
|     |                    |            | G =      | Geotechnical Sample Custody  c denote Split Spoon divided between En          | ,                                |          |                     | ·                     | ,           | _         |  |
|     |                    |            |          | oths are reported in feet below ground sur                                    |                                  | eoleciii | ilicai Saii         | iipies                |             |           |  |
|     |                    |            |          |   |                                  |          |                     |                       |             | _         |  |
|     |                    |            |          |   |                                  |          |                     |                       |             | _         |  |
|     |                    |            |          |   |                                  |          |                     |                       |             |           |  |
|     |                    |            |          |   |                                  |          |                     |                       |             | -         |  |
|     |                    |            |          |   |                                  |          |                     |                       |             | _         |  |
|     |                    |            |          |   |                                  |          |                     |                       |             |           |  |
|     |                    |            |          |   |                                  |          |                     |                       |             | -         |  |
|     |                    |            |          |   |                                  |          |                     |                       |             | _         |  |
|     |                    |            |          |   |                                  |          |                     |                       |             |           |  |
|     |                    |            |          |   |                                  |          |                     |                       |             |           |  |



| С   | lient E            | Borehole    | ID   | N/        | A   | Stantec Boring No. KIF-TB06 |      |                       |                       |                  |           |  |  |
|---|--------------------|-------------|------|-----------|---|-----------------------------|------|-----------------------|-----------------------|------------------|-----------|--|--|
| c   | lient              |             | Т    | enne      | essee Valley Authority  | Boring Location             |      |                       | 8 N; 2,406,841.56     | E NAD83          |           |  |  |
| P   | roject             | Number      | 1    | 7566      | 8043  | Surface Eleva               | tio  | n 769.2 ft            | Elevation             | Datum            | NGVD29    |  |  |
| l P   | roject             | Name        | K    | (IF TE    | DEC Order   | Date Started                |      | 7/10/19               | <br>Completed         | 7/10/            | 19        |  |  |
|   | •                  | Location    |      | На        | arriman, Tennessee  | Depth to Wate               | er – | N/A                   | <br>Date/Time         |                  |           |  |  |
| In  | spect              | or C. Se    | exto | on        | Logger C. Sexton  | Depth to Wate               | er _ | N/A                   | <br>Date/Time         | N/A              |           |  |  |
| D   | rilling            | Contract    | or   | Ha        | awkston (Subcontractor)   | Drill Rig Type              | an   | d ID Geopr            | robe 3230DT           |                  |           |  |  |
|   | verbu              | ırden Dril  | ling | g and     | d Sampling Tools (Type and Size)  | DT37 Dual Tube              | e So | oil Sampling          | System w/ 60" PV      | C liners         |           |  |  |
| R   | ock D              | rilling and | d S  | Samp      | oling Tools (Type and Size) <u>N/A</u>                                    |                             |      |                       |                       |                  |           |  |  |
|   | verdr              | ill Tooling | j (T | ype       | and Size) N/A   |                             |      |                       | _ Overdrill D         | epth _           | N/A       |  |  |
|   |                    |             |      | Туре      | e GH70 Direct Push Weight N/A   | Drop _N                     |      |                       | Efficiency _          | N/A              |           |  |  |
| 1   |                    | le Azimu    |      |           | N/A   | Borehole Inclin             |      | •                     | Vertical)N            | /A               |           |  |  |
| R   | eview              | ed By _     |      | C. Ko     | ocka  | Approved By                 | _    | L. Price              |                       |                  |           |  |  |
|   |                    | Lithology   |      |           |   | Overburden:                 | ;    | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> | Rec. Ft          | Blows/PSI |  |  |
| Dep   | th Ft <sup>3</sup> | Elevation   | Gr   | aphic     | Description   | Rock Core:                  |      | RQD %                 | Run Ft                | Rec. Ft          | Rec. %    |  |  |
| - 0   | 0.0                | 769.2       | 0-70 | 200-00    | Top of Hole   |                             |      |                       |                       | W                |           |  |  |
|   | 0.3                | 768.9       |      | ्रक०क<br> | Rock fill and soil  |                             |      |                       |                       |                  |           |  |  |
| - 1   |                    |             |      |           | SILT, ML, 2.5Y 6/1 (gray) to N 8/ (white                                  |                             |      |                       |                       | $\rangle\rangle$ | _         |  |  |
| - 2   |                    |             |      |           | loose to very dense, dry, fissured, Wea                                   | thered shale                |      | DP01                  | 0.0 - 3.5             | 2.5              | N/A       |  |  |
|   |                    |             |      |           |   |                             |      |                       | O.                    | ))               |           |  |  |
| - 3   | 3.5                | 765.7       |      |           |   |                             |      |                       |                       |                  | -         |  |  |
|   | 0.0                | 700.7       |      | 1111      | Bedrock Refusal /   |                             |      | 1                     |                       | [[[              | _         |  |  |
|   |                    |             |      |           | Bottom of Hole at 3.5 Ft.   |                             |      |                       |                       |                  |           |  |  |
|   |                    |             |      |           | Top of Rock = 3.5 Ft.   |                             |      |                       |                       |                  | _         |  |  |
|   |                    |             |      |           | Top of Rock Elevation = 765.7 Ft.   |                             |      |                       |                       |                  | _         |  |  |
|   |                    |             |      |           |   |                             |      |                       |                       |                  |           |  |  |
|   |                    |             |      |           |   |                             |      |                       |                       |                  | _         |  |  |
|   |                    |             |      |           |   |                             |      |                       |                       |                  | -         |  |  |
|   |                    |             |      |           |   |                             |      |                       |                       |                  |           |  |  |
|   |                    |             |      |           | = Environmental Sample Custody (two Spli<br>= Geotechnical Sample Custody | t Spoons may be re          | equ  | ired to obtain        | n sufficient sample   | <del>;</del> )   | -         |  |  |
|   |                    |             |      | 2: a,b    | o,c denote Split Spoon divided between En                                 | vironmental and G           | eote | echnical San          | nples                 |                  |           |  |  |
| 73/6/7  |                    |             | ,    | 3: De     | pths are reported in feet below ground surf                               | face                        |      |                       |                       |                  |           |  |  |
| 900   |                    |             |      |           |   |                             |      |                       |                       |                  | _         |  |  |
| 08  |                    |             |      |           |   |                             |      |                       |                       |                  |           |  |  |
| 200   |                    |             |      |           |   |                             |      |                       |                       |                  | _         |  |  |
| 200   |                    |             |      |           |   |                             |      |                       |                       |                  | _         |  |  |
| 2   |                    |             |      |           |   |                             |      |                       |                       |                  |           |  |  |
|   |                    |             |      |           |   |                             |      |                       |                       |                  | -         |  |  |
| EIF BONNS GLOS I 78000M-2, IVA,NI EI DEC, GIV I DEC SOSSOIT DI 20 9000,001 1 2920 |                    |             |      |           |   |                             |      |                       |                       |                  | _         |  |  |
| 240000  |                    |             |      |           |   |                             |      |                       |                       |                  |           |  |  |
| 2   |                    |             |      |           |   |                             |      |                       |                       |                  | -         |  |  |
|   |                    |             |      |           |   |                             |      |                       |                       |                  |           |  |  |
|   |                    |             |      |           |   |                             |      |                       |                       |                  |           |  |  |
| <u></u>   |                    |             |      |           |   |                             |      |                       |                       |                  |           |  |  |



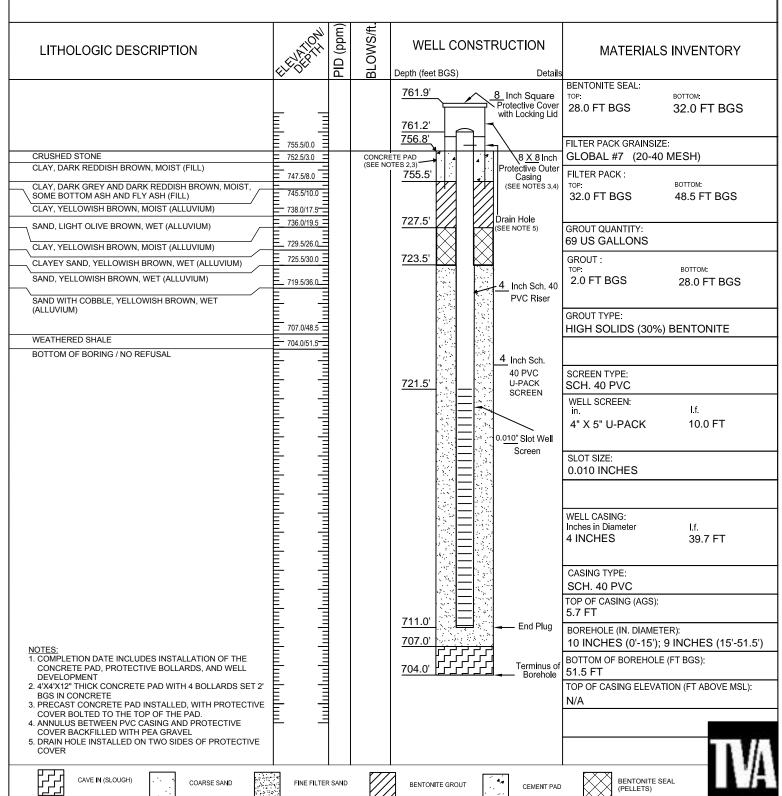
|     | Client F           | Borehole    | ID N/A    | <u> </u>   | Stantec Boring  | No KIF-               | TB07                  |            |           |
|-----|--------------------|-------------|-----------|--|-----------------|-----------------------|-----------------------|------------|-----------|
| 1   | lient              | 20.01.010   |           | ssee Valley Authority  | Boring Location |                       | 33 N; 2,406,888.79    | 9 E NAD83  | 3         |
| 1   |                    | Number      |           |  | Surface Eleva   |                       | Elevation             |            |           |
| 1   | -                  | Name        |           | EC Order   | Date Started    | 7/10/19               | Complete              |            | -         |
|     | •                  | Locatio     |           | rriman, Tennessee  | Depth to Wate   |                       | Date/Time             |            |           |
|     | -                  | or C. S     |           | Logger C. Sexton   | Depth to Wate   |                       | Date/Time             |            |           |
|     | •                  |             |           | wkston (Subcontractor)   | Drill Rig Type  |                       |                       |            |           |
| c   | verbu              | ırden Dril  | lling and | Sampling Tools (Type and Size)   | DT37 Dual Tube  | Soil Sampling         | System w/ 60" P\      | /C liners  |           |
| R   | ock D              | rilling an  | d Samp    | ling Tools (Type and Size)N/A  |                 |                       |                       |            |           |
| c   | verdr              | ill Tooling | g (Type   | and Size) <u>N/A</u>   |                 |                       | Overdrill D           | epth _     | N/A       |
| s   | ample              | er Hamm     | er Type   | GH70 Direct Push Weight N/A  | Drop N          | /A                    | Efficiency _          | N/A        |           |
| В   | oreho              | le Azimu    | ıth       | N/A  | Borehole Inclir | nation (from          | Vertical)N            | I/A        |           |
| R   | Review             | ed By       | C. Ko     | cka  | Approved By     | L. Price              |                       |            |           |
|     |                    | Lithology   |           |  | Overburden:     | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> | Rec. Ft    | Blows/PSI |
| Dep | th Ft <sup>3</sup> | Elevation   | Graphic   | Description  | Rock Core:      | RQD %                 | Run Ft                | Rec. Ft    | Rec. %    |
| - 0 | 0.0                | 768.6       |           | Top of Hole  |                 |                       |                       |            |           |
| ľ   |                    |             | 133       | Asphalt and soil   |                 |                       |                       | <i>\\\</i> |           |
| - 1 | 1.2                | 767.4       | 233       |  |                 |                       | 0.0                   | )))        | -         |
|     |                    |             |           | SILT, ML, 2.5Y 6/1 (gray), coarse, loo   | se to very      | DP01                  | 0.0 - 3.0             | 2.4        | N/A       |
| - 2 |                    |             |           | dense, dry, fissured, weathered shale  |                 |                       |                       | \\\        | -         |
| - 3 | 3.0                | 765.6       |           |  |                 |                       |                       | ((()       |           |
|     |                    |             |           | Bedrock Refusal / Bottom of Hole at 3.0 Ft.  |                 |                       |                       |            |           |
|     |                    |             |           |  |                 |                       |                       |            | _         |
|     |                    |             |           | Top of Rock = 3.0 Ft. Top of Rock Elevation = 765.6 Ft.                              |                 |                       |                       |            | _         |
|     |                    |             |           | TOP OF NOCK Elevation - 703.0 Ft.  |                 |                       |                       |            |           |
|     |                    |             |           |  |                 |                       |                       |            | -         |
|     |                    |             |           |  |                 |                       |                       |            | -         |
|     |                    |             |           |  |                 |                       |                       |            |           |
|     |                    |             | 4. 5 -    | Finalization and all Committee Control of the Control                                | :4 C            |                       | :                     | - \        | -         |
|     |                    |             | G =       | Environmental Sample Custody (two Spl<br>Geotechnical Sample Custody                 |                 | ·                     | ·                     | e)         | -         |
|     |                    |             |           | c denote Split Spoon divided between Er<br>oths are reported in feet below ground su |                 | eotechnical Sa        | mples                 |            |           |
|     |                    |             |           | ,  |                 |                       |                       |            | _         |
|     |                    |             |           |  |                 |                       |                       |            | _         |
|     |                    |             |           |  |                 |                       |                       |            |           |
|     |                    |             |           |  |                 |                       |                       |            | -         |
|     |                    |             |           |  |                 |                       |                       |            |           |
|     |                    |             |           |  |                 |                       |                       |            | -         |
|     |                    |             |           |  |                 |                       |                       |            | -         |
| 1   |                    |             |           |  |                 |                       |                       |            |           |
| 1   |                    |             |           |  |                 |                       |                       |            | _         |
|     |                    |             |           |  |                 |                       |                       |            | -         |
|     |                    |             |           |  |                 |                       |                       |            |           |
|     |                    |             |           |  |                 |                       |                       |            | -         |
|     |                    |             |           |  |                 |                       |                       |            |           |

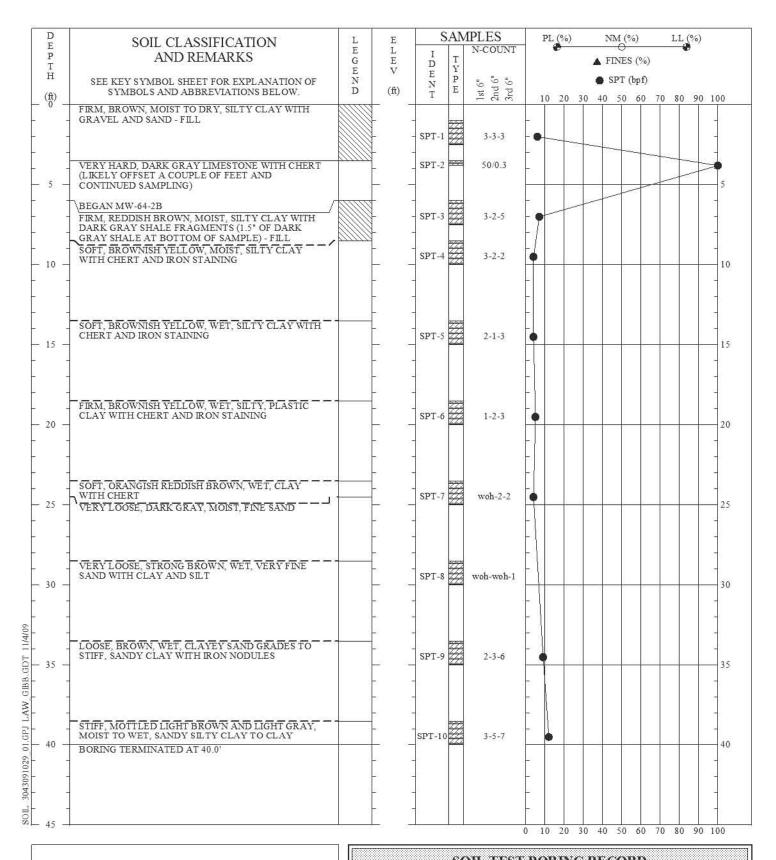


|     | lient [            | Borehole    | ID.   | NI/A  | Δ   | Stantec Boring     | n N    | lo KIF.               | TB08                  |               |         |           |
|-----|--------------------|-------------|-------|-------|---|--------------------|--------|-----------------------|-----------------------|---------------|---------|-----------|
|     | lient              | OUGUDIE     | -     |       | ssee Valley Authority   | Boring Location    |        |                       |                       | 54 5          | - NAD83 |           |
|     |                    | Number      |       |       |   | Surface Eleva      |        |                       |                       |               |         |           |
|     | •                  | Name        |       |       | EC Order  | Date Started       | LIO    | 7/10/19               | Complete              |               |         |           |
|     | -                  | Location    |       |       | rriman, Tennessee   | Depth to Wate      | -<br>r |                       | Complete Date/Tim     |               | N/A     |           |
|     | -                  | or C. Se    | _     |       | Logger C. Sexton  | Depth to Wate      | _      |                       | Date/Tim              |               | N/A     |           |
|     | •                  | -           |       |       | wkston (Subcontractor)  | Drill Rig Type     | _      |                       | <del></del>           |               |         |           |
|     | •                  |             | _     |       | I Sampling Tools (Type and Size)  | 0 7.               |        | -                     |                       | PVC           | liners  |           |
|     |                    |             | -     |       | ling Tools (Type and Size) N/A  |                    |        |                       |                       |               |         |           |
| C   | verdri             | ill Tooling | ı (Ty | /ре а | and Size) N/A   |                    |        |                       | Overdrill I           | De            | pth _   | N/A       |
| S   | ample              | er Hamme    | er T  | ype   | GH70 Direct Push Weight N/A   | Drop _N            | I/A    |                       | Efficiency            |               | I/A     |           |
| В   | oreho              | le Azimu    | th _  |       | N/A   | Borehole Incli     | nat    | tion (from            | Vertical)             | N/A           | 4       |           |
| R   | eview              | ed By _     | C     | C. Ko | ocka  | Approved By        |        | L. Price              |                       |               |         |           |
|     |                    | Lithology   |       |       |   | Overburden:        |        | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |               | Rec. Ft | Blows/PSI |
| Dep | th Ft <sup>3</sup> | Elevation   | Gra   | phic  | Description   | Rock Core:         |        | RQD %                 | Run Ft                |               | Rec. Ft | Rec. %    |
| - 0 | 0.0                | 767.9       | 0.500 | 00-00 | Top of Hole   |                    |        |                       |                       |               |         |           |
|     |                    |             |       |       | Rock fill and asphalt   |                    |        |                       |                       | $\mathcal{U}$ |         |           |
| - 1 | 1.2                | 766.7       |       | 888   |   |                    |        |                       |                       | 111           |         | -         |
| - 2 |                    |             |       |       | SILT, ML, 2.5Y 6/1 (gray), coarse, loos dense, dry, fissured, weathered shale | se to very         |        | DP01                  | 0.0 - 4.0             | 0.0           | 3.0     | N/A -     |
|     |                    |             |       |       | delise, dry, lissured, weathered shale  |                    |        | DI OI                 | 0.0 - 4.0             | 40            | 3.0     | IN/A      |
| - 3 |                    |             |       |       |   |                    |        |                       |                       | <b>}</b> }}   |         | -         |
|     | 4.0                | 763.9       |       |       |   |                    |        |                       |                       |               |         |           |
| -   |                    |             |       |       | Bedrock Refusal /   |                    |        |                       |                       |               |         |           |
|     |                    |             |       |       | Bottom of Hole at 4.0 Ft.   |                    |        |                       |                       |               |         | _         |
|     |                    |             |       |       | Top of Rock = 4.0 Ft.   |                    |        |                       |                       |               |         |           |
|     |                    |             |       |       | Top of Rock Elevation = 763.9 Ft.   |                    |        |                       |                       |               |         | _         |
|     |                    |             |       |       |   |                    |        |                       |                       |               |         | -         |
|     |                    |             |       |       |   |                    |        |                       |                       |               |         |           |
|     |                    |             |       |       |   |                    |        |                       |                       |               |         | _         |
|     |                    |             |       |       |   |                    |        |                       |                       |               |         | -         |
|     |                    |             | 1:    |       | Environmental Sample Custody (two Spli  | it Spoons may be r | equ    | ired to obta          | in sufficient samp    | ole)          |         |           |
|     |                    |             | 2:    | a,b,  | : Geotechnical Sample Custody<br>,c denote Split Spoon divided between En     | vironmental and G  | eote   | echnical Sai          | mples                 |               |         | _         |
|     |                    |             | 3:    | Dep   | oths are reported in feet below ground sur                                    | face               |        |                       |                       |               |         | _         |
|     |                    |             |       |       |   |                    |        |                       |                       |               |         |           |
|     |                    |             |       |       |   |                    |        |                       |                       |               |         | _         |
|     |                    |             |       |       |   |                    |        |                       |                       |               |         | _         |
|     |                    |             |       |       |   |                    |        |                       |                       |               |         |           |
|     |                    |             |       |       |   |                    |        |                       |                       |               |         | -         |
|     |                    |             |       |       |   |                    |        |                       |                       |               |         | _         |
|     |                    |             |       |       |   |                    |        |                       |                       |               |         |           |
|     |                    |             |       |       |   |                    |        |                       |                       |               |         | -         |
|     |                    |             |       |       |   |                    |        |                       |                       |               |         |           |
|     |                    |             |       |       |   |                    |        |                       |                       |               |         | _         |
|     |                    |             |       |       |   |                    |        |                       |                       |               |         |           |

#### MONITORING WELL INSTALLATION FIELD LOG

| FACILITY NAME:        | FACILITY ID:      |           | WELL NO.: |                              |                         |  |
|-----------------------|-------------------|-----------|-----------|------------------------------|-------------------------|--|
| KINGSTON FOSSIL PLANT |                   |           | M         | IW-22C                       |                         |  |
| ENGINEER:             | DRILLING METHOD:  |           |           | CATION/COORE                 |                         |  |
| S&ME / N.PETERSON     | SONIC             |           |           | 577060.67 E:<br>N STATE PLAN |                         |  |
| WEATHER:              | DRILLING COMPANY: |           | DA        | ATE/TIME                     |                         |  |
| CLOUDY                | CASCADE           |           |           |                              |                         |  |
| TEMPERATURE:          | DRILL RIG:        | DRILLER:  |           | TARTED:                      | COMPLETED:              |  |
| 55° F                 | SONIC             | T. TAYLOR | 11        | 1/7/17                       | 1/30/18<br>(SEE NOTE 1) |  |





REMARKS: STANDARD PENETRATION RESISTANCE TESTING PERFORMED USING AN AUTOMATIC HAMMER.

NO GROUND WATER ENCOUNTERED AT TIME OF

EXPLORATION.

### SOIL TEST BORING RECORD

**PROJECT:** TVA KIF MW-6AR Installation

**DRILLED:** September 2, 2009 **BORING NO.:** MW-6AR

PROJ. NO.: 3043-09-1029-01 PAGE 1 OF 1

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Driller : Tri-State

Logged By; N.S.

Checked By: J.M.



|                                   | Tennessee Valley Auti  | nority                           |  | WELL KIF-22 DINSTRUCTION DETAIL  |
|-----------------------------------|--|----------------------------------|--|--|
|                                   | ELEV.<br>(ft-msl)  | DEPTH (ft)<br>SAMPLES<br>SYMBOLS | MATERIALS DESCRIPTION  | Stickup 3.0°   |
|                                   | 750.2<br>746.2<br>744.2<br>741.7<br>740.2<br>738.2<br>736.7<br>733.2<br>20<br>731.7<br>728.2<br>25<br>723.2<br>30<br>718.2<br>35 |                                  | Red-brown silty, sandy CLAY (fill)  Light brown sandy gravel and gravelly SAND (fill)  Dark red-brown very dense shaly CLAY (fill)  Brown sandy CLAY, with flyash moist (fill)  Brown-tan-gray mottled sandy gravelly CLAY, moist (fill)  No recovery GWL 738 ft-msl at 15.2 ft  No recovery  Tan CLAY with 0.2 layer ash at 26.6 ft (fill)  Tan very clayey SAND (alluvium)  Tan slightly clayey SAND with occasional gravel (alluvium) | Sand pack   Sent online   Se |
| PROJECT -                         | 45 704.2 50 55 Kingston Fossii Plant   |                                  | Top of rock at 49.0 it  ORILLING COMPANY TVA Field En  | gineering  |
| LOCATION<br>DRILL RIG<br>LOGGER/E | Kingston, 75:  Hollow Stem Auger  NGINEERJim Overton  VEL (INITIAL)15.2 ft   |                                  | DATE DRILLED   |  |

| PROJ            | ECT:           | TVA KIF - Monitoring We<br>Kingston, Th   |                        |                    | ВС                  | ORIN       | G LC        | -22B |                           |     |     |               |            |         |
|-----------------|----------------|---|------------------------|--------------------|---------------------|------------|-------------|------|---------------------------|-----|-----|---------------|------------|---------|
|                 |                | S&ME Project No. 143  |                        |                    |                     |            |             |      |                           |     |     |               |            |         |
| DATE            | DRILLE         | ED: <b>7/31/14</b>  | ELEVATION: Not Recorde | ed                 |                     |            |             |      | nd bedrock servation of   |     | -   |               |            |         |
| DRILL           | ING ME         | THOD: 6-5/8" H.S.A / PQ3  | BORING DEPTH: 79 feet  |                    |                     |            |             |      | anced with                |     |     |               |            |         |
| LOGG            | ED BY:         | J. Feuge  | WATER LEVEL @ TOB: 1   | 5 fee              | t                   |            |             |      | auger refus<br>PQ3 coring |     |     |               | <b>a</b> 5 |         |
| DRILL           | ER: <b>H.</b>  | Herd  | WATER LEVEL @ 24 hrs:  | $\overline{}$      | Recorde             | ed         |             |      |                           | _   |     |               |            |         |
|                 | ੂ              |   |                        | EVEL               | N<br>O              | Š          | Z L         |      | IETRATION<br>A (blows/ft) | l   |     | ERVA<br>inche |            | 핔       |
| DEPTH<br>(feet) | GRAPHIC<br>LOG | MATERIAL DI   | ESCRIPTION             | <b>NATER LEVEL</b> | ELEVATION<br>(feet) | SAMPLE NO. | SAMPLE TYPE |      | 30                        | 1st | Snd | 3rd           | 4th        | N VALUE |
|                 |                | Crushed Stone Aggregate (2-   |                        | 7                  |                     |            | 03          |      |                           |     |     |               |            |         |
| 5-              |                | FAT CLAY (CH) - With black slightly moist - FILL  |                        |                    |                     |            |             |      |                           |     |     |               |            |         |
| 10-             |                | <b>LEAN CLAY (CL)</b> - With tan w<br>fragments, red fat clay, and to<br>orange and tan; slightly moist | ace bottom ash;        |                    |                     |            |             |      |                           | 5   | 9   | 11            | 9          | 19      |
|                 |                | BOTTOM ASH - With some filean clay intervals; slightly moto loose - FILL                                |                        |                    |                     |            |             |      |                           | 0   | 1   | 4             | 13         | 5       |

BORING LOG - TVA 11-121 MW.GPJ 8/13/14

- 1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
- 2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
- 3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
- 4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.



| PROJECT:                 | TVA KIF - Monitoring We<br>Kingston, TI<br>S&ME Project No. 143                      | N                     |             | BOF                 | RING L                                | KIF-22B   |         |               |                  |         |          |
|--------------------------|--|-----------------------|-------------|---------------------|---------------------------------------|---|---------|---------------|------------------|---------|----------|
| DATE DRILL               | .ED: <b>7/31/14</b>  | ELEVATION: Not Record | ed          |                     |                                       | NOTES: Soil and bedrock of upon visual observation of   |         |               |                  |         |          |
| DRILLING M               | ETHOD: 6-5/8" H.S.A / PQ3  | BORING DEPTH: 79 feet |             |                     |                                       | Boring was advanced with of stem augers to auger refusa | 6-5/8   | inch          | holle            | w       |          |
| LOGGED BY                | : J. Feuge   | WATER LEVEL @ TOB:    | 15 feet     |                     |                                       | cored utilizing PQ3 coring t                            |         |               |                  | 43      |          |
| DRILLER: H               | l. Herd  | WATER LEVEL @ 24 hrs: |             | ecorde              |                                       |   |         |               |                  |         |          |
| = ( )                    |  |                       | EVEL        | NOI. (              | NO.                                   | STANDARD PENETRATION TEST (SPT) DATA (blows/ft)         |         | INTI<br>Sws/6 |                  |         | <b>#</b> |
| DEPTH (feet) GRAPHIC LOG | MATERIAL DI  | ESCRIPTION            | WATER LEVEL | ELEVATION<br>(feet) | SAMPLE NO.<br>SAMPLE TYPE             |   | 1st     | 2nd           | 3rd              | 4th     | N VALUE  |
| 15—                      | BOTTOM ASH - With some filean clay intervals; slightly moto loose - FILL (continued) |                       | Δ̈́         |                     | S S S S S S S S S S S S S S S S S S S | 5 15 30   | 1 3 3 3 | 5 5 4 4 4     | 4<br>5<br>4<br>0 | 5 5 2 1 | 9 9 2 4  |

BORING LOG - TVA 11-121 MW.GPJ 8/13/14

- 1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
- 2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
- 3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
- 4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.



Page 2 of 7

| PROJECT:                 | TVA KIF - Monitoring We<br>Kingston, TI<br>S&ME Project No. 143                       | N  |             | ВС                  | RING L     | _0 |       | F-22  | В                                   |       |                |      |     |         |
|--------------------------|---|--|-------------|---------------------|------------|----|-------|-------|-------------------------------------|-------|----------------|------|-----|---------|
| DATE DRILL               | -   | ELEVATION: Not Record                        | ed          |                     |            |    |       |       | oil and bedrock observation of      |       |                |      |     |         |
| DRILLING M               | ETHOD: 6-5/8" H.S.A / PQ3   | BORING DEPTH: 79 feet                        |             |                     |            |    | Borin | g was | advanced with                       | 6-5/8 | -inch          | holl | ow  |         |
| LOGGED BY                | : J. Feuge  | WATER LEVEL @ TOB:                           | 15 fee      | t                   |            |    |       |       | s to auger refus<br>ng PQ3 coring t |       |                |      | as  |         |
| DRILLER: H               | . Herd  | WATER LEVEL @ 24 hrs:                        | Not         | Recorde             | _          |    |       |       |                                     |       |                |      |     |         |
| _                        |   |  | SVEL        | NO                  | S S        | _  |       |       | PENETRATION DATA (blows/ft)         | ı     | T INT<br>ows/6 |      |     | Щ       |
| DEPTH (feet) GRAPHIC LOG | MATERIAL DI   | ESCRIPTION                                   | WATER LEVEL | ELEVATION<br>(feet) | SAMPLE NO. |    | 5     | 15    | 30                                  | 1st   | 2nd            | 3rd  | 4th | N VALUE |
| 7////                    | BOTTOM ASH - With some filean clay intervals; slightly me to loose - FILL (continued) | ne sand and sandy<br>pist to wet; very loose |             |                     |            |    |       |       |                                     | 0     | 0              | 1    | 3   | 1       |
| 30-                      | <b>LEAN CLAY WITH SAND (CL</b> very moist to wet; very soft to                        | ) - Tan and brown;<br>firm - ALLUVIUM        |             |                     |            |    |       |       |                                     | 1 0   | 3              | 3    | 3   | 6       |
| -                        |   |  |             |                     |            |    | •     |       |                                     | 0     | 1              | 0    | 0   | 1       |
| 35—                      | <b>SILTY SAND (SM)</b> - Orange b<br>loose - ALLUVIUM                                 | prown; wet; very                             |             |                     |            |    |       |       |                                     | 0     | 1              | 1    | 1   | 2       |
|                          |   |  |             |                     |            | X  |       |       |                                     |       |                |      |     |         |

BORING LOG - TVA 11-121 MW.GPJ 8/13/14

- 1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
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- 3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
- 4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.



Page 3 of 7

PROJECT: **BORING LOG: TVA KIF - Monitoring Well Installation** KIF-22B Kingston, TN S&ME Project No. 1431-11-121 NOTES: Soil and bedrock descriptions based DATE DRILLED: 7/31/14 ELEVATION: Not Recorded upon visual observation of obtained samples. Boring was advanced with 6-5/8-inch hollow DRILLING METHOD: 6-5/8" H.S.A / PQ3 BORING DEPTH: 79 feet stem augers to auger refusal. Bedrock was WATER LEVEL @ TOB: 15 feet LOGGED BY: J. Feuge cored utilizing PQ3 coring techniques. DRILLER: H. Herd WATER LEVEL @ 24 hrs: Not Recorded SAMPLE TYPE SPT INTERVALS STANDARD PENETRATION **WATER LEVEI** SAMPLE NO. ELEVATION N VALUE TEST (SPT) DATA (blows/ft) (blows/6 inches) DEPTH GRAPHIC (feet) (feet) LOG MATERIAL DESCRIPTION 2nd 3rd 15 30 1 0 0 1 40 3 4 4 1 2 1 POORLY GRADED SAND (SP) - With occasional gravel; orange brown and tan; wet; very loose to 2 3 3 5 1 very dense - ALLUVIUM 45 3 5 7 8 50/ 14 34 50/4'

NOTES:

BORING LOG - TVA 11-121 MW.GPJ 8/13/14

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Page 4 of 7

| PROJI           | ECT:           | TVA KIF - Monitoring We<br>Kingston, TI<br>S&ME Project No. 143  | N  |             | ВС                  | ORING L                       |     | (IF-22   | В                     |                 |       |               |      |     |           |
|-----------------|----------------|--|--|-------------|---------------------|-------------------------------|-----|----------|-----------------------|-----------------|-------|---------------|------|-----|-----------|
| DATE            | DRILLI         | ED: <b>7/31/14</b>   | ELEVATION: Not Record  | ed          | •                   |                               |     |          | oil and be<br>observa |                 |       | -             |      |     |           |
| DRILL           | ING MI         | ETHOD: 6-5/8" H.S.A / PQ3  | BORING DEPTH: 79 feet  |             |                     |                               | Bo  | ring was | advance<br>s to auge  | d with          | 6-5/8 | -inch         | holl | ow  |           |
| LOGG            | ED BY          | J. Feuge   | WATER LEVEL @ TOB:   | 15 fee      | t                   |                               |     |          | ng PQ3 o              |                 |       |               |      | as  |           |
| DRILL           | ER: H.         | Herd   | WATER LEVEL @ 24 hrs:  | Not F       | Recorde             | _                             |     |          |                       |                 |       |               |      |     | ,         |
| l<br>I          | <b>≌</b>       |  |  | EVEL        | NOI (               | NO.                           | STA |          | PENETRA<br>DATA (bla  |                 | l     | TINT<br>ows/6 |      |     | <b>4</b>  |
| DEPTH<br>(feet) | GRAPHIC<br>LOG | MATERIAL D   | ESCRIPTION   | WATER LEVEL | ELEVATION<br>(feet) | SAMPLE NO.                    | 5   | 15       | 30                    | ,               | 1st   | 2nd           | 3rd  | 4th | N VALUE   |
| -               |                | WEATHERED SILTSTONE to gray; slightly moist; very ha (continued)   |  | ^           |                     |                               |     |          |                       | >> <del>\</del> | 8     | 27            | 39   | 16  | 50/<br>3" |
| 55 —<br>-       |                | Began PQ3 coring at a depth Run No. 1 (54.2' to 56.4') Silfine grained; friable; near verhighly fractured.   | tstone - Dark gray;  |             |                     | 1<br>REC<br>73%<br>RQD<br>0%  |     |          |                       |                 |       |               |      |     |           |
| -               |                | Run No. 2 (56.4' to 58.4') Silinterbedded limestone from 5 gray; fine grained; friable; sligbedding is at an apparent dip siltstone is soft to medium ha                       | i8.0 to 58.4 feet; dark<br>ghtly weathered;<br>of 45 degrees;                          | -           |                     | 2<br>REC<br>90%<br>RQD<br>0%  |     |          |                       |                 |       |               |      |     |           |
| 60 <del>-</del> |                | Run No. 3 (58.4' to 61.1') Silinterbedded Limestone - Grefine grained; medium hard; simoderately weathered seams 59.3 feet; calcite-healed featt bedding is at an apparent dip | enish gray and gray;<br>lightly weathered;<br>s at 58.7, 58.9, and<br>ures throughout; | -           |                     | 3<br>REC<br>100%<br>RQD<br>0% |     |          |                       |                 |       |               |      |     |           |
| -               |                |  |  |             |                     | 4<br>REC                      |     |          |                       |                 |       |               |      |     |           |

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Page 5 of 7

| PROJE           | TVA KIF - Monitoring We<br>Kingston, TI<br>S&ME Project No. 143   | N  |               | ВО                  | RING LO  | OG:<br><b>KIF-2</b> 2 | 2B                            |     |     |              |     |         |
|-----------------|---|--|---------------|---------------------|--|-----------------------|-------------------------------|-----|-----|--------------|-----|---------|
| DATE            | DRILLED: <b>7/31/14</b>   | ELEVATION: Not Recorde   | ed            |                     |  |                       | oil and bedrock               |     | -   |              |     |         |
| DRILLI          | NG METHOD: 6-5/8" H.S.A / PQ3   | BORING DEPTH: 79 feet  |               |                     |  | _                     | s advanced with               |     |     |              |     |         |
| LOGGI           | ED BY: <b>J. Feuge</b>  | WATER LEVEL @ TOB: 1   | 5 fee         | t                   |  | _                     | ring PQ3 coring               |     |     |              | 40  |         |
| DRILLE          | ER: H. Herd   | WATER LEVEL @ 24 hrs:  | $\overline{}$ | ecorde              |  |                       |                               |     |     |              |     |         |
| _               | <u>o</u>  |  | =VEL          | N<br>O              | NO.  |                       | PENETRATION ) DATA (blows/ft) | 1   |     | ERVA<br>inch |     | Щ       |
| DEPTH<br>(feet) | ORAPHIO GRAPHIO GRAPHIO DI  |  | WATER LEVEL   | ELEVATION<br>(feet) | SAMPLE NO.   | 5 15                  | 30                            | 1st | 2nd | 3rd          | 4th | N VALUE |
|                 | Run No. 4 (61.1' to 63.8') Silinterbedded Limestone - Greefine grained; medium hard; sl calcite-healed features throughighly fractured; bedding is a degrees.  Run No. 5 (63.8' to 66.4') From Siltstone with interbedded Lingray and gray; fine grained; meathered; calcite-healed features apparent dip of 35 degrees.  Siltstone with interbedded Siltstone with interbedded Siltstone with interbedded Siltstone with interbedded Siltstone with calcite heale highly fractured; limestone in 65.9 to 66.2 feet.  Run No. 6 (66.4' to 68.2') From Limestone. From 66.9 to 68. interbedded Shale - Greenis grained; medium hard; slightly calcite-healed features through highly fractured; bedding is a degrees.  Run No. 7 (68.2' to 70.4') Siltinterbedded Shale - Greenis grained; medium hard; slightly calcite-healed features through highly fractured; bedding is a degrees.  Run No. 8 (70.4' to 70.9') Siltinterbedded Shale - Same littrun.  Run No. 9 (70.9' to 74.2') Siltinterbedded Shale - Same littrun. | enish gray and gray; lightly weathered; ghout; moderately to t an apparent dip of 35 om 63.8 to 64.7 feet - mestone - Greenish nedium hard; slightly atures throughout; d; bedding is at an From 64.7 to 66.4 feet shale and Limestone-medium hard; slightly d veins throughout; terval observed from om 66.4 to 66.9 feet - 2 feet Siltstone with h gray and gray; fine y weathered; ghout; moderately to t an apparent dip of 35 tstone with thology as previous |               |                     | 100% RQD 0% FEC 100% RQD 0% FEC 100% RQD 0% FEC 100% RQD 0% FEC 85% RQD 0% RQ |                       | 30                            |     |     |              |     |         |
|                 | Run No. 10 (74.2' to 76.4') S interbedded Shale - Same lit  | iltstone with<br>hology as previous  |               |                     |  |                       |                               |     |     |              |     |         |

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Page 6 of 7

| PROJ            | ECT:           | TVA KIF - Monitoring We<br>Kingston, TN<br>S&ME Project No. 143             | N                                   |             | BOF                 | RING LO                         |        | -22B     |                          |       |       |               |     |         |
|-----------------|----------------|---|-------------------------------------|-------------|---------------------|---------------------------------|--------|----------|--------------------------|-------|-------|---------------|-----|---------|
| DATE            | DRILL          | ED: <b>7/31/14</b>  | ELEVATION: Not Record               | ed          | '                   |                                 |        |          | nd bedrock of            |       |       |               |     |         |
| DRILL           | ING MI         | ETHOD: 6-5/8" H.S.A / PQ3   | BORING DEPTH: 79 feet               |             |                     |                                 | Boring | was adva | anced with               | 6-5/8 | -inch | hollo         | w   |         |
| LOGG            | ED BY          | : J. Feuge  | WATER LEVEL @ TOB:                  | 15 fee      | t                   |                                 |        |          | Q3 coring t              |       |       |               | 13  |         |
| DRILL           | ER: H          | . Herd  | WATER LEVEL @ 24 hrs:               | Not I       | Recorded            |                                 |        |          |                          |       |       |               |     |         |
| Ε               | TC (           |   |                                     | EVEL        | NOI (               | : NO.                           |        |          | ETRATION<br>A (blows/ft) |       |       | ERVA<br>inche |     | 핅       |
| DEPTH<br>(feet) | GRAPHIC<br>LOG | MATERIAL DI   | ESCRIPTION                          | WATER LEVEI | ELEVATION<br>(feet) | SAMPLE NO.<br>SAMPLE TYPE       | 5 1    | 5 3      | 30                       | 1st   | 2nd   | 3rd           | 4th | N VALUE |
| -               |                | Run No. 10 (74.2' to 76.4') S interbedded Shale - Same lit run. (continued) | iltstone with<br>hology as previous |             |                     | 10<br>REC<br>114%<br>RQD<br>18% |        |          |                          |       |       |               |     |         |
| -               |                | Run No. 11 (76.4' to 77.3') S interbedded Shale - Same lit run.             | iltstone with<br>hology as previous |             |                     | 11<br>REC<br>100%<br>RQD<br>0%  |        |          |                          |       |       |               |     |         |
| -               |                | Run No. 12 (77.3' to 79.0') S interbedded Shale - Same litt run.            | iltstone with<br>nology as previous |             |                     | 12<br>REC<br>82%<br>RQD<br>0%   |        |          |                          |       |       |               |     |         |
|                 |                | PQ3 Coring Terminated at 79   |                                     |             |                     |                                 |        |          |                          |       |       |               |     |         |

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Page 7 of 7

| PROJE                         | ECT:         | TVA KIF - Monitoring We<br>Kingston, TN<br>S&ME Project No. 143                   | 1   |             | ВО                  | RING LO                   |          | F-27      | A                                  |        |                |     |       |             |
|-------------------------------|--------------|---|---|-------------|---------------------|---------------------------|----------|-----------|------------------------------------|--------|----------------|-----|-------|-------------|
| DATE                          | DRILL        | ED: <b>7/22/14</b>  | ELEVATION: Not Recorde                              | ed          |                     |                           |          |           | oil descriptions<br>of obtained sa |        | _              |     |       | t           |
| DRILLI                        | NG M         | ETHOD: <b>CME 750, 41/4" H.S.A.</b>   | BORING DEPTH: 44.2 fee                              | t           |                     |                           | of (0)   | indica    | ites that the spli                 | it spo | on a           |     |       |             |
| LOGG                          | ED BY        | : J. Feuge  | WATER LEVEL @ TOB: 1                                | 7 fee       | t                   |                           | unac     | i tilo vi | eight of the har                   |        | •              |     |       |             |
| DRILLI                        | ER: H        | . Herd  | WATER LEVEL @ 24 hrs:                               |             | ecorde              |                           |          |           |                                    |        |                |     |       |             |
| ∃ ⊊                           | <u></u> ≘ ′, |   |   | EVE!        | ION<br>(t)          | NO.                       |          |           | PENETRATION DATA (blows/ft)        | 1      | T INT<br>ows/6 |     |       | E.UE        |
| DEPTH<br>(feet)               | GRAPHIC      | MATERIAL DI   | ESCRIPTION  | WATER LEVEL | ELEVATION<br>(feet) | SAMPLE NO.<br>SAMPLE TYPE | 5        | 15        | 30                                 | 1st    | 2nd            | 3rd | 4th   | N VALUE     |
| -<br>-<br>-<br>5—             |              | Crushed Stone Aggregate (4-   | inch diameter minus)                                |             |                     |                           |          |           |                                    | 10     | 6              | 5   | 4     | 11          |
| -<br>10 —<br>-                |              | FAT CLAY (CH) - Brown and slightly moist; firm to stiff - FII                     | reddish brown;<br>L                                 |             |                     |                           | <b>\</b> | ,         |                                    | 8      | <b>4</b> 5     | 2   | 1     | 6           |
| -<br>15 <del></del><br>-<br>- |              |   |   | raket       |                     |                           |          |           |                                    | 3 1 1  | 3 2            | 2 2 | 3 3 2 | 5<br>4<br>3 |
| 20-                           |              | LEAN CLAY WITH SAND (CL<br>with tan and brown mottling; r<br>to firm - ALLUVIUM   | ) - Orange brown<br>noist to wet; very soft         |             |                     |                           |          |           |                                    | 0      | 1              | 2   | 3     | 3           |
| 25 —<br>-                     |              |   |   |             |                     |                           |          |           |                                    | 0      | 0              | 0   | 0     | 0           |
| 30-                           |              | SILTY SAND (SM) - With som orange brown; wet; very loose                          |   |             |                     |                           |          |           |                                    | 0      | 1              | 1   | 2     | 2           |
| -<br>-<br>-                   |              | POORLY GRADED SAND (SF<br>orange brown, brown, and tar<br>medium dense - ALLUVIUM | <b>')</b> - Fined grained;<br>n; wet; very loose to |             |                     |                           |          |           |                                    | 0      | 1 2            | 1   | 1     | 2           |

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| PROJ            | ECT:              | TVA KIF - Monitoring We<br>Kingston, Ti<br>S&ME Project No. 143 | N                                    |             | ВО                  | RING LO    | OG:<br>KIF-27A                     |                   |        |                |     |     |           |
|-----------------|-------------------|---|--------------------------------------|-------------|---------------------|------------|------------------------------------|-------------------|--------|----------------|-----|-----|-----------|
| DATE            | DRILL             | ED: <b>7/22/14</b>  | ELEVATION: Not Recorde               | ed          | '                   |            | NOTES: Soil d                      | -                 |        | _              |     |     | ıt        |
| DRILL           | ING M             | ETHOD: <b>CME 750, 41/4" H.S.A.</b>                             | BORING DEPTH: 44.2 fee               | t           |                     |            | of (0) indicates<br>under the weig | that the spli     | t spo  | on a           |     |     |           |
| LOGG            | ED BY             | : J. Feuge  | WATER LEVEL @ TOB:                   | 17 fee      | et                  |            | under the weig                     | iit Oi tile ilaii | ııııeı | •              |     |     |           |
| DRILL           | ER: <b>H</b>      | . Herd  | WATER LEVEL @ 24 hrs:                |             | Recorde             |            |                                    |                   |        |                |     |     |           |
| Ι               | <br> <br> -<br> - |   |                                      | EVEL        | NOI.                | NO.        | STANDARD PEN<br>TEST (SPT) DA      |                   | I      | T INT<br>ows/6 |     |     | H.        |
| DEPTH<br>(feet) | GRAPHIC<br>LOG    | MATERIAL D  | ESCRIPTION                           | WATER LEVEL | ELEVATION<br>(feet) | SAMPLE NO. | 5 15                               | 30                | 1st    | 2nd            | 3rd | 4th | N VALUE   |
| -               |                   | POORLY GRADED SAND (SI  |                                      |             |                     |            |                                    |                   | 1      | 2              | 2   | 2   | 4         |
| -               |                   | orange brown, brown, and ta<br>medium dense - ALLUVIUM          | n; wet; very loose to<br>(continued) |             |                     |            |                                    |                   | 1      | 1              | 1   | 2   | 2         |
| 40-             |                   | POORLY GRADED SAND WI  Tan, brown, and orange brow              |                                      |             |                     |            |                                    |                   | 1      | 2              | 10  | 20  | 12        |
| -               |                   | - ALLUVIUM WEATHERED SHALE / SILTS                              | /                                    |             |                     | 1          |                                    | >>                | 10     | 29             | 30  | 31  | 59        |
| -               |                   | orange and gray; slightly moi  RESIDUUM                         |                                      | -           |                     |            |                                    | >>(               | 50/5'  |                |     |     | 50/<br>5" |
|                 |                   |   |                                      |             |                     |            |                                    |                   |        |                |     |     |           |

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Page 2 of 2

| PROJE              | ECT:           | TVA KIF - Monitoring We<br>Kingston, TI<br>S&ME Project No. 143            | N                      |             | ВС                  | DRII  | NG LC                     |    | KIF.   | -27B    |                            |       |       |      |     |         |
|--------------------|----------------|--|------------------------|-------------|---------------------|-------|---------------------------|----|--------|---------|----------------------------|-------|-------|------|-----|---------|
| DATE               | DRILLI         | ED: <b>7/17/14</b>   | ELEVATION: Not Recorde | d           |                     |       |                           |    |        |         | nd bedrock<br>servation of |       |       |      |     |         |
| DRILL              | NG M           | ETHOD: 6-5/8" H.S.A / PQ3  | BORING DEPTH: 69 feet  |             |                     |       |                           | Вс | ring v | was adv | anced with auger refus     | 6-5/8 | -inch | holl | ow  |         |
| LOGG               | ED BY          | J. Feuge   | WATER LEVEL @ TOB: 2   | 1 fee       | t                   |       |                           |    |        |         | Q3 coring t                |       |       |      | as  |         |
| DRILL              | ER: <b>H</b> . | Herd   | WATER LEVEL @ 24 hrs:  | Not F       | Recorde             | ed    |                           |    |        |         |                            |       |       |      |     |         |
| l<br>E⊋            | S FIC          |  |                        | LEVEL       | NOIE (F             | .   ( | E NO.<br>TYPE             |    |        |         | ETRATION<br>A (blows/ft)   | ı     |       | ERV/ |     | 픠       |
| DEPTH<br>(feet)    | GRAPH<br>LOG   | MATERIAL DI  | ESCRIPTION             | WATER LEVEL | ELEVATION<br>(feet) | ,     | SAMPLE NO.<br>SAMPLE TYPE | 5  | 1      | 5 3     | 30                         | 1st   | 2nd   | 3rd  | 4th | N VALUE |
| 5—                 |                | Began HSA drilling. Soil des cuttings return.  Crushed Stone Aggregate - F |                        |             |                     |       |                           |    |        |         |                            |       |       |      |     |         |
| 15—<br>-<br>-<br>- |                | Lean clay - ALLUVIUM   |                        |             |                     |       |                           |    |        |         |                            |       |       |      |     |         |

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| PROJ            | ECT:    | TVA KIF - Monitoring We<br>Kingston, TI<br>S&ME Project No. 143 | N                      |             | BC                  | ORIN                                  | NG LC                     | KIF    | -27B    |                            |       |       |              |     |         |
|-----------------|---------|---|------------------------|-------------|---------------------|---------------------------------------|---------------------------|--------|---------|----------------------------|-------|-------|--------------|-----|---------|
| DATE            | DRILL   | ED: <b>7/17/14</b>  | ELEVATION: Not Recorde | ed          |                     |                                       |                           |        |         | nd bedrock<br>servation of |       |       |              |     |         |
| DRILL           | ING M   | ETHOD: 6-5/8" H.S.A / PQ3                                       | BORING DEPTH: 69 feet  |             |                     |                                       |                           | Boring | was adv | anced with auger refus     | 6-5/8 | -inch | holl         | ow  |         |
| LOGG            | ED BY   | ∕∷ J. Feuge   | WATER LEVEL @ TOB: 2   | 21 fee      | t                   |                                       |                           |        |         | Q3 coring                  |       |       |              | as  |         |
| DRILL           | ER: H   | . Herd  | WATER LEVEL @ 24 hrs:  |             | Recorde             | ed                                    |                           |        |         |                            |       |       |              |     | 1       |
|                 | 2       |   |                        | EVEL        | NOI (               | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | NO.                       |        |         | IETRATION<br>A (blows/ft)  | l     |       | ERVA<br>inch |     | <br>  当 |
| DEPTH<br>(feet) | GRAPHIC | MATERIAL D  | ESCRIPTION             | WATER LEVEL | ELEVATION<br>(feet) | S AMDI E                              | SAMPLE NO.<br>SAMPLE TYPE |        |         | 30                         | 1st   | 2nd   | 3rd          | 4th | N VALUE |
| 25-             |         | Lean clay - ALLUVIUM <i>(cont</i>                               | inued)                 | Ţ           |                     |                                       |                           |        |         |                            |       |       |              |     |         |
| 35-             | -       | Sandy lean clay to clayey sai                                   |                        |             |                     |                                       |                           |        |         |                            |       |       |              |     |         |
|                 |         | Sand with gravel and cobbles  Auger refusal at 39.5 feet        | s - ALLUVIUM           |             |                     |                                       |                           |        |         |                            |       |       |              |     |         |

BORING LOG - TVA 11-121 MW.GPJ 8/13/14

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Page 2 of 4

| PROJECT:                 | TVA KIF - Monitoring We<br>Kingston, TI   |  |             | ВС                  | RING LO   |   | -27E | 3                                |     |            |         |           |         |
|--------------------------|---|--|-------------|---------------------|---|---|------|----------------------------------|-----|------------|---------|-----------|---------|
|                          | S&ME Project No. 143  |  |             |                     |   |   |      |                                  |     |            |         |           |         |
| DATE DRILLE              | ED: <b>7/17/14</b>  | ELEVATION: Not Record  | ed          |                     |   | I |      | and bedrock bservation of        |     | -          |         |           |         |
| DRILLING ME              | THOD: 6-5/8" H.S.A / PQ3  | BORING DEPTH: 69 feet  |             |                     |   | _ |      | dvanced with                     |     |            |         |           |         |
| LOGGED BY:               | J. Feuge  | WATER LEVEL @ TOB: 2   | 21 fee      | t                   |   | I | _    | to auger refus<br>g PQ3 coring t |     |            |         | as        |         |
| DRILLER: H.              | Herd  | WATER LEVEL @ 24 hrs:  | Not I       | Recorde             | ed  |   |      |                                  |     |            |         |           |         |
| _                        |   |  | VEL         | N                   | o<br>P<br>F   |   |      | ENETRATION                       | l   |            | ERVA    |           | ш       |
| DEPTH (feet) GRAPHIC LOG | MATERIAL D  | ESCRIPTION   | WATER LEVEL | ELEVATION<br>(feet) | SAMPLE NO.<br>SAMPLE TYPE   |   | 15   | ATA (blows/ft)                   | 1st | Sud<br>2nd | 3rd 3rd | th<br>es) | N VALUE |
| 0                        | Cobbles with sand from 39.5 ALLUVIUM (continued)  | to 40.9 feet-  |             |                     |   |   |      |                                  |     |            |         |           |         |
| 45                       | Began PQ3 coring at a depth  Run No. 1 (40.9' to 45.9') Sh  Siltstone and Limestone - Da  near vertical bedding; with so calcite healed veins. Recove fractured.  Run No. 2 (45.9' to 50.9') Sh  Siltstone and Limestone - Gr  gray; very fine to fine grained closely jointed with an appare medium hard; with many calc | ale with interbedded rk greenish gray; hard; me interbedded red core is highly  ale with interbedded eenish gray and light thinly bedded; ent dip of 70 degrees; |             |                     | 1<br>REC<br>24%<br>ROD<br>0%<br>-<br>2<br>REC<br>46%<br>RQD<br>0% |   |      |                                  |     |            |         |           |         |
| 55                       | Run No. 3 (50.9' to 55.9') Sh<br>Siltstone and Limestone - Sa<br>Run No. 4 (55.9' to 58.4') Sh<br>Siltstone and Limestone - Sa  | me lithology as above.   |             |                     | 3<br>REC<br>30%<br>RQD<br>0%<br>4<br>REC<br>108%<br>RQD<br>0%     |   |      |                                  |     |            |         |           |         |
|                          |   |  |             |                     | 100%  |   |      |                                  |     |            |         |           |         |

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Page 3 of 4

| PROJE           | S&ME Project No. 1431-11-121 |   |  |             |                     |  |        |         |                           |       |             |              |         |   |
|-----------------|------------------------------|---|--|-------------|---------------------|--|--------|---------|---------------------------|-------|-------------|--------------|---------|---|
| DATE            | DRILL                        | ED: <b>7/17/14</b>  | ELEVATION: Not Record  | ed          | •                   |  |        |         | nd bedrock<br>ervation of |       | -           |              |         |   |
| DRILLI          | ING M                        | ETHOD: 6-5/8" H.S.A / PQ3   | BORING DEPTH: 69 feet  |             |                     |  | Boring | was adv | anced with                | 6-5/8 | -inch       | holl         | ow      |   |
| LOGG            | ED BY                        | ′: J. Feuge   | WATER LEVEL @ TOB: 2   | 21 fee      | et                  |  |        | -       | Q3 coring t               |       |             |              |         |   |
| DRILLI          | ER: H                        | . Herd  | WATER LEVEL @ 24 hrs:  |             | Recorde             | 111  | 074110 | 400.051 |                           | 0.00  | T INTERVALS |              | l       |   |
| <br> ∃ ≘        | <u> </u>                     |   |  | EVE         | NOII                | NO.  |        |         |                           |       |             | ERVA<br>inch |         | 핅 |
| DEPTH<br>(feet) | GRAPHIC                      | MATERIAL D  | ESCRIPTION   | WATER LEVEL | ELEVATION<br>(feet) | NOTES: S upon visua Boring was stem auge cored utiliz  | 15 3   | 0       | 1st                       | 2nd   | 3rd         | 4th          | N VALUE |   |
|                 |                              | Run No. 5 (58.4' to 60.9') Sh<br>Siltstone and Limestone - Gr   | eenish gray and light  |             |                     | RQD  |        |         |                           |       |             |              |         |   |
| 65-             |                              | Siltstone and Limestone - Gragray; very fine to fine grained closely jointed with near vertinard; with many calcite heale core is fractured along bedding Run No. 6 (60.9' to 63.4') Lin Siltstone with interbedded Shand gray; very fine to fine graclosely jointed; slightly weath calcite healed veins. Recove fractured. Apparent dip of bevertical to horizontal (in the mappoximately at 62.5 feet).  Run No. 7 (63.4' to 65.9') Lin Siltstone with interbedded Shand gray; very fine to fine graclosely jointed; slightly weath calcite healed veins. Recove fractured. Apparent dip of beveroused. Apparent dip of beveroused; slightly hard; thinly bedded; closely jocore is highly fractured. Beddip of about 60 degrees.  PQ3 Coring Terminated at 69 | I; thinly bedded; cal bedding; medium and veins. Recovered and planes. (continued) mestone and anale - Greenish gray alined; thinly bedded; ered; with many red core is highly dding varies from near aniddle of the run; mestone and anale - Greenish gray alined; thinly bedded; ered; with many red core is highly dding is near vertical. Tale with interbedded weathered; medium binted; Recovered ling is at an apparent 2.0 feet. |             |                     | 6<br>REC<br>72%<br>RQD<br>0%<br>7<br>REC<br>64%<br>RQD<br>0%<br>8<br>REC<br>42%<br>RQD<br>0% |        |         |                           |       |             |              |         |   |
|                 |                              |   |  |             |                     |  |        |         |                           |       |             |              |         |   |
|                 |                              |   |  |             |                     |  |        |         |                           |       |             |              |         |   |

BORING LOG - TVA 11-121 MW.GPJ 8/13/14

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Page 4 of 4



|      |                     |           |   |   |   |     | 171=                  | 100                   |           |         |           |  |  |
|------|---------------------|-----------|---|---|---|-----|-----------------------|-----------------------|-----------|---------|-----------|--|--|
| (    | Client E            | Borehole  | ID N/A  | <u> </u>  | Stantec Boring                                | g N | lo. KIF-              | 109                   |           |         |           |  |  |
| (    | Client              |           | Tennes  | see Valley Authority  | Boring Location                               | n   | 575,305.8             | 85 N; 2,409,009       | .99       | E NAD83 |           |  |  |
| F    | Project             | Number    | 175668  | 053   | Surface Eleva                                 | tio | 757.6 ft              | Elevatio              | n E       | oatum_r | NGVD29    |  |  |
| F    | Project             | Name      | KIF CC  | R Rule  |   |     |                       |                       |           |         | 20        |  |  |
|      | -                   | Locatio   |   | riman, Tennessee  | Depth to Water13.3 ft Date/Time12/10/20 10:26 |     |                       |                       |           |         |           |  |  |
|      | -                   |           |   | Logger _E. Smith II   | <del>-</del>                                  |     |                       |                       |           |         |           |  |  |
|      | _                   |           |   | wkston (Subcontractor)  |   |     |                       |                       |           |         |           |  |  |
|      |                     |           | •   | Sampling Tools (Type and Size)  | 6" x 8" Rotosoni                              | ic  |                       |                       |           |         |           |  |  |
|      |                     | •         | •   | g . 55.5 (1) po ana 5.25/   | N/A   |     |                       |                       |           |         |           |  |  |
|      |                     | _         |   | and Size) 8" x 12" Rotosonic  |   |     |                       | Overdrill             |           |         | 27.0 ft   |  |  |
|      |                     |           |   | 110.9.11  |   |     |                       | Efficiency            | _         | N/A     |           |  |  |
|      |                     | le Azimu  |   | N/A   | Borehole Inclin                               |     | •                     | Vertical)             | N/        | Α       |           |  |  |
| F    | Review              | ed By     | B. Eva  | ans   | Approved By                                   |     | E. Smith II           |                       |           |         |           |  |  |
|      | 1                   | Lithology |   |   | Overburden:                                   | ;   | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |           | Rec. Ft | Blows/PSI |  |  |
| De   | oth Ft <sup>3</sup> | Elevation | Graphic   | Description   | Rock Core:                                    |     | RQD %                 | Run Ft                |           | Rec. Ft | Rec. %    |  |  |
| - 0  | 0.0                 | 757.6     | 0.70.70.70  | Top of Hole   |   |     |                       |                       | Ш         |         | _         |  |  |
|      | , ,                 |           |   | Crushed stone, light gray gravel fill   |   |     |                       |                       |           |         |           |  |  |
| - 1  | 1.0                 | 756.6     | 0303030   | LEAN CLAY, CL, 5YR 3/4 (dark reddis   | ah braum) laur                                |     |                       |                       |           |         | -         |  |  |
|      |                     |           |   | to medium plasticity, soft to firm, moist                                     | ,   |     |                       |                       |           |         |           |  |  |
| - 2  | 2.5                 | 755.1     |   |   | ,,  |     |                       |                       |           |         | _         |  |  |
| - 3  |                     |           |   | POORLY GRADED SAND, SP, N 3/ (  |   |     |                       |                       |           |         | _         |  |  |
|      | 4.0                 | 753.6     |   | very fine to medium, loose to dense, d  | Iry to moist,                                 |     | RS01                  | 0.0 - 7.0             | 0.0 - 7.0 | 7.0     | N/A       |  |  |
| - 4  | 4.0                 | 733.0     | <del>                                      </del> |   | ork grow) von                                 |     |                       |                       |           |         | _         |  |  |
| - 5  |                     |           | <b>                                     </b>      | SILT TRACE SAND, SM, N 3/ (very da<br>fine to fine, loose to medium dense, di | 0 ,,.   |     |                       |                       |           |         | _         |  |  |
|      |                     |           |   | [CCR]   | ,   |     |                       |                       |           |         |           |  |  |
| - 6  | 6.0                 | 751.6     | <del>                                    </del>   | CILTY DOOD! Y CDADED CAND CD  | CM FV 4/2                                     |     |                       |                       |           |         | -         |  |  |
| - 7  |                     |           |   | SILTY POORLY GRADED SAND, SP<br>(olive), very fine to medium, medium of       |   |     |                       |                       |           |         |           |  |  |
| - /  |                     |           |   | [FILL]  |   |     |                       |                       |           |         | _         |  |  |
| - 8  |                     |           |   |   |   |     |                       |                       |           |         | -         |  |  |
|      |                     |           | : • :    <del> </del>                             |   |   |     |                       |                       |           |         |           |  |  |
| - 9  |                     |           | • <del> </del> •                                  |   |   |     |                       |                       |           |         | _         |  |  |
| - 10 |                     |           | [:•: ]† <b>[</b> ]                                |   |   |     |                       |                       |           |         | _         |  |  |
|      | 10.5                | 747.1     |   | 000 VELLY LEAN OLD VETRAGE 044  | ID 01 401/D                                   |     |                       |                       |           |         |           |  |  |
| - 11 |                     |           |   | GRAVELLY LEAN CLAY TRACE SAN<br>6/8 (brownish yellow) with 2.5Y 5/1 (gr       |   |     |                       |                       |           |         | -         |  |  |
| - 12 | 12.0                | 745.6     |   | to low plasticity, firm, moist, [FILL]  | , a, y, , p.a.e                               |     |                       |                       |           |         | _         |  |  |
| 12   | 12.5                | 745.1     |   | POORLY GRADED SAND WITH GRA   | AVEL, SP, 5Y                                  |     |                       |                       |           |         |           |  |  |
| - 13 | lacktriangle        |           |   | 2.5/1 (black), fine to medium, loose, m                                       | noist, gap                                    |     |                       |                       |           |         | -         |  |  |
|      | Ī                   |           |   | graded, [CCR]   |   |     |                       |                       |           |         |           |  |  |
| – 14 |                     |           |   | GRAVELLY FAT CLAY TRACE SAND (yellowish red), very fine to fine, media        |   |     |                       |                       |           |         | _         |  |  |
| - 15 |                     |           |   | firm, moist, gap graded, gravel size is                                       |   |     | RS02                  | 7.0 - 23.0            | 7.0 - 23  | 16.0    | N/A —     |  |  |
|      |                     |           |   | -   | -   |     |                       |                       | 3.0       |         |           |  |  |
| - 16 |                     |           |   |   |   |     |                       |                       |           |         | -         |  |  |
| - 17 | 17.0                | 740.6     |   |   |   |     |                       |                       |           |         | _         |  |  |
|      |                     |           |   |   |   |     |                       |                       |           |         |           |  |  |



Page: 2 of 3

| С            | lient E            | Borehole  | ID N/A  |  | Stantec Boring No. KIF-109       |              |                       |                       |             |         |           |  |
|--------------|--------------------|-----------|---------|--|----------------------------------|--------------|-----------------------|-----------------------|-------------|---------|-----------|--|
| С            | lient              |           | Tenness | see Valley Authority   | Boring Location                  |              |                       | 5 N; 2,409,009        | .99         | E NAD83 |           |  |
| P            | roject             | Number    | 1756680 | 053  | Surface Eleva                    | atio         | n <u>757.6 ft</u>     | Elevatio              | n [         | Datum_n | NGVD29    |  |
|              | I                  | Lithology |         |  | Overburden:                      |              | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup> |             | Rec. Ft | Blows/PSI |  |
| Dep          | th Ft <sup>3</sup> | Elevation | Graphic | Description  | Rock Core:                       | _            | RQD %                 | Run Ft                |             | Rec. Ft | Rec. %    |  |
| - 18<br>- 19 |                    |           |         | GC, 5Y 5/1 (gray) with 5YR 2.5/2 (dar<br>brown), very fine to medium, dense to   |                                  |              |                       |                       |             |         | _         |  |
| - 20         |                    |           |         | moist, gap graded, gravel size is coar<br>limestone and weathered shale grave<br>(Continued)                             |                                  |              |                       |                       |             |         | _         |  |
| - 21         |                    |           |         | (commode)  |                                  |              |                       |                       |             |         | -         |  |
| - 22         |                    |           |         |  |                                  |              |                       |                       |             |         | _         |  |
| - 23         | 23.0               | 734.6     |         | SANDY FAT CLAY WITH GRAVEL, O  |                                  | -            |                       |                       |             |         | _         |  |
| - 24         |                    |           |         | (brown), medium plasticity, soft to firm gravel is limestone and weathered sh  |                                  |              |                       |                       | 23.         |         | =         |  |
| - 25         | 26.0               | 731.6     |         | Wet at 24.5'   |                                  |              | RS03                  | 23.0 - 27.0           | 3.0 - 27.0  | 4.0     | N/A —     |  |
| - 26<br>- 27 |                    |           |         | CLAYEY SILT, ML, 5Y 5/1 (gray), nor plasticity, very soft, wet, moderate org   |                                  |              |                       |                       |             |         | _         |  |
| - 28         | 28.0               | 729.6     |         | homogeneous, visible fine plant roots  |                                  |              |                       |                       |             |         | =         |  |
| - 29         |                    |           |         | CLAYEY POORLY GRADED SAND N<br>SC, 2.5Y 5/6 (light olive brown) with 1<br>very fine to fine, very dense to dense,        | 0YR 5/1 (gray),<br>moist to wet, | 27.0/32.0-2  | RS04aE                | 27.0 - 32.0           |             |         | _         |  |
| - 30         |                    |           |         | slight organic odor, poorly graded, mo   | ttled                            | 0201203      |                       |                       |             |         | _         |  |
| - 31         |                    |           |         |  |                                  |              |                       |                       |             |         | _         |  |
| - 32         |                    |           |         |  |                                  |              |                       |                       |             |         | -         |  |
| - 33<br>- 34 |                    |           |         |  |                                  | 32.0/36.0-2  | RS04bE                | 32.0 - 36.0           |             |         | _         |  |
| - 35         |                    |           |         |  |                                  | 0201203      |                       |                       |             |         | _         |  |
| - 36         | 36.0               | 721.6     |         | CLAYEY POORLY GRADED SAND \  | MITH CLAV                        | -            |                       |                       |             |         | -         |  |
| - 37         |                    |           |         | TRACE CLAY, SP-SC, 5Y 5/2 (olive of 5/4 (olive), very fine to fine, loose to v   | gray) with 5Y                    | 36.0/        |                       |                       | 27.0 - 47.0 | 20.0    | N/A -     |  |
| - 38         |                    |           |         | slight organic odor, slight mottling   |                                  | 40.0-20201   | RS04cE                | 36.0 - 40.0           |             |         | -         |  |
| - 39         | 40.0               | 717.6     |         |  |                                  | 203          |                       |                       |             |         | -         |  |
| - 40         | 40.0               | 717.6     |         | CLAYEY POORLY GRADED SAND V  |                                  | 40.0/-       |                       |                       |             |         | _         |  |
| - 41<br>- 42 |                    |           |         | SC, 2.5Y 5/6 (light olive brown) with 1 very fine to fine, very dense to dense, slight organic odor, poorly graded, more | moist to wet,                    | 14.0-2020120 | RS04dE                | 40.0 - 44.0           |             |         | _         |  |



Page: 3 of 3

| Client Borehole ID N/A   | 1  | Stantec Boring No. KIF-109   |   |                       |   |                |         |                  |  |  |
|--|--|--|---|-----------------------|---|----------------|---------|------------------|--|--|
| ClientTennes   | ssee Valley Authority  | Boring Location  |   |                       | 35 N; 2,409,009                           | 9.99           | E NAD83 |                  |  |  |
| Project Number 175668  | 0053   | Surface Eleva  | ation   | 757.6 ft              | Elevatio                                  | on [           | Datum_n | NGVD29           |  |  |
| Lithology  |  | Overburden:  | S   | Sample <sup>1,2</sup> | Depth Ft <sup>3</sup>                     |                | Rec. Ft | Blows/PSI        |  |  |
| Depth Ft <sup>3</sup> Elevation Graphic  | Description  | Rock Core: RQD %   |   | Run Ft                |   | Run Ft Rec. Ft |         |                  |  |  |
| - 43<br>- 44<br>- 45<br>- 46<br>- 47<br>- 48<br>- 49<br>- 50<br>- 51<br>- 52<br>- 53 | CLAYEY POORLY GRADED SAND, (dark gray), very fine to fine, loose, we graded  POORLY GRADED SAND, SP, 10YF yellow), fine to medium, very loose, we homogeneous  Shale, pale olive and pale yellow brown bedded to very thin bedded, highly we moderately weathered, moist to dry, is staining, argillaceous | SP-SC, 5Y 4/1 et, poorly  R 6/8 (brownish /et,  wn, soft, thin eathered to | 44.0/47.0-20201203 47.0/51.0-20201203 51.0/55.0-202 | RS04eE<br>RS05aE      | 44.0 - 47.0<br>47.0 - 51.0<br>51.0 - 55.0 | 47.0 - 55.0    | 8.0     | Rec. %           |  |  |
| - 54<br>- 55.0 702.6   |  |  | 201203  |                       |   |                |         | _                |  |  |
| See w 1: E = G = 2: a,b,   | No Refusal / Bottom of Hole at 55.0 Ft.  Top of Rock = 51.0 Ft. Top of Rock Elevation = 706.6 Ft.  ell installation detail for KIF-109 dated 13  Environmental Sample Custody (two Sp Geotechnical Sample Custody c denote Split Spoon divided between Enths are reported in feet below ground su          | olit Spoons may be r   | requi   | red to obtai          | in sufficient san                         | nple           | )       | -<br>-<br>-<br>- |  |  |



| Project N         | Number       | 175618806   |              |          | Location       | ١        | l 575,378.    | .6, E 2,410,3 | 382.7 (NAD 83)                                  |
|-------------------|--------------|---|--------------|----------|----------------|----------|---------------|---------------|---|
| Project N         | Name         | KIF Soil Gas & Por  | e Water Wo   | ells     | Boring No.     |          | /B-01a        | Total Dept    | h 21.5 ft                                       |
| County            | -            | Roane County, TN  |              |          | Surface Ele    | vation   | 75            | 8.3 ft        |   |
| Project T         | Гуре         | Well Installations  |              |          | Date Starte    | d 6      | /19/18        | Completed     | 6/19/18   |
| Supervis          | sor          | Patrick Hoefle Dri  | ller Stante  | С        | Depth to Wa    | ater 1   | 6.0 ft        | Date/Time     | 6/19/18   |
| Logged I          | Ву           | Patrick Hoefle  |              |          | Depth to Water |          | I/A           | Date/Time     | N/A   |
| Litholo           | gy           |   | Overburden   | Sample # | Depth          | Rec. Ft. | Blows         | Mois.Cont. %  |   |
| Elevation         | Depth        | Description   | Rock Core    | RQD      | Run            | Rec. Ft. | Rec. %        | Run Depth     | Remarks   |
| 758.3             | 0.0          | Top of Hole   | (511         |          |                |          |               |               | Wall installed to                               |
| -<br>-<br>-<br>-  |              | Auger through cov<br>sample                                     | ver/fill, no |          |                |          |               |               | Well installed to 19.5 ft adjacent to boring  - |
| -<br>- 748.8<br>- | 9.5          | Ash, gray, dry to w   | /et          | SS-1     | 9.5 - 11.5     | 1.6      | 1-1-1         |               | -<br>-<br>-                                     |
|                   |              |   |              |          | 0.0 11.0       | 1.0      |               |               | _   |
|                   |              |   |              | SS-2     | 11.5 - 13.5    | 1.9      | 1-1-1         |               | _   |
| -                 |              |   |              | SS-3     | 13.5 - 15.5    | 1.5      | 6-9-6         |               | _   |
| -                 |              |   |              | SS-4     | 15.5 - 17.5    | 0.0      | 1-2-3         |               | -<br>-  |
| -                 |              |   |              | SS-5     | 17.5 - 19.5    | 2.0      | 1-WOH-<br>WOH |               | -   |
| 737.3             | 21.0<br>21.5 |   |              | SS-6     | 19.5 - 21.5    | 2.0      | 1-WOH-<br>WOH |               | -   |
| 736.8             | <u> </u>     | Lean Clay, brown, with little sand  No Refusal / Bottom of Hole | moist,       |          |                |          |               |               | WOH = Weight of Hammer -                        |
| O LANIECCI V      |              |   |              |          | ting Conviges  |          |               |               | -<br>-<br>7/6/18                                |



| Project Nu  | ımber | 175618806  |             |                | Location                   | N        | 1 575,378 | .6, E 2,410,3 | 82.7 (NAD 83)                   |
|---|-------|--|-------------|----------------|----------------------------|----------|-----------|---------------|---------------------------------|
| Project Na  | ame   | KIF Soil Gas & Por                               | e Water We  | ells           | Boring No.                 | V        | /B-01b    | Total Depti   | n 22.0 ft                       |
| County  |       | Roane County, TN                                 |             |                | Surface Ele                | vation   | 75        | 8.3 ft        |                                 |
| Project Typ   | ре    | Well Installations                               |             |                | Date Started               | d 6      | /19/18    | Completed     | 6/19/18                         |
| Supervisor  | r     | Patrick Hoefle Dri                               | ller Stante | C              | Depth to Wa                | ater N   | I/A       | Date/Time     | N/A                             |
| Logged By   | y     | Patrick Hoefle                                   |             |                | Depth to Wa                | ater N   | I/A       | Date/Time     | N/A                             |
| Lithology   | ,     |  | Overburden  | Sample #       | Depth                      | Rec. Ft. | Blows     | Mois.Cont. %  |                                 |
|   | Depth | Description                                      | Rock Core   | RQD            | Run                        | Rec. Ft. | Rec. %    | Run Depth     | Remarks                         |
| 758.3   | 0.0   | Top of Hole                                      | /CII        |                |                            |          |           |               | Wall installed to               |
| -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | 9.5   | Auger through cover sample  Ash, gray, dry to we |             | ST-1           | 8.0 - 10.0<br>12.0 - 14.5  | 1.4      |           |               | Well installed to 19.5 ft       |
|   | 21.0  |  |             | OS-3<br>- ST-4 | 17.0 - 19.5<br>20.0 - 22.0 | 2.0      |           |               | -<br>-<br>-<br>-                |
| 736.3   | 22.0  | Lean Clay, brown, with little sand               | moist,      |                |                            |          |           |               |                                 |
| MIEGFINSM_LEGACY 178618806_KIKTGPJ FNSM-GRAPHICLOCK GDT 78/18 |       | No Refusal /<br>Bottom of Hole                   |             |                |                            |          |           |               | -<br>-<br>-<br>-<br>-<br>-<br>- |
| STANTECHNSMILEGACY 1785:                                      |       |  |             |                | ting Sorvices              |          |           |               | 7/6/18                          |



| Γ  | Project N | Jumbor | 175618806                            |               |          | Location     |          | J 575 653           | 2 = 2/11/0   | 086.6 (NAD 83)                               |
|--|-----------|--------|--------------------------------------|---------------|----------|--------------|----------|---------------------|--------------|--|
| l  | Project N | -      | KIF Soil Gas & Por                   | co Motor Ma   |          | Boring No.   |          | /B-02a              | Total Dept   | · · · · · · · · · · · · · · · · · · ·        |
| l  | •         | Name - |                                      |               | =115     | •            |          |                     | •            | 11 30.5 11                                   |
| l  | County    | -      | Roane County, TN                     | <u> </u>      |          | Surface Elev | _        |                     | 3.4 ft       | 0/44/40                                      |
| l  | Project 7 | -      | Well Installations                   | 6             |          | Date Started |          | 5/14/18             | Completed    |  |
| ١  | Supervis  | -      | Patrick Hoefle Dr                    | iller Stanted | <u> </u> | Depth to Wa  |          | 11.5 ft             | Date/Time    |  |
| L  | Logged    | Ву     | Patrick Hoefle                       |               |          | Depth to Wa  | ater N   | N/A                 | Date/Time    | N/A  |
| ŀ  | Lithology |        |                                      | Overburden    | <u> </u> | Depth        | Rec. Ft. |                     | Mois.Cont. % |  |
| ŀ  | Elevation | Depth  | Description                          | Rock Core     | RQD      | Run          | Rec. Ft. | Rec. %              | Run Depth    | Remarks                                      |
|  | 753.4     | 0.0    | Top of Hole Auger through cov sample | ver/fill, no  |          |              |          |                     |              | Well installed to 20.0 ft adjacent to boring |
| L  | 744.9     | 8.5    |                                      |               |          |              |          |                     |              | _  |
| -  | 743.9     | 9.5    | Mix of red clay and                  |               | SS-1     | 8.5 - 10.5   | 2.0      | 7-9-9               |              | -<br>-                                       |
| -  |           |        |                                      | •             | SS-2     | 10.5 - 12.5  | 1.8      | 6-7-4               |              | -<br>-                                       |
| -  |           |        |                                      |               | SS-3     | 12.5 - 14.5  | 1.8      | 9-9-9               |              | -<br>-                                       |
| F  | •         |        |                                      |               | SS-4     | 14.5 - 16.5  | 0.7      | 1-WOH-<br>WOH       |              | _<br>-                                       |
| F  |           |        |                                      |               | SS-5     | 16.5 - 18.5  | 2.0      | 2-1-WOH             |              | _  |
| F  |           |        |                                      |               | SS-6     | 18.5 - 20.5  | 1.3      | 1-WOH-<br>WOH       |              |  |
| F  |           |        |                                      |               | SS-7     | 20.5 - 22.5  | 1.3      | WOR-                |              | _<br>_                                       |
| F  |           |        |                                      |               | SS-8     | 22.5 - 24.5  | 2.0      | WOR<br>WOH-<br>WOH- |              | -  |
| 7/6/18                                   | •         |        |                                      |               | SS-9     | 24.5 - 26.5  | 2.0      | WOH-<br>WOH-        |              |  |
| CLOG.GDT                                 | 725.6     | 27.8   | Clay, light brown                    |               | SS-10    | 26.5 - 28.5  | 2.0      | WOH-                |              | <del>-</del>                                 |
| FMSM-GRAPHI                              | 722.9     | 30.5   | Jiay, light brown                    |               | SS-11    | 28.5 - 30.5  | 2.0      | WOH-<br>WOH         |              |  |
| ANTEC/FMSM_LEGACY 175618806_KIF.GPJ FMSM |           |        | No Refusal /<br>Bottom of Hole       |               |          |              |          | WOR-5-6             |              | WOH = Weight of Hammer WOR = Weight of Rod   |



| Project N                                 | Number     | 175618806                      |                   |          | Location      | ation N 575,653.2, E 2,411,086.6 (NAD 83) |        |              |                |  |  |
|---|------------|--------------------------------|-------------------|----------|---------------|---|--------|--------------|----------------|--|--|
| Project N                                 | Name       | KIF Soil Gas & Por             | e Water W         | ells     | Boring No.    | V   | B-02b  | Total Dept   | h 28.5 ft      |  |  |
| County                                    | -          | Roane County, TN               |                   |          | Surface Elev  | vation                                    | <br>75 | 3.4 ft       |                |  |  |
| Project 7                                 | Туре       | Well Installations             |                   |          | Date Started  | d 6/                                      | /14/18 | Completed    | l 6/14/18      |  |  |
| Supervis                                  | sor        | Patrick Hoefle Dr              | iller Stante      | С        | Depth to Wa   | ater N                                    | /A     | Date/Time    | N/A            |  |  |
| Logged                                    | Ву         | Patrick Hoefle                 |                   |          | Depth to Wa   | ater N                                    | /A     | Date/Time    | N/A            |  |  |
| Litholo                                   | Lithology  |                                | Overburden        | Sample # | Depth         | Rec. Ft.                                  | Blows  | Mois.Cont. % |                |  |  |
| Elevation                                 | Depth      | Description                    | Rock Core         | RQD      | Run           | Rec. Ft.                                  | Rec. % | Run Depth    | Remarks        |  |  |
| 753.4                                     | 0.0        | Top of Hole                    | / <del></del> !!! |          |               |   |        |              | Well Installed |  |  |
| -   |            | Auger through cov sample       | /er/fill, no      |          |               |   |        |              | to20 ft        |  |  |
| -   |            | •                              |                   |          |               |   |        |              | <del>-</del>   |  |  |
|   |            |                                |                   |          |               |   |        |              | _              |  |  |
| _   |            |                                |                   |          |               |   |        |              | _              |  |  |
| -   |            |                                |                   |          |               |   |        |              | _              |  |  |
| <b> </b>                                  |            |                                |                   | OT 4     | 70.00         | 0.0                                       |        |              | _              |  |  |
| 744.9<br>743.9                            | 8.5<br>9.5 | Mix of red clay an             | d ach fill        | ST-1     | 7.0 - 9.0     | 2.3                                       |        |              | _              |  |  |
| - 743.9                                   | 9.5        | Coal ash, gray, dr             |                   |          |               |   |        |              | _              |  |  |
| -   |            | oodi don, gray, di             | , 10 1101         |          |               |   |        |              | -              |  |  |
| _   |            |                                |                   |          |               |   |        |              | _              |  |  |
|   |            |                                |                   |          |               |   |        |              | _              |  |  |
| L   |            |                                |                   | OS-2     | 13.5 - 16.0   | 1.9                                       |        |              | _              |  |  |
| -   |            |                                |                   |          |               |   |        |              | _              |  |  |
| _   |            |                                |                   |          |               |   |        |              | =              |  |  |
|   |            |                                |                   |          |               |   |        |              |                |  |  |
| L   |            |                                |                   | OS-3     | 18.5 - 21.0   | 2.5                                       |        |              | _              |  |  |
| -   |            |                                |                   |          |               |   |        |              | _              |  |  |
| -   |            |                                |                   |          |               |   |        |              | =              |  |  |
|   |            |                                |                   |          |               |   |        |              |                |  |  |
|   |            |                                |                   | OS-4     | 23.5 - 26.0   | 0.0                                       |        |              | _              |  |  |
| - L                                       |            |                                |                   |          |               |   |        |              | _              |  |  |
| [5] 725.6                                 | 27.8       |                                |                   | ST-5     | 26.5 - 28.5   | 0.0                                       |        |              | _              |  |  |
| 724.9                                     | 28.5       | Clay, light brown              |                   |          |               | -   |        |              |                |  |  |
| - WSM-GR.                                 |            | No Refusal /<br>Bottom of Hole |                   |          |               |   |        |              | _              |  |  |
| KIF.GPJ F                                 |            | DOMOITI OF FIORE               |                   |          |               |   |        |              | _              |  |  |
|   |            |                                |                   |          |               |   |        |              | -              |  |  |
| GACY 17                                   |            |                                |                   |          |               |   |        |              | _              |  |  |
| MIECFIAM, LECACO, 17861886, KIF.GPJ. FIAS |            |                                |                   |          |               |   |        |              |                |  |  |
| TANTECK                                   |            |                                |                   |          |               |   |        |              | -              |  |  |
| in  |            |                                |                   |          | ting Convices |   |        |              | 7/6/18         |  |  |



| Project Number 175618806         |       |  |             |          | Location     | N        | 1 576,162.   | 9, E 2,410,9 | 996.1 (NAD 83)                               |
|----------------------------------|-------|--|-------------|----------|--------------|----------|--------------|--------------|--|
| Project N                        | -     | KIF Soil Gas & Por                     | e Water We  | ells     | Boring No.   |          | /B-03a       | Total Dept   | · · · · · · · · · · · · · · · · · · ·        |
| County                           | -     | Roane County, TN                       |             |          | Surface Elev |          |              | 3.8 ft       |  |
| Project 7                        | Type  | Well Installations                     |             |          | Date Started |          | /12/18       | Completed    | 6/12/18                                      |
| Supervis                         | -     | Patrick Hoefle Dri                     | ller Stante |          | Depth to Wa  | ater 2   | 0.0 ft       | Date/Time    |  |
| Logged                           | -     | Patrick Hoefle                         |             |          | Depth to Wa  |          | I/A          | Date/Time    |  |
| Litholo                          |       |  | Overburden  | Sample # | Depth        | Rec. Ft. | Blows        | Mois.Cont. % |  |
| Elevation                        | Depth | Description                            | Rock Core   | RQD      | Run          | Rec. Ft. | Rec. %       | Run Depth    | Remarks                                      |
| 758.8                            | 0.0   | Top of Hole                            |             |          |              |          |              |              |  |
| -<br>-                           |       | Auger through cov<br>sample            | er/fill, no |          |              |          |              |              | Well installed to 25.0 ft adjacent to boring |
| 753.8                            | 5.0   |  |             |          |              |          |              |              | -  |
| _                                |       | Cover, mix of red gray ash, dry        | clay and    | SS-1     | 5.0 - 7.0    | 2.0      | 8-9-13       |              | -<br>-                                       |
| -                                |       |  |             | SS-2     | 7.0 - 9.0    | 1.7      | 7-13-15      |              | -  |
| _                                |       |  |             | SS-3     | 9.0 - 11.0   | 1.7      | 5-7-10       |              | -  |
| -<br>- 745.4                     | 13.4  |  |             | SS-4     | 11.0 - 13.0  | 2.0      | 5-7-7        |              | -  |
| _                                |       | Ash, gray, dry to w                    | vet         | SS-5     | 13.0 - 15.0  | 2.0      | 5-3-3        |              | -<br>-                                       |
| -                                |       |  |             | SS-6     | 15.0 - 17.0  | 1.6      | 2-3-4        |              | -  |
| -                                |       |  |             | SS-7     | 17.0 - 19.0  | 2.0      | 1-1-2        |              | -  |
| <b>-</b><br>-                    |       |  |             | SS-8     | 19.0 - 21.0  | 0.7      | 1-1-1        |              | Pushed rods at                               |
| -                                |       |  |             | SS-9     | 21.0 - 23.0  | 0.7      |              |              | EPRI's request                               |
| -                                |       |  |             | SS-10    | 23.0 - 25.0  | 1.3      | WOH-         |              | -  |
| 731.3                            | 27.5  |  |             | SS-11    | 25.0 - 27.0  | 1.6      | WOH-<br>WOH- |              | -  |
| 730.2                            | 28.6  | Coal ash, gray and possibly with clay/ |             | SS-12    | 27.0 - 29.0  | 2.0      | WOH-<br>WOH- |              | -  |
| 728.0                            | 30.8  | Ash, gray, wet                         |             | SS-13    | 29.0 - 31.0  | 2.0      | WOH-         |              | _  |
| 731.3<br>730.2<br>728.0<br>725.8 | 33.0  | Silt, light brown to moist             | tan,        | SS-14    | 31.0 - 33.0  | 2.0      | WOH-<br>WOH- |              | -  |
|                                  |       | No Refusal /<br>Bottom of Hole         |             |          |              |          |              |              | WOH = Weight<br>of Hammer                    |
| _                                |       |  |             |          |              |          |              |              | -  |



| Project              | Number | 175618806                       |               |          | Location      | ١        | N 576,162 | .9, E 2,410,9 | 996.1 (NAD 83)      |
|----------------------|--------|---------------------------------|---------------|----------|---------------|----------|-----------|---------------|---------------------|
| Project I            | Name   | KIF Soil Gas & Po               | re Water W    | ells     | Boring No.    |          | /B-03b    | Total Dept    | h 26.5 ft           |
| County               |        | Roane County, TN                | 1             |          | Surface Ele   | vation   | <br>75    | 8.8 ft        |                     |
| Project <sup>2</sup> | Туре   | Well Installations              |               |          | Date Started  | d 6      | /12/18    | Completed     | 6/12/18             |
| Supervis             | sor    | Patrick Hoefle D                | riller Stante | С        | Depth to Wa   | ater N   | I/A       | Date/Time     | N/A                 |
| Logged               | Ву     | Patrick Hoefle                  |               |          | Depth to Wa   | ater N   | I/A       | Date/Time     | N/A                 |
| Litholo              | ogy    |                                 | Overburden    | Sample # | Depth         | Rec. Ft. | Blows     | Mois.Cont. %  |                     |
| Elevation            | Depth  | Description                     | Rock Core     | RQD      | Run           | Rec. Ft. | Rec. %    | Run Depth     | Remarks             |
| 758.8                | 0.0    | Top of Hole                     | (61)          |          |               |          |           |               | Well installed to   |
| -                    |        | Auger through co sample         | ver/fill, no  |          |               |          |           |               | Well installed to _ |
|                      |        | ·                               |               |          |               |          |           |               |                     |
|                      |        |                                 |               |          |               |          |           |               | _                   |
| 753.8                | 5.0    |                                 |               |          |               |          |           |               | _                   |
| -                    |        | Cover, mix of red gray ash, dry | clay and      |          |               |          |           |               | -                   |
|                      |        |                                 |               |          |               |          |           |               |                     |
| _                    |        |                                 |               |          |               |          |           |               | _                   |
| L                    |        |                                 |               |          |               |          |           |               | _                   |
| -                    |        |                                 |               |          |               |          |           |               | _                   |
| 745 4                | 10.4   |                                 |               |          |               |          |           |               | _                   |
| - 745.4<br>-         | 13.4   | Ash, gray, dry to               | wet           |          |               |          |           |               | _                   |
| L                    |        | 7 ton, gray, ary to             |               |          |               |          |           |               | _                   |
| -                    |        |                                 |               |          |               |          |           |               | -                   |
| -                    |        |                                 |               |          |               |          |           |               | _                   |
|                      |        |                                 |               | OS-1     | 17.0 - 19.5   | 2.5      |           |               |                     |
| F                    |        |                                 |               |          |               |          |           |               | _                   |
| -                    |        |                                 |               | OS-2     | 20.0 - 22.5   | 0.0      |           |               | _                   |
| -                    |        |                                 |               |          |               |          |           |               | _                   |
|                      |        |                                 |               |          |               |          |           |               | -<br>-              |
| L                    |        |                                 |               | OS-3     | 24.0 - 26.5   | 1.0      |           |               |                     |
| 732.3                | 26.5   |                                 |               |          | 27.0 - 20.0   | 1.0      |           |               | _                   |
| 7                    |        | No Refusal /<br>Bottom of Hole  |               |          |               |          |           |               | -                   |
| APHICLC              |        | Pottoni oi Hole                 |               |          |               |          |           |               | _                   |
|                      |        |                                 |               |          |               |          |           |               | _                   |
| 전<br>-<br>-          |        |                                 |               |          |               |          |           |               | -                   |
|                      |        |                                 |               |          |               |          |           |               | -                   |
| GACY 13              |        |                                 |               |          |               |          |           |               | _                   |
|                      |        |                                 |               |          |               |          |           |               | _                   |
| TANTEC               |        |                                 |               |          |               |          |           |               | _                   |
|                      |        |                                 |               |          | ting Conviges |          |           |               | 7/6/18              |