

### ONE - DIMENSIONAL CONSOLIDATION TEST: CALCULATED CRS LOADING DATA

[illegible]

# ONE - DIMENSIONAL CONSOLIDATION TEST: CRS LOADING RESULTS (Load Time - Deformation Properties)

Project Number: 0411-08-1686 Test Station No.: CRS-6

Task No.: NA Date, Start: 4/3/2008

Project Name: Exelon (Victoria) Completed: 4/14/2008

4186-06-Summary of Methods: NA

Final Description of Specimen: Pale Brown Lean CLAY (CH)

☒ Undisturbed or; ☐ Reconstituted - Specimen.

File Name: B-2302UD\_19

Back Pressure,  $U_{b,cs}$  (psi): 70.1 Piston Uplift,  $P_{up}$  (lbf): 34.42

Transient Time Factor,  $T_v = (C_v \cdot t) / H^2 = 0.5$

☐ Data corrected for salt \_\_\_\_\_; in \_\_\_\_\_ g/kg  
0

Initial: Ring No.: 16 Area,  $A_v$  (cm<sup>2</sup>): 31.661 Solids Ht.,  $H_s$  (mm): 11.757 Specific Gravity,  $G_s = 2.690$  ☒ Meas.; ☐ Assumed  
Height  $H_o$ : 18.99 Water 22.5 Void 0.615 Deg. of 98.3 Total Unit 127.1 Dry Unit 103.8  
Final: (mm):  $H_f$ : 17.20 Content,  $w$  (%): 18.0 Ratio,  $e$ : 0.463 Sat.,  $S$  (%): 104.5 Weight,  $\gamma_t$  (pcf): 135.2 Weight,  $\gamma_d$  (pcf): 114.6

Notes:

- (1) S - Seating, BS - Start of Back Pressure, BE - End of Back Pressure, SC - Stress Controlled, CS - Constant Rate of Strain, US - Start of Uniform Strain Rate, UE - End of Uniform Strain Rate or  $\Delta U_n$  to erratic
- (2) Excess pore-water pressure measured at the base of the specimen.
- (3) Only applicable during stress controlled (SC) loading.

Data Management by: DH

Reviewed By: HP *HP*

| Loading Info. | Elapsed Time from Start of Loading, $\Delta t_n$ (min) | Overall Effective Vertical Stress, $\sigma'_{v,n}$ (ksf) | Corrected Volumetric (Axial) Strain, $\epsilon_{v,n}$ ( $\epsilon_{ac,n}$ ) $\Delta H_{c,n} / H_o$ (%) | Overall Void Ratio, $e_n$ | Total Vertical Stress, $\sigma_{v,n}$ (ksf) | Excess Pore-Water Pressure, $\Delta U_n$ (2) (ksf) | Loading Pore-Water Pressure Ratio, $R_u$ $\Delta U_n / \sigma_{v,n}$ (%) | Corrected Specimen Height, $H_{c,n}$ (mm) | Calculations Between n and n-1                             |                                                         |                               |                                          | Steady State Ratio, $SSR_n = \frac{C_v \cdot t_n \cdot UCF}{T_v \cdot (H_{c,avg})^2}$ | Rate of Secondary Comp. (3), $C_{\alpha} = \Delta d_{a,sc} / H_o$ ( $\times 10^{-4}$ ) |
|---------------|--------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------|---------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------|------------------------------------------------------------|---------------------------------------------------------|-------------------------------|------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
|               |                                                        |                                                          |                                                                                                        |                           |                                             |                                                    |                                                                          |                                           | Average Effective Vertical Stress, $\sigma'_{v,avg}$ (ksf) | Coefficient of Consolidation, $C_v$ (m <sup>2</sup> /y) | Average Void Ratio, $e_{avg}$ | Hydraulic Conductivity, $k$ @ 20°C (m/y) |                                                                                       |                                                                                        |
| S             |                                                        |                                                          |                                                                                                        |                           | 0.24                                        |                                                    |                                                                          |                                           | Data on given line represents average conditions           |                                                         |                               |                                          |                                                                                       |                                                                                        |
| BS            |                                                        |                                                          | 0.20                                                                                                   | 0.612                     | 1.31                                        |                                                    |                                                                          | 18.953                                    | between that line and the previous line of data.           |                                                         |                               |                                          |                                                                                       |                                                                                        |
| BE            |                                                        | 1.86                                                     | 0.17                                                                                                   | 0.613                     | 1.86                                        | 0.002                                              | 0.1                                                                      | 18.959                                    |                                                            |                                                         | 0.612                         |                                          |                                                                                       |                                                                                        |
| CS            | 0                                                      | 1.88                                                     | 0.17                                                                                                   | 0.613                     | 1.88                                        | 0.000                                              | 0.0                                                                      | 18.959                                    |                                                            |                                                         | 0.613                         |                                          |                                                                                       |                                                                                        |
|               | 67                                                     | 3.05                                                     | 0.40                                                                                                   | 0.609                     | 3.31                                        | 0.394                                              | 11.9                                                                     | 18.917                                    | 2.47                                                       |                                                         | 0.611                         |                                          |                                                                                       |                                                                                        |
|               | 232                                                    | 4.66                                                     | 0.90                                                                                                   | 0.601                     | 5.08                                        | 0.618                                              | 12.2                                                                     | 18.821                                    | 3.85                                                       |                                                         | 0.605                         |                                          |                                                                                       |                                                                                        |
| US            | 397                                                    | 6.56                                                     | 1.43                                                                                                   | 0.592                     | 7.06                                        | 0.744                                              | 10.5                                                                     | 18.721                                    | 5.61                                                       |                                                         | 0.597                         |                                          |                                                                                       |                                                                                        |
|               | 562                                                    | 8.81                                                     | 1.93                                                                                                   | 0.584                     | 9.39                                        | 0.860                                              | 9.2                                                                      | 18.625                                    | 7.68                                                       | 1.54                                                    | 0.588                         | 7.26E-04                                 | 2.78                                                                                  |                                                                                        |
|               | 727                                                    | 11.37                                                    | 2.41                                                                                                   | 0.576                     | 12.01                                       | 0.940                                              | 7.8                                                                      | 18.533                                    | 10.09                                                      | 1.54                                                    | 0.580                         | 6.10E-04                                 | 5.59                                                                                  |                                                                                        |
|               | 892                                                    | 14.19                                                    | 2.88                                                                                                   | 0.569                     | 14.89                                       | 1.042                                              | 7.0                                                                      | 18.445                                    | 12.78                                                      | 1.53                                                    | 0.573                         | 5.29E-04                                 | 8.45                                                                                  |                                                                                        |
|               | 1057                                                   | 17.38                                                    | 3.37                                                                                                   | 0.561                     | 18.24                                       | 1.274                                              | 7.0                                                                      | 18.352                                    | 15.79                                                      | 1.51                                                    | 0.565                         | 4.69E-04                                 | 11.19                                                                                 |                                                                                        |
|               | 1222                                                   | 20.79                                                    | 3.87                                                                                                   | 0.553                     | 21.75                                       | 1.428                                              | 6.6                                                                      | 18.257                                    | 19.09                                                      | 1.34                                                    | 0.557                         | 4.08E-04                                 | 12.58                                                                                 |                                                                                        |
|               | 1387                                                   | 23.81                                                    | 4.34                                                                                                   | 0.545                     | 24.87                                       | 1.563                                              | 6.3                                                                      | 18.167                                    | 22.30                                                      | 1.07                                                    | 0.549                         | 3.47E-04                                 | 12.10                                                                                 |                                                                                        |
|               | 1552                                                   | 26.75                                                    | 4.78                                                                                                   | 0.538                     | 27.83                                       | 1.605                                              | 5.8                                                                      | 18.085                                    | 25.28                                                      | 0.95                                                    | 0.542                         | 2.96E-04                                 | 12.70                                                                                 |                                                                                        |
|               | 1717                                                   | 29.83                                                    | 5.22                                                                                                   | 0.531                     | 30.97                                       | 1.697                                              | 5.5                                                                      | 18.000                                    | 28.29                                                      | 0.96                                                    | 0.535                         | 2.89E-04                                 | 14.81                                                                                 |                                                                                        |
|               | 1882                                                   | 33.25                                                    | 5.72                                                                                                   | 0.523                     | 34.68                                       | 2.124                                              | 6.1                                                                      | 17.905                                    | 31.54                                                      | 0.97                                                    | 0.527                         | 2.75E-04                                 | 17.01                                                                                 |                                                                                        |
|               | 2047                                                   | 36.51                                                    | 6.22                                                                                                   | 0.515                     | 38.07                                       | 2.317                                              | 6.1                                                                      | 17.811                                    | 34.88                                                      | 0.75                                                    | 0.519                         | 2.35E-04                                 | 14.77                                                                                 |                                                                                        |

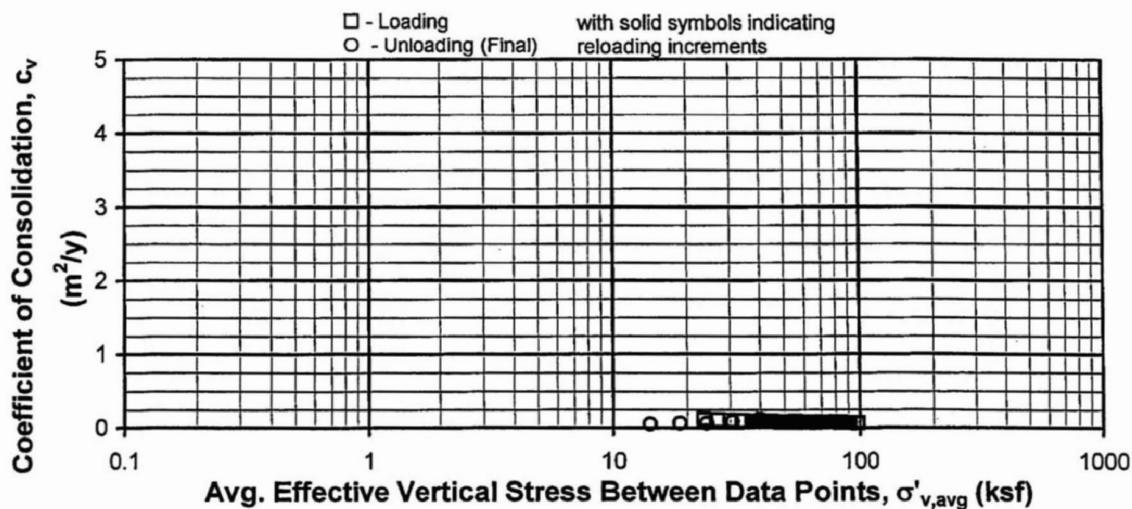
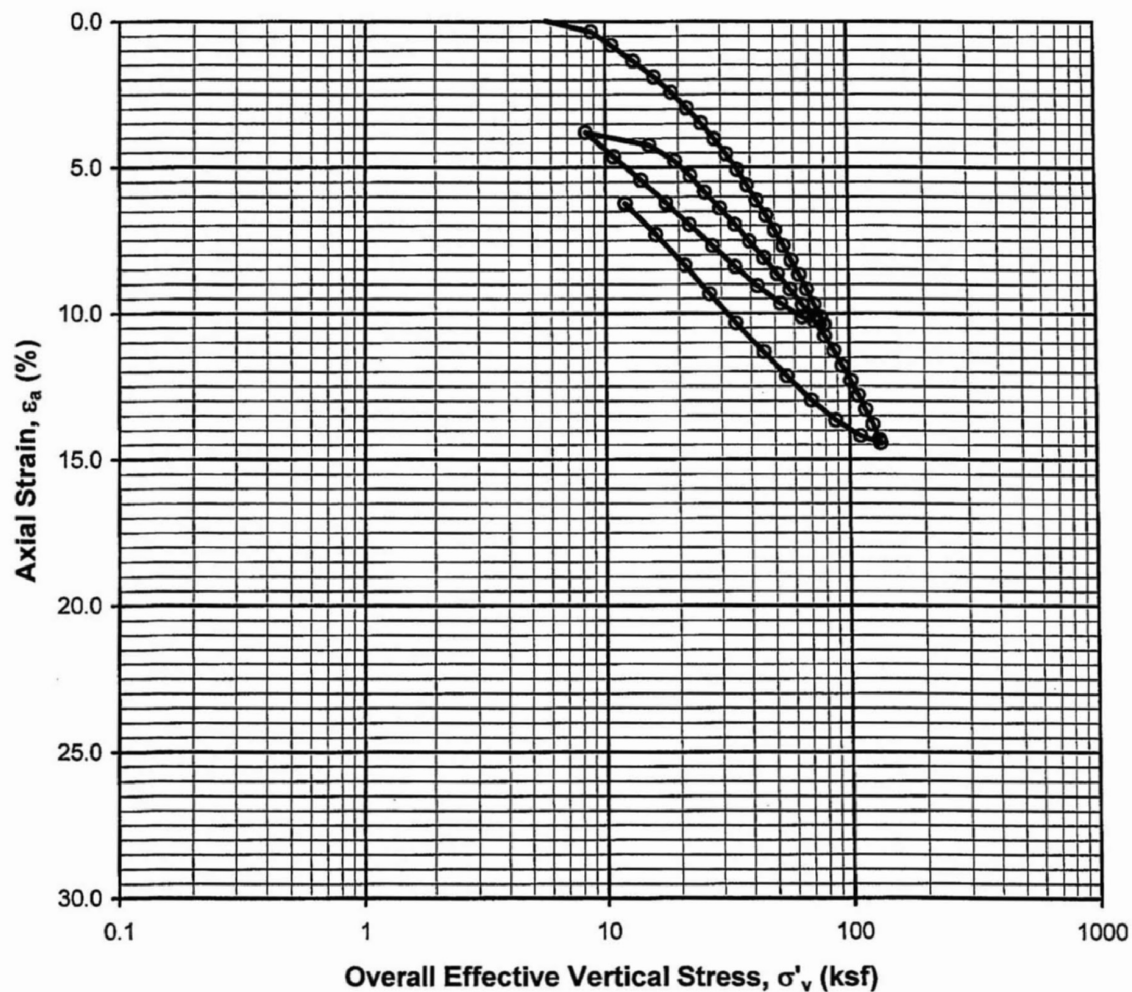


# ONE - DIMENSIONAL CONSOLIDATION TEST: CRS LOADING RESULTS (Load Time - Deformation Properties)

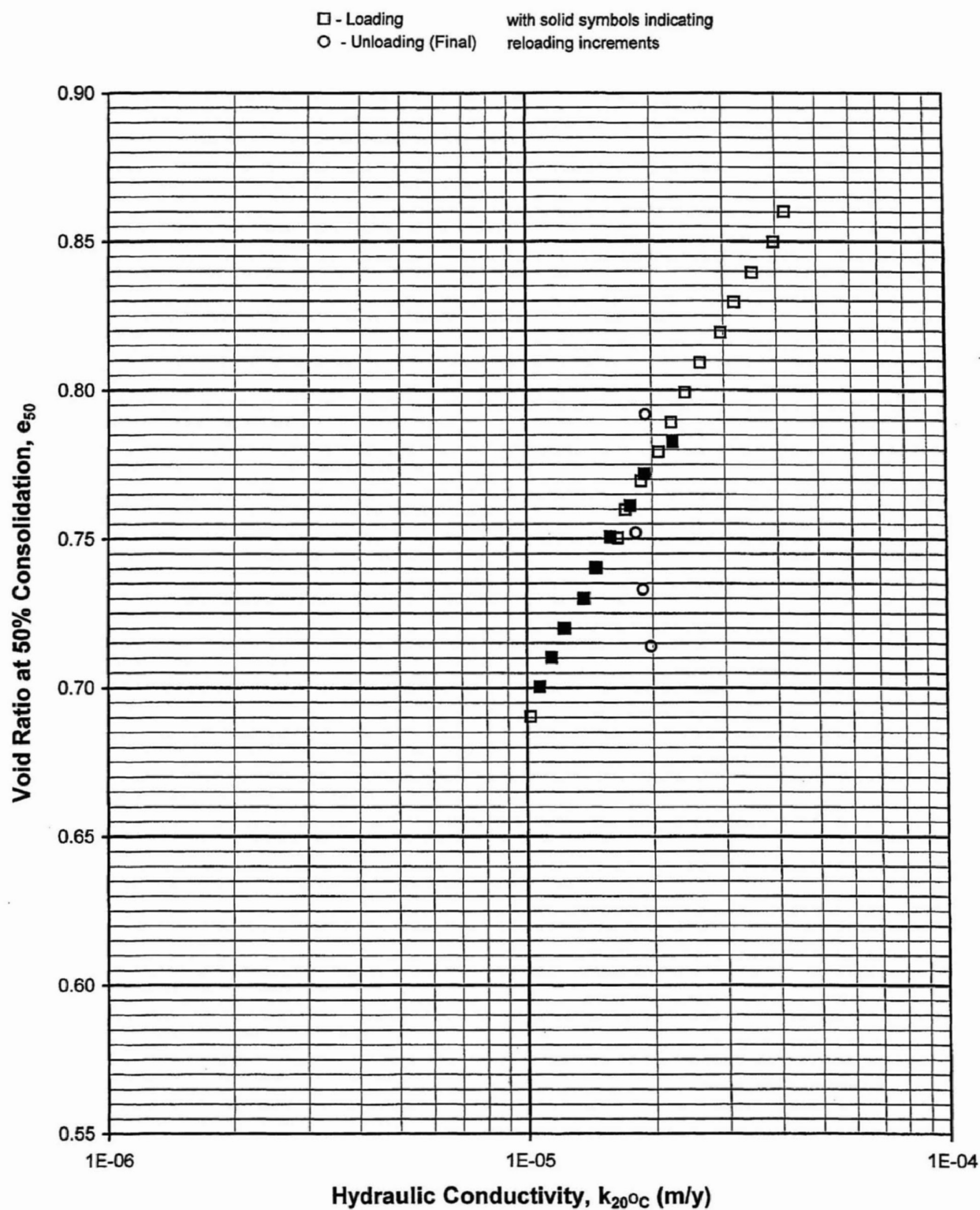
| Loading Info.<br>(1) | Elapsed Time from Start of Loading, $\Delta t_n$ (min) | Overall Effective Vertical Stress, $\sigma'_{v,n}$ (ksf) | Corrected Volumetric (Axial) Strain, $\epsilon_{v,n}$ ( $\epsilon_{ac,n}$ ) $\Delta H_{c,n} / H_o$ (%) | Overall Void Ratio, $e_n$ | Total Vertical Stress, $\sigma_{v,n}$ (ksf) | Excess Pore-Water Pressure, $\Delta U_n$ (2) (ksf) | Loading Pore-Water Pressure Ratio, $R_u$ $\Delta U_n / \sigma_{v,n}$ (%) | Corrected Specimen Height, $H_{c,n}$ (mm) | Calculations Between n and n-1                             |                                                         |                               |                                          | Steady State Ratio, $SSR_n = \frac{C_v \cdot t_n \cdot UCF}{T_v \cdot (H_{c,avg})^2}$ | Rate of Secondary Comp. (3), $C_\alpha = \frac{\Delta d_{s,sc}}{H_o} (\times 10^{-4})$ |
|----------------------|--------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------|---------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------|------------------------------------------------------------|---------------------------------------------------------|-------------------------------|------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
|                      |                                                        |                                                          |                                                                                                        |                           |                                             |                                                    |                                                                          |                                           | Average Effective Vertical Stress, $\sigma'_{v,avg}$ (ksf) | Coefficient of Consolidation, $C_v$ (m <sup>2</sup> /y) | Average Void Ratio, $e_{avg}$ | Hydraulic Conductivity, $k$ @ 20°C (m/y) |                                                                                       |                                                                                        |
|                      | 2212                                                   | 39.75                                                    | 6.70                                                                                                   | 0.507                     | 41.48                                       | 2.563                                              | 6.2                                                                      | 17.720                                    | 38.13                                                      | 0.68                                                    | 0.511                         | 2.04E-04                                 | 14.90                                                                                 |                                                                                        |
|                      | 2377                                                   | 43.02                                                    | 7.16                                                                                                   | 0.500                     | 44.85                                       | 2.713                                              | 6.0                                                                      | 17.632                                    | 41.38                                                      | 0.62                                                    | 0.503                         | 1.81E-04                                 | 14.86                                                                                 |                                                                                        |
|                      | 2602                                                   | 46.33                                                    | 7.60                                                                                                   | 0.493                     | 48.35                                       | 2.994                                              | 6.2                                                                      | 17.548                                    | 44.68                                                      | 0.43                                                    | 0.496                         | 1.16E-04                                 | 11.67                                                                                 |                                                                                        |
|                      | 2767                                                   | 50.30                                                    | 8.09                                                                                                   | 0.485                     | 52.69                                       | 3.539                                              | 6.7                                                                      | 17.456                                    | 48.32                                                      | 0.63                                                    | 0.489                         | 1.49E-04                                 | 18.45                                                                                 |                                                                                        |
|                      | 2932                                                   | 54.18                                                    | 8.57                                                                                                   | 0.477                     | 56.80                                       | 3.896                                              | 6.9                                                                      | 17.364                                    | 52.24                                                      | 0.52                                                    | 0.481                         | 1.30E-04                                 | 16.44                                                                                 |                                                                                        |
|                      | 3097                                                   | 58.21                                                    | 9.03                                                                                                   | 0.469                     | 60.99                                       | 4.124                                              | 6.8                                                                      | 17.277                                    | 56.19                                                      | 0.48                                                    | 0.473                         | 1.13E-04                                 | 16.51                                                                                 |                                                                                        |
|                      | 3263                                                   | 62.70                                                    | 9.49                                                                                                   | 0.462                     | 65.59                                       | 4.286                                              | 6.5                                                                      | 17.190                                    | 60.46                                                      | 0.50                                                    | 0.466                         | 1.07E-04                                 | 18.35                                                                                 |                                                                                        |
| UE                   | 3428                                                   | 67.00                                                    | 9.91                                                                                                   | 0.455                     | 70.33                                       | 4.928                                              | 7.0                                                                      | 17.109                                    | 64.85                                                      | 0.47                                                    | 0.459                         | 8.93E-05                                 | 18.25                                                                                 |                                                                                        |
|                      | 3459                                                   | 67.36                                                    | 10.00                                                                                                  | 0.454                     | 70.93                                       | 5.286                                              | 7.5                                                                      | 17.093                                    | 67.18                                                      |                                                         | 0.455                         |                                          |                                                                                       |                                                                                        |
|                      | 3473                                                   | 66.36                                                    | 10.01                                                                                                  | 0.454                     | 69.70                                       | 4.949                                              | 7.1                                                                      | 17.091                                    | 66.86                                                      |                                                         | 0.454                         |                                          |                                                                                       |                                                                                        |
|                      | 3758                                                   | 52.09                                                    | 9.93                                                                                                   | 0.455                     | 52.19                                       | 0.136                                              | 0.3                                                                      | 17.106                                    | 59.23                                                      |                                                         | 0.454                         |                                          |                                                                                       |                                                                                        |
|                      | 4043                                                   | 40.74                                                    | 9.77                                                                                                   | 0.457                     | 40.27                                       | -0.714                                             | -1.8                                                                     | 17.136                                    | 46.42                                                      |                                                         | 0.456                         |                                          |                                                                                       |                                                                                        |
|                      | 4328                                                   | 31.88                                                    | 9.55                                                                                                   | 0.461                     | 31.06                                       | -1.232                                             | -4.0                                                                     | 17.177                                    | 36.31                                                      |                                                         | 0.459                         |                                          |                                                                                       |                                                                                        |
|                      | 4613                                                   | 24.83                                                    | 9.26                                                                                                   | 0.466                     | 23.72                                       | -1.675                                             | -7.1                                                                     | 17.233                                    | 28.35                                                      |                                                         | 0.463                         |                                          |                                                                                       |                                                                                        |
| US                   | 4898                                                   | 19.38                                                    | 8.92                                                                                                   | 0.471                     | 18.10                                       | -1.953                                             | -10.8                                                                    | 17.297                                    | 22.10                                                      |                                                         | 0.468                         |                                          |                                                                                       |                                                                                        |
|                      | 5183                                                   | 15.32                                                    | 8.54                                                                                                   | 0.477                     | 13.94                                       | -2.119                                             | -15.2                                                                    | 17.370                                    | 17.35                                                      | 0.60                                                    | 0.474                         | 1.04E-04                                 | 2.18                                                                                  |                                                                                        |
|                      | 5468                                                   | 12.30                                                    | 8.16                                                                                                   | 0.483                     | 10.96                                       | -2.069                                             | -18.9                                                                    | 17.441                                    | 13.81                                                      | 0.43                                                    | 0.480                         | 1.01E-04                                 | 3.10                                                                                  |                                                                                        |
|                      | 5753                                                   | 9.95                                                     | 7.78                                                                                                   | 0.490                     | 8.65                                        | -2.014                                             | -23.3                                                                    | 17.515                                    | 11.12                                                      | 0.35                                                    | 0.487                         | 1.05E-04                                 | 3.75                                                                                  |                                                                                        |
|                      | 6038                                                   | 8.39                                                     | 7.45                                                                                                   | 0.495                     | 7.20                                        | -1.852                                             | -25.7                                                                    | 17.577                                    | 9.17                                                       | 0.24                                                    | 0.492                         | 9.50E-05                                 | 3.36                                                                                  |                                                                                        |
| UE                   | 6313                                                   | 6.76                                                     | 7.05                                                                                                   | 0.501                     | 5.56                                        | -1.904                                             | -34.3                                                                    | 17.652                                    | 7.58                                                       | 0.30                                                    | 0.498                         | 1.23E-04                                 | 5.17                                                                                  |                                                                                        |
|                      | 6323                                                   | 6.96                                                     | 7.04                                                                                                   | 0.502                     | 5.79                                        | -1.843                                             | -31.8                                                                    | 17.654                                    | 6.86                                                       |                                                         | 0.501                         |                                          |                                                                                       |                                                                                        |
|                      | 6488                                                   | 11.45                                                    | 7.33                                                                                                   | 0.497                     | 12.30                                       | 1.252                                              | 10.2                                                                     | 17.601                                    | 9.21                                                       |                                                         | 0.499                         |                                          |                                                                                       |                                                                                        |
|                      | 6653                                                   | 15.54                                                    | 7.76                                                                                                   | 0.490                     | 17.55                                       | 2.925                                              | 16.7                                                                     | 17.518                                    | 13.50                                                      |                                                         | 0.494                         |                                          |                                                                                       |                                                                                        |
|                      | 6818                                                   | 20.13                                                    | 8.16                                                                                                   | 0.483                     | 22.58                                       | 3.579                                              | 15.9                                                                     | 17.442                                    | 17.83                                                      |                                                         | 0.487                         |                                          |                                                                                       |                                                                                        |
| US                   | 6983                                                   | 25.74                                                    | 8.58                                                                                                   | 0.477                     | 28.60                                       | 4.190                                              | 14.7                                                                     | 17.363                                    | 22.93                                                      |                                                         | 0.480                         |                                          |                                                                                       |                                                                                        |
|                      | 7148                                                   | 32.28                                                    | 8.99                                                                                                   | 0.470                     | 35.29                                       | 4.430                                              | 12.6                                                                     | 17.284                                    | 29.01                                                      | 0.69                                                    | 0.473                         | 9.59E-05                                 | 1.45                                                                                  |                                                                                        |
|                      | 7313                                                   | 39.81                                                    | 9.37                                                                                                   | 0.464                     | 42.75                                       | 4.339                                              | 10.1                                                                     | 17.212                                    | 36.04                                                      | 0.76                                                    | 0.467                         | 8.61E-05                                 | 3.22                                                                                  |                                                                                        |
|                      | 7478                                                   | 47.71                                                    | 9.73                                                                                                   | 0.458                     | 50.49                                       | 4.113                                              | 8.1                                                                      | 17.144                                    | 43.76                                                      | 0.82                                                    | 0.461                         | 8.26E-05                                 | 5.25                                                                                  |                                                                                        |
|                      | 7643                                                   | 56.16                                                    | 10.08                                                                                                  | 0.452                     | 58.89                                       | 4.061                                              | 6.9                                                                      | 17.077                                    | 51.93                                                      | 0.92                                                    | 0.455                         | 8.30E-05                                 | 7.93                                                                                  |                                                                                        |
|                      | 7808                                                   | 64.60                                                    | 10.45                                                                                                  | 0.447                     | 67.92                                       | 4.913                                              | 7.2                                                                      | 17.008                                    | 60.38                                                      | 0.90                                                    | 0.450                         | 7.78E-05                                 | 9.71                                                                                  |                                                                                        |

## DCN# EXE808

**FUGRO CONSULTANTS, INC.**



**1-D CONSOLIDATION TEST: CRS**  
 Sample No. UD-8A - Depth 83.5 - 85.5 ft  
 Boring B-2304UD



**1-D CONSOLIDATION TEST: CRS**  
 Sample No. UD-8A - Depth 83.5 - 85.5 ft  
 Boring B-2304UD



# ONE - DIMENSIONAL CONSOLIDATION TEST: Specimen Setup / Take Down

Project Number: 0411-08-1686 Test Station No.: CRS-7 File Name: B-2304\_UD8a  
 Task No.: NA Specific Gravity,  $G_s$ : 2.710 ☒ Meas. ; ☐ Assumed Ring No.: 7  
 Project Name: Exelon (Victoria) Assig. Remarks: Ring Area,  $A_r$  (cm<sup>2</sup>) = 31.684  
 TEST TYPE: ☒ CRS (D 4186-06); ☐ Method A; ☐ Method B; ☐ Method C; ☐ Method D; Ring Height (mm) = NA  
☐ Method E; ☐ Method F; ☐ Method G; ☐ Method H; ☐ Method I; ☐ Method J; Summary of Methods: NA

|                                                               |                                                      |                                |                                   |                                  |                                           |                         |
|---------------------------------------------------------------|------------------------------------------------------|--------------------------------|-----------------------------------|----------------------------------|-------------------------------------------|-------------------------|
| <input checked="" type="checkbox"/> Tube                      | <input type="checkbox"/> Field Extruded              | <input type="checkbox"/> Liner | <input type="checkbox"/> Remolded | <input type="checkbox"/> Tamping | <input type="checkbox"/> Constant Effort: | Blows/Tamps per Layer = |
| Boring No.: B-2304UD                                          | <input type="checkbox"/> LPC Core                    |                                |                                   | Impact/Rammer                    | Rammer Wgt. (lbf) =                       | No. Layers =            |
| Sample No.: UD-8                                              | Composite No.:                                       |                                |                                   | Pluviated:                       | Tamper Force (lbf) =                      | Drop (in.) =            |
| Depth (ft): 83.5 - 85.5                                       | Specimen No.: A                                      |                                |                                   | Kneading                         | Undercompaction: $U_{ni}$ (%) =           | Dia. (in.) =            |
| <input checked="" type="checkbox"/> Spec. Selection by X-ray; | <input checked="" type="checkbox"/> Geomarine Sample |                                |                                   |                                  | Ref. Effort =                             | % Comp. = $\pm$ Opt. =  |

| Water Content (W);                             | Initial - Trimming Location                              |                         |             | Final, W <sub>at</sub><br>(see below) | Soil and Ring Masses                                       | Initial | Final  |
|------------------------------------------------|----------------------------------------------------------|-------------------------|-------------|---------------------------------------|------------------------------------------------------------|---------|--------|
|                                                | Top (W1)                                                 | Bottom (W2)             | Sides (W3)  |                                       | Mass Moist Soil + Ring (g)                                 | 330.96  | 328.66 |
| Container No.                                  | 902                                                      | 2018                    | 2020        | 959                                   | Mass Ring (g)                                              | 215.66  |        |
| Mass Moist Soil + Container (g)                | 129.14                                                   | 129.17                  | 85.00       | 58.34                                 | Mass Moist Soil, M <sub>t,c</sub> or M <sub>t,at</sub> (g) | 115.30  | 113.00 |
| Mass Dry Soil + Container (g)                  | 107.76                                                   | 106.81                  | 72.02       | 52.40                                 | EXCESS DRY SOIL (soil not incl. in final mass above)       |         |        |
| Mass Container (g)                             | 32.15                                                    | 30.56                   | 30.58       | 32.11                                 | Container No.                                              |         | 2032   |
| WATER CONTENT (%)                              | 28.28                                                    | 29.32                   | 31.32       | 29.28                                 | Mass Dry Soil + Container (g)                              |         | 31.08  |
| Avg. Initial Water Content, W <sub>4</sub> (%) | 29.64                                                    | Final W <sub>at</sub> : | X   Slice ; | Whole Spec.                           | Mass Container (g)                                         |         | 30.70  |
|                                                | See attached data sheet(s) for additional water contents |                         |             |                                       | Mass Excess Dry Soil, M <sub>d,es</sub> (g)                |         | 0.38   |

| Soil Height: Measurements (mm)                                                                                                                                               |                                        |                                           |                             | Soil Height: Calculations, (mm)                         |  | Initial                                                             | Final  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-------------------------------------------|-----------------------------|---------------------------------------------------------|--|---------------------------------------------------------------------|--------|
| Initial                                                                                                                                                                      |                                        | Final                                     |                             | Height of Gauge Block, $H_{gb}$ (1)                     |  | 0.000                                                               | 19.050 |
| with Spec.                                                                                                                                                                   | without Spec.                          | with Spec.                                | without Spec.               | Reading on Gauge Block, $d_{gb}$                        |  | 0.000                                                               | 0.000  |
| 19.340                                                                                                                                                                       | 0.000                                  | 12.230                                    | 13.100                      | Avg. Reading on Soil, $d_{soil}$                        |  | 19.304                                                              | 12.212 |
| 19.290                                                                                                                                                                       | 0.000                                  | 12.110                                    | 13.060                      | Avg. Reading on Apparatus without Specimen, $d_{app}$   |  | 0.000                                                               | 13.040 |
| 19.290                                                                                                                                                                       | 0.000                                  | 12.180                                    | 13.040                      | Soil Height, $H = d_{soil} - d_{app} + H_{gb} - d_{gb}$ |  | 19.304                                                              | 18.222 |
| 19.320                                                                                                                                                                       | 0.000                                  | 12.270                                    | 13.010                      | Soil Height: Final by Dial Change During Test (mm)      |  |                                                                     |        |
| 19.280                                                                                                                                                                       | 0.000                                  | 12.270                                    | 12.990                      | Initial Height, $H_o$                                   |  | 19.304                                                              |        |
| <input type="checkbox"/> Yes ;                                                                                                                                               | <input checked="" type="checkbox"/> No | <input checked="" type="checkbox"/> Yes ; | <input type="checkbox"/> No | Require $H_{gb}$ & $d_{gb}$ (1)                         |  | Final (end of test) Corr. Total Spec. Deformation, $\Delta H_{c,t}$ |        |
| <input type="checkbox"/> Yes ;                                                                                                                                               | <input checked="" type="checkbox"/> No | <input checked="" type="checkbox"/> Yes ; | <input type="checkbox"/> No | Filter Paper Included:                                  |  | Final Calculated Height, $H_{f,c} = H_o - \Delta H_{c,t}$           |        |
| (1) Req. block ht. to set bench comparator so the final soil ht. can be determined directly by the diff. between the reading with and without spec. : ~ 12.7 mm; CRS ~ 25 mm |                                        |                                           |                             | Final Soil Height Measurement, $H_{f,m}$                |  | 18.222                                                              |        |
| Enter value of $H_{gb}$ & $d_{gb}$ only when that value has to be included in the determination of the soil height.                                                          |                                        |                                           |                             | Normalized Difference in %, $(H_{f,c} - H_{f,m})/H_o$   |  | -0.63                                                               |        |

| Estimated Initial Unit Weight                                                                         |                                   | Soil Extruded During Loading                            |      |
|-------------------------------------------------------------------------------------------------------|-----------------------------------|---------------------------------------------------------|------|
| Total, $\gamma_{t,o}$ (pcf) = 117.68                                                                  | Dry, $\gamma_{d,o}$ (pcf) = 90.78 | Container No.                                           |      |
| Filter Paper Used: <input checked="" type="checkbox"/> Whatman No. 54; <input type="checkbox"/> Other |                                   | Mass Dry Soil + Cont. (g)                               | NA   |
| Incremental Test: Top & Bottom: <input type="checkbox"/> Yes ; <input type="checkbox"/> No            |                                   | Mass Cont. (g)                                          | NA   |
| CRS Test: Top Only: <input checked="" type="checkbox"/> Yes ; <input type="checkbox"/> No             |                                   | Dry Mass - Soil Extruded During Loading, $M_{d,et}$ (g) | 0.00 |

Photo taken of Sliced Test Specimen: ☐ Yes ; ☒ No

Final Visual Description: Mottle Brownish Yellow and Pale Yellow Fat CLAY (CH)

Trimming/Etc. Remarks:

Method of trimming periphery: ☒ "Casagrande" Lathe ; ☐ Cutting Shoe ; ☐ Wire Saw ; ☐ Other  
 Method of trimming ends: ☐ Wire Saw & Sharp (knife) Straight Edge ; ☒ Wire Saw & Straight Edge ; ☐ Wire Saw

Trim./Recon. By: JTG Setup By: JTG Prelim. Calc. By: DH Take Down By: JTG  
 Date: 3/27/2008 Date: 3/27/2008 Final Calc. By: DH Date: 4/17/2008  
 Reviewed By: HP HP

Note: NA - Not Applicable

KAW 7/16/08



# ONE - DIMENSIONAL CONSOLIDATION TEST: Specimen Calculations & Summary

Project Number: 0411-08-1686 Test Station No.: CRS-7 File Name: B-2304\_UD8a  
 Task No.: NA Specific Gravity,  $G_s$ : 2.710 ☒ Measured ; ☐ Assumed.  
 Calculations Corrected for Salt (dissolved solids): ☒ No or, ☐ Yes, with Concentration = \_\_\_\_\_ g/kg

| Cal.-<br>Routine | ITEM                  | Water<br>Content,<br>(%) | Mass<br>Dry Soil,<br>(g) | Degree of Saturation, S in % |                       |       |
|------------------|-----------------------|--------------------------|--------------------------|------------------------------|-----------------------|-------|
|                  |                       |                          |                          | Height<br>Initial            | Final Height<br>Meas. | Dial  |
| 1                | Initial, Top, W1      | 28.28                    | 89.88                    | 91.1                         | 94.5                  | 96.0  |
| 2                | " Bottom, W2          | 29.32                    | 89.16                    | 92.9                         | 96.4                  | 97.9  |
| 3                | " Sides, W3           | 31.32                    | 87.80                    | 96.0                         | 99.9                  | 101.4 |
| 4                | " Average, W4         | 29.64                    | 88.94                    | 93.4                         | 97.0                  | 98.5  |
| 5                | " Back Calculated (1) | 31.34                    | 87.79 (3)                | 96.0                         | 99.9                  | 101.4 |
| 6                | Final                 | 29.28                    | 87.79 (2)                | 96.0                         | 99.9                  | 101.4 |

## Calculated Specific Gravity for Final Saturation = 100%:

Used Cal. Routine No. 5 to obtain the mass of dry soil  
 and final height by: ☒ Measurement; ☐ Dial Change.  
 Back Cal.  $G_s$  = 2.708  
 Avg.  $G_s$  (measured/assumed) & Back Cal.  $G_s$  = 2.709

## Calculation Constant, K

= (unit conversion) /  $G_s \times \rho_w \times A_r$   
 Estimated,  $K_e$  0.11667  
 Final Selected,  $K_f$  0.11667

## Calculated Mass Dry Soil for Final Saturation = 100%:

using measured/assumed  $G_s$   
 and final height by: ☒ Measurement; ☐ Dial Change.  
 Back Cal. Mass Dry Soil, (g) = 87.75  
 Avg. Back Calculated and Measured Mass Dry Soil (g) = 87.77

## Summary of Specimen Physical Properties

|                                   |                            |                                              |                                                                |                                                  |                                            |                                          |                                                                              |          |
|-----------------------------------|----------------------------|----------------------------------------------|----------------------------------------------------------------|--------------------------------------------------|--------------------------------------------|------------------------------------------|------------------------------------------------------------------------------|----------|
| Specific Gravity<br>$G_s = 2.710$ |                            | <input type="checkbox"/> Assumed             | To make $S_r = 100\%$ at end of test.                          |                                                  |                                            |                                          |                                                                              |          |
|                                   |                            | <input checked="" type="checkbox"/> Measured | Avg. of measured/assumed $G_s$ and $G_s$ to make $S_r = 100\%$ |                                                  |                                            |                                          |                                                                              |          |
| Mass Dry<br>Soil, (g)             | Initial: 87.79             | <input checked="" type="checkbox"/>          | From Cal. Routine No. 5                                        | Note: Routine #5 is based on final measurements. |                                            |                                          |                                                                              |          |
|                                   | Final (4): NA              | <input type="checkbox"/>                     | Make $S_r = 100\%$ , or;                                       | Avg. of measured & make $S_r = 100\%$            |                                            |                                          |                                                                              |          |
| Initial Height (mm) =             |                            | 19.30                                        | <input checked="" type="checkbox"/> Measured ;                 |                                                  | Back Calculated                            |                                          | Back-cal. Sat. (%) = NA                                                      |          |
| Final Height (mm) =               |                            | 18.22                                        | <input checked="" type="checkbox"/> Measured ;                 |                                                  | Initial $H_o$ & dial change during loading |                                          |                                                                              |          |
|                                   | Water<br>Content, w<br>(%) | Void Ratio,<br>e                             | Degree of<br>Saturation, S<br>(%)                              | Total Unit<br>Weight, $\gamma_t$<br>(pcf)        | Dry Unit<br>Weight, $\gamma_d$<br>(pcf)    | Height of<br>Solids, $H_s$ (2,4)<br>(mm) | Extruded soil loss proportioned in<br>increasing loading increments (5)<br>: |          |
| Initial                           | 31.3                       | 0.885                                        | 96.0                                                           | 117.7                                            | 89.6                                       | 10.243                                   | From                                                                         | To (ksf) |
| Final                             | 28.7                       | 0.779                                        | 99.9                                                           | 122.2                                            | 94.9                                       | NA                                       | NA                                                                           | NA       |

|                        |                   |                                   |       |       |     |                       |    |               |
|------------------------|-------------------|-----------------------------------|-------|-------|-----|-----------------------|----|---------------|
| Graphical Construction | $\sigma'_p$ (ksf) | $\epsilon_a$ (%)                  | CR    | RR    | OCR | Liquid Limit (LL)     | 61 | Minus 200 (%) |
| Casagrande Method      | 26.60             | NA                                | 0.180 | 0.083 | 3.1 | Plastic Limit (PL)    | 26 | 93.7          |
| Becker Method          | NA                | Becker minimum $\sigma'_p$ (ksf): |       | NA    |     | Plasticity Index (PI) | 35 |               |

NA - Indicates not applicable

Notes:

- (1) Back Calculated based on final mass of oven-dry soil (corrected for dry mass of any excess and extruded soil ).
- (2) Corrected for any excess dry soil (soil stuck to ring, filter paper, etc.).
- (3) This value is only different from the final value if there is soil extrusion during loading.
- (4) Final is only different from the initial value if there is soil extrusion during loading.
- (5) There should not be any soil loss in a CRS test, unless stress increments are applied.

Calculated By: DH Reviewed By: HP HP  
 Date: 4/22/2008

# ONE - DIMENSIONAL CONSOLIDATION TEST: CALCULATED CRS LOADING DATA

Project Number: 0411-08-1686 Test Station No.: CRS-7 File Name: B-2304\_UD8a  
 Task No.: NA Date; Start: 3/27/2008 Initial Height,  $H_o$  (mm): 19.30  
 Project Name: Exelon (Victoria) Completed: 4/17/2008 Ring Area,  $A_r$  (cm<sup>2</sup>): 31.6844  
 Test: Initial / Pressure Gauge Back Pressure,  $U_G$  (psi): 70 ☒ Undisturbed or ; ☐ Reconstituted - Specimen.  
 Reference Values: Back Pressure,  $U_{b,BE}$  (psi): 70.52337 ,V: 0.023161541 Piston Uplift,  $P_{up}$  (lbf): 34.64  
 Back Pressure,  $U_{b,CS}$  (psi): 70.52399 ,V: 0.023161744 Setup  $DT_{ref}$  (V): 0.001766231  
 Displacement Transducer No.: DT-107 Calib. Factor (mm/V): 226.37841 Ch. No.: 2  
 Pore Press. Transducer No.: PT-114 Calib. Factor (psi/V): 3029.45109 Ref. Zero (V): -0.000118 Ch. No.: 3  
 Force Cell No.: FT-107 Calib. Factor (lbf/V): -155699.54 Ref. Zero (V): -0.000155 Ch. No.: 1

## Notes:

(1) S - Seating, BS - Start of Back Pressure, BE - End of Back Pressure, SC - Stress Controlled, CS - Constant Rate of Strain

US - Start of Uniform Strain Rate, UE - End of Uniform Strain Rate

(2) Total Vertical Stress ( $\sigma_v$ ) corrected to account for the force caused by the back pressure acting on the piston (Piston Uplift).

(3) Increasing deformation value indicates: ☒ compression; or ☐ swell.

(4) "App. Flex. Corr." values based on the apparatus calibration.

Data Management By: DH Reviewed By: HP HP

Remarks: \_\_\_\_\_

| Load-<br>ing<br>Info.<br>(1) | Julian<br>Day<br>(dd) | Hour<br>(hr.:min.:s) | Elapsed Time<br>from Start of<br>Loading,<br>$\Delta t_n$<br>(min) | Total<br>Vertical<br>Stress,<br>$\sigma_{v,n}$ (2)<br>(ksf) | Excess<br>Pore-Water<br>Pressure,<br>$\Delta U_n$<br>(ksf) | Total<br>Specimen<br>Deformation,<br>$\Delta H_n$ (3)<br>(mm) | Apparatus<br>Flexibility<br>Correction,<br>$\Delta d_{afc,n}$<br>(mm) | Corr. Total<br>Specimen<br>Deformation,<br>$\Delta H_{c,n}$ (4)<br>(mm) | Strain Rate,<br>between<br>n & n-1,<br>$\Delta \epsilon_{ac,rate}$<br>(%/hr) |
|------------------------------|-----------------------|----------------------|--------------------------------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------|
| S                            | 87                    | 15 : 26 : 11         |                                                                    | 0.17                                                        |                                                            | 0.000                                                         |                                                                       |                                                                         |                                                                              |
| BS                           | 87                    | 16 : 01 : 12         |                                                                    | 2.22                                                        |                                                            | 0.040                                                         | 0.000                                                                 | 0.040                                                                   |                                                                              |
| BE                           | 88                    | 11 : 59 : 15         |                                                                    | 5.71                                                        | 0.000                                                      | -0.006                                                        | 0.000                                                                 | -0.006                                                                  |                                                                              |
| CS                           | 88                    | 11 : 59 : 18         | 0                                                                  | 5.71                                                        | 0.000                                                      | -0.006                                                        | 0.000                                                                 | -0.006                                                                  |                                                                              |
|                              | 88                    | 13 : 42 : 13         | 103                                                                | 10.21                                                       | 2.044                                                      | 0.068                                                         | 0.000                                                                 | 0.068                                                                   | 0.225                                                                        |
|                              | 88                    | 17 : 06 : 55         | 308                                                                | 13.50                                                       | 4.015                                                      | 0.156                                                         | 0.000                                                                 | 0.156                                                                   | 0.133                                                                        |
|                              | 88                    | 21 : 26 : 57         | 568                                                                | 17.18                                                       | 5.715                                                      | 0.261                                                         | 0.000                                                                 | 0.261                                                                   | 0.125                                                                        |
| US                           | 89                    | 01 : 46 : 59         | 828                                                                | 21.05                                                       | 7.218                                                      | 0.368                                                         | 0.000                                                                 | 0.368                                                                   | 0.128                                                                        |
|                              | 89                    | 06 : 07 : 00         | 1088                                                               | 24.68                                                       | 8.257                                                      | 0.469                                                         | 0.000                                                                 | 0.469                                                                   | 0.122                                                                        |
|                              | 89                    | 10 : 27 : 01         | 1348                                                               | 28.15                                                       | 9.034                                                      | 0.572                                                         | 0.000                                                                 | 0.572                                                                   | 0.122                                                                        |
|                              | 89                    | 14 : 47 : 03         | 1608                                                               | 32.05                                                       | 9.965                                                      | 0.671                                                         | 0.000                                                                 | 0.671                                                                   | 0.119                                                                        |
|                              | 89                    | 19 : 07 : 04         | 1868                                                               | 35.96                                                       | 10.814                                                     | 0.776                                                         | 0.000                                                                 | 0.776                                                                   | 0.125                                                                        |
|                              | 89                    | 23 : 27 : 06         | 2128                                                               | 39.93                                                       | 11.677                                                     | 0.878                                                         | 0.000                                                                 | 0.878                                                                   | 0.122                                                                        |
|                              | 90                    | 03 : 47 : 07         | 2388                                                               | 44.14                                                       | 12.693                                                     | 0.979                                                         | 0.000                                                                 | 0.979                                                                   | 0.121                                                                        |
|                              | 90                    | 08 : 07 : 09         | 2648                                                               | 48.52                                                       | 13.782                                                     | 1.082                                                         | 0.000                                                                 | 1.082                                                                   | 0.123                                                                        |
|                              | 90                    | 12 : 27 : 11         | 2908                                                               | 52.88                                                       | 14.756                                                     | 1.183                                                         | 0.000                                                                 | 1.183                                                                   | 0.120                                                                        |
|                              | 90                    | 16 : 47 : 12         | 3168                                                               | 57.60                                                       | 15.933                                                     | 1.283                                                         | 0.000                                                                 | 1.283                                                                   | 0.120                                                                        |
|                              | 90                    | 21 : 07 : 13         | 3428                                                               | 62.14                                                       | 16.814                                                     | 1.383                                                         | 0.000                                                                 | 1.383                                                                   | 0.119                                                                        |
|                              | 91                    | 01 : 27 : 14         | 3688                                                               | 67.12                                                       | 17.952                                                     | 1.483                                                         | 0.000                                                                 | 1.483                                                                   | 0.119                                                                        |
|                              | 91                    | 05 : 47 : 16         | 3948                                                               | 71.98                                                       | 18.935                                                     | 1.580                                                         | 0.000                                                                 | 1.580                                                                   | 0.116                                                                        |
|                              | 91                    | 10 : 07 : 17         | 4208                                                               | 77.17                                                       | 20.108                                                     | 1.676                                                         | 0.000                                                                 | 1.676                                                                   | 0.114                                                                        |
| UE                           | 91                    | 14 : 27 : 19         | 4468                                                               | 82.36                                                       | 21.026                                                     | 1.773                                                         | 0.000                                                                 | 1.773                                                                   | 0.116                                                                        |
|                              | 91                    | 18 : 47 : 20         | 4728                                                               | 87.79                                                       | 21.929                                                     | 1.871                                                         | 0.000                                                                 | 1.871                                                                   | 0.117                                                                        |
|                              | 91                    | 23 : 07 : 21         | 4988                                                               | 92.28                                                       | 21.740                                                     | 1.957                                                         | 0.000                                                                 | 1.957                                                                   | 0.102                                                                        |

**ONE - DIMENSIONAL CONSOLIDATION TEST:  
CALCULATED CRS LOADING DATA**

| Load-<br>ing<br>Info.<br>(1) | Julian<br>Day<br>(dd) | Hour<br>(hr.:min.:s) | Elapsed Time<br>from Start of<br>Loading,<br>$\Delta t_n$<br>(min) | Total<br>Vertical<br>Stress,<br>$\sigma_{v,n}$ (2)<br>(ksf) | Excess<br>Pore-Water<br>Pressure,<br>$\Delta U_n$<br>(ksf) | Total<br>Specimen<br>Deformation,<br>$\Delta H_n$ (3)<br>(mm) | Apparatus<br>Flexibility<br>Correction,<br>$\Delta d_{afc,n}$<br>(mm) | Corr. Total<br>Specimen<br>Deformation,<br>$\Delta H_{c,n}$ (4)<br>(mm) | Strain Rate,<br>between<br>n & n-1,<br>$\Delta \epsilon_{ac,rate}$<br>(%/hr) |
|------------------------------|-----------------------|----------------------|--------------------------------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------|
|                              | 92                    | 01 : 29 : 05         | 5130                                                               | 95.74                                                       | 22.466                                                     | 2.006                                                         | 0.000                                                                 | 2.006                                                                   | 0.108                                                                        |
|                              | 92                    | 01 : 47 : 23         | 5148                                                               | 94.45                                                       | 21.770                                                     | 2.007                                                         | 0.000                                                                 | 2.007                                                                   | 0.021                                                                        |
|                              | 92                    | 14 : 07 : 28         | 5888                                                               | 65.31                                                       | 0.772                                                      | 1.956                                                         | 0.000                                                                 | 1.956                                                                   | -0.021                                                                       |
|                              | 93                    | 02 : 27 : 33         | 6628                                                               | 51.00                                                       | -2.973                                                     | 1.865                                                         | 0.000                                                                 | 1.865                                                                   | -0.038                                                                       |
|                              | 93                    | 14 : 47 : 38         | 7368                                                               | 39.85                                                       | -4.489                                                     | 1.749                                                         | 0.000                                                                 | 1.749                                                                   | -0.049                                                                       |
| US                           | 94                    | 03 : 07 : 43         | 8108                                                               | 30.56                                                       | -5.861                                                     | 1.623                                                         | 0.000                                                                 | 1.623                                                                   | -0.053                                                                       |
|                              | 94                    | 15 : 27 : 48         | 8849                                                               | 23.63                                                       | -6.436                                                     | 1.483                                                         | 0.000                                                                 | 1.483                                                                   | -0.059                                                                       |
|                              | 95                    | 03 : 47 : 53         | 9589                                                               | 17.96                                                       | -6.776                                                     | 1.345                                                         | 0.000                                                                 | 1.345                                                                   | -0.058                                                                       |
|                              | 95                    | 16 : 07 : 57         | 10329                                                              | 13.42                                                       | -7.033                                                     | 1.200                                                         | 0.000                                                                 | 1.200                                                                   | -0.061                                                                       |
|                              | 96                    | 04 : 28 : 03         | 11069                                                              | 9.71                                                        | -7.186                                                     | 1.049                                                         | 0.000                                                                 | 1.049                                                                   | -0.063                                                                       |
|                              | 96                    | 16 : 48 : 08         | 11809                                                              | 6.82                                                        | -6.926                                                     | 0.894                                                         | 0.000                                                                 | 0.894                                                                   | -0.065                                                                       |
| UE                           | 97                    | 06 : 08 : 15         | 12609                                                              | 4.56                                                        | -6.693                                                     | 0.733                                                         | 0.000                                                                 | 0.733                                                                   | -0.063                                                                       |
|                              | 97                    | 11 : 48 : 17         | 12949                                                              | 12.09                                                       | -4.861                                                     | 0.818                                                         | 0.000                                                                 | 0.818                                                                   | 0.078                                                                        |
|                              | 97                    | 16 : 48 : 19         | 13249                                                              | 18.20                                                       | -1.863                                                     | 0.924                                                         | 0.000                                                                 | 0.924                                                                   | 0.110                                                                        |
|                              | 97                    | 21 : 48 : 21         | 13549                                                              | 24.84                                                       | 3.392                                                      | 1.022                                                         | 0.000                                                                 | 1.022                                                                   | 0.101                                                                        |
| US                           | 98                    | 02 : 48 : 23         | 13849                                                              | 31.67                                                       | 8.371                                                      | 1.129                                                         | 0.000                                                                 | 1.129                                                                   | 0.112                                                                        |
|                              | 98                    | 07 : 48 : 25         | 14149                                                              | 38.26                                                       | 11.948                                                     | 1.235                                                         | 0.000                                                                 | 1.235                                                                   | 0.109                                                                        |
|                              | 98                    | 12 : 48 : 27         | 14449                                                              | 44.83                                                       | 14.729                                                     | 1.345                                                         | 0.000                                                                 | 1.345                                                                   | 0.114                                                                        |
|                              | 98                    | 17 : 48 : 29         | 14749                                                              | 51.30                                                       | 16.597                                                     | 1.455                                                         | 0.000                                                                 | 1.455                                                                   | 0.114                                                                        |
|                              | 98                    | 22 : 48 : 32         | 15049                                                              | 58.27                                                       | 18.191                                                     | 1.561                                                         | 0.000                                                                 | 1.561                                                                   | 0.110                                                                        |
|                              | 99                    | 03 : 48 : 34         | 15349                                                              | 65.13                                                       | 19.413                                                     | 1.669                                                         | 0.000                                                                 | 1.669                                                                   | 0.111                                                                        |
|                              | 99                    | 08 : 48 : 35         | 15649                                                              | 72.59                                                       | 20.772                                                     | 1.773                                                         | 0.000                                                                 | 1.773                                                                   | 0.108                                                                        |
|                              | 99                    | 13 : 48 : 37         | 15949                                                              | 80.28                                                       | 21.819                                                     | 1.877                                                         | 0.000                                                                 | 1.877                                                                   | 0.108                                                                        |
|                              | 99                    | 18 : 48 : 39         | 16249                                                              | 88.11                                                       | 22.661                                                     | 1.980                                                         | 0.000                                                                 | 1.980                                                                   | 0.107                                                                        |
|                              | 99                    | 23 : 48 : 40         | 16549                                                              | 96.54                                                       | 23.819                                                     | 2.079                                                         | 0.000                                                                 | 2.079                                                                   | 0.102                                                                        |
|                              | 100                   | 04 : 48 : 42         | 16849                                                              | 104.73                                                      | 25.257                                                     | 2.177                                                         | 0.000                                                                 | 2.177                                                                   | 0.102                                                                        |
|                              | 100                   | 09 : 48 : 44         | 17149                                                              | 113.15                                                      | 27.430                                                     | 2.277                                                         | 0.000                                                                 | 2.277                                                                   | 0.103                                                                        |
| UE                           | 100                   | 14 : 48 : 47         | 17449                                                              | 121.01                                                      | 27.570                                                     | 2.377                                                         | 0.000                                                                 | 2.377                                                                   | 0.104                                                                        |
|                              | 100                   | 19 : 48 : 49         | 17750                                                              | 129.57                                                      | 29.196                                                     | 2.472                                                         | 0.000                                                                 | 2.472                                                                   | 0.099                                                                        |
|                              | 101                   | 00 : 48 : 50         | 18050                                                              | 138.76                                                      | 31.864                                                     | 2.566                                                         | 0.000                                                                 | 2.566                                                                   | 0.097                                                                        |
|                              | 101                   | 05 : 48 : 51         | 18350                                                              | 148.22                                                      | 33.606                                                     | 2.663                                                         | 0.000                                                                 | 2.663                                                                   | 0.101                                                                        |
|                              | 101                   | 10 : 48 : 54         | 18650                                                              | 157.08                                                      | 35.877                                                     | 2.763                                                         | 0.000                                                                 | 2.763                                                                   | 0.103                                                                        |
|                              | 101                   | 11 : 58 : 42         | 18719                                                              | 159.45                                                      | 36.327                                                     | 2.785                                                         | 0.000                                                                 | 2.785                                                                   | 0.100                                                                        |
|                              | 101                   | 12 : 08 : 54         | 18730                                                              | 158.66                                                      | 35.914                                                     | 2.788                                                         | 0.000                                                                 | 2.788                                                                   | 0.096                                                                        |
|                              | 102                   | 04 : 49 : 03         | 19730                                                              | 113.24                                                      | 2.960                                                      | 2.740                                                         | 0.000                                                                 | 2.740                                                                   | -0.015                                                                       |
|                              | 102                   | 21 : 29 : 11         | 20730                                                              | 86.74                                                       | -2.475                                                     | 2.637                                                         | 0.000                                                                 | 2.637                                                                   | -0.032                                                                       |
|                              | 103                   | 14 : 09 : 16         | 21730                                                              | 66.95                                                       | -4.889                                                     | 2.506                                                         | 0.000                                                                 | 2.506                                                                   | -0.041                                                                       |
|                              | 104                   | 06 : 49 : 21         | 22730                                                              | 51.63                                                       | -6.450                                                     | 2.347                                                         | 0.000                                                                 | 2.347                                                                   | -0.049                                                                       |
| US                           | 104                   | 23 : 29 : 28         | 23730                                                              | 40.36                                                       | -7.334                                                     | 2.184                                                         | 0.000                                                                 | 2.184                                                                   | -0.051                                                                       |
|                              | 105                   | 16 : 09 : 35         | 24730                                                              | 29.37                                                       | -7.993                                                     | 1.994                                                         | 0.000                                                                 | 1.994                                                                   | -0.059                                                                       |
|                              | 106                   | 08 : 49 : 40         | 25730                                                              | 21.62                                                       | -8.375                                                     | 1.801                                                         | 0.000                                                                 | 1.801                                                                   | -0.060                                                                       |
|                              | 107                   | 01 : 29 : 50         | 26731                                                              | 15.94                                                       | -8.557                                                     | 1.611                                                         | 0.000                                                                 | 1.611                                                                   | -0.059                                                                       |

### ONE - DIMENSIONAL CONSOLIDATION TEST: CALCULATED CRS LOADING DATA

[illegible]



# ONE - DIMENSIONAL CONSOLIDATION TEST: CRS LOADING RESULTS (Load Time - Deformation Properties)

Project Number: 0411-08-1686 Test Station No.: CRS-7 ☒ Undisturbed or; ☐ Reconstituted - Specimen. File Name: B-2304\_UD8  
 Task No.: NA Date; Start: 3/27/2008 Back Pressure,  $U_{b,CS}$  (psi): 70.5 Piston Uplift,  $P_{up}$  (lbf): 34.64  
 Project Name: Exelon (Victoria) Completed: 4/17/2008 Transient Time Factor,  $T_v = (C_v \cdot t) / H^2 =$  0.5  
 4186-06-Summary of Methods: NA ☐ Data corrected for salt \_\_\_\_\_; in ☐ g/kg  
 Final Description of Specimen: Mottle Brownish Yellow and Pale Yellow Fat CLAY (CH)  
 Ring No.: 7 Area,  $A_r$  (cm<sup>2</sup>): 31.684 Solids Ht.,  $H_s$  (mm): 10.243 Specific Gravity,  $G_s =$  2.710 ☒ Meas.; ☐ Assumed  
 Initial: Height  $H_o$ : 19.30 Water 31.3 Void 0.885 Deg. of 96.0 Total Unit 117.7 Dry Unit 89.6  
 Final: (mm):  $H_f$ : 18.22 Content, w (%): 28.7 Ratio, e: 0.779 Sat., S (%): 99.9 Weight,  $\gamma_t$  (pcf): 122.2 Weight,  $\gamma_d$  (pcf): 94.9

Notes:

- (1) S - Seating, BS - Start of Back Pressure, BE - End of Back Pressure, SC - Stress Controlled, CS - Constant Rate of Strain, US - Start of Uniform Strain Rate, UE - End of Uniform Strain Rate or  $\Delta U_n$  to erratic
- (2) Excess pore-water pressure measured at the base of the specimen.
- (3) Only applicable during stress controlled (SC) loading.

Data Management by: DH

Reviewed By: HP

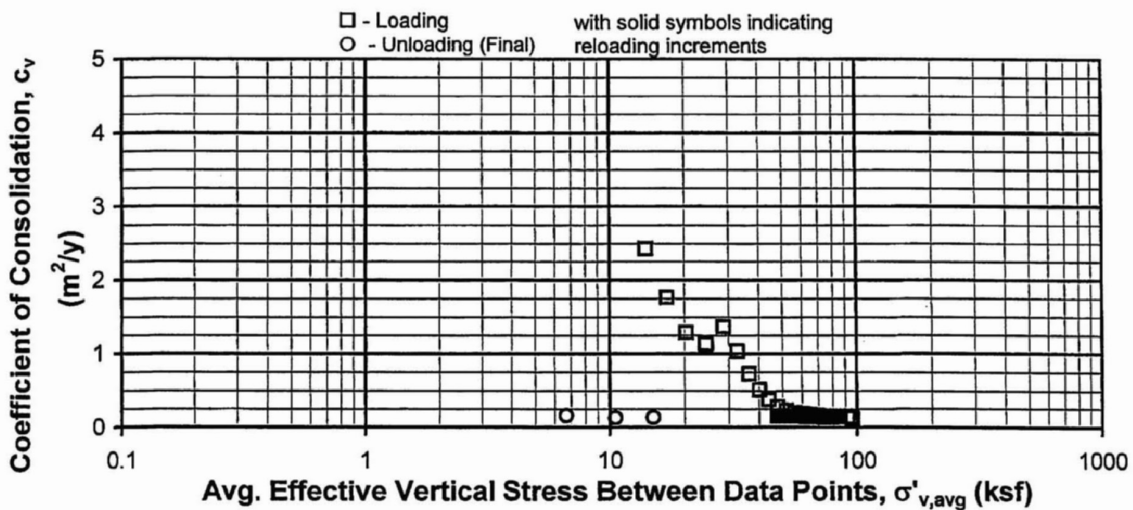
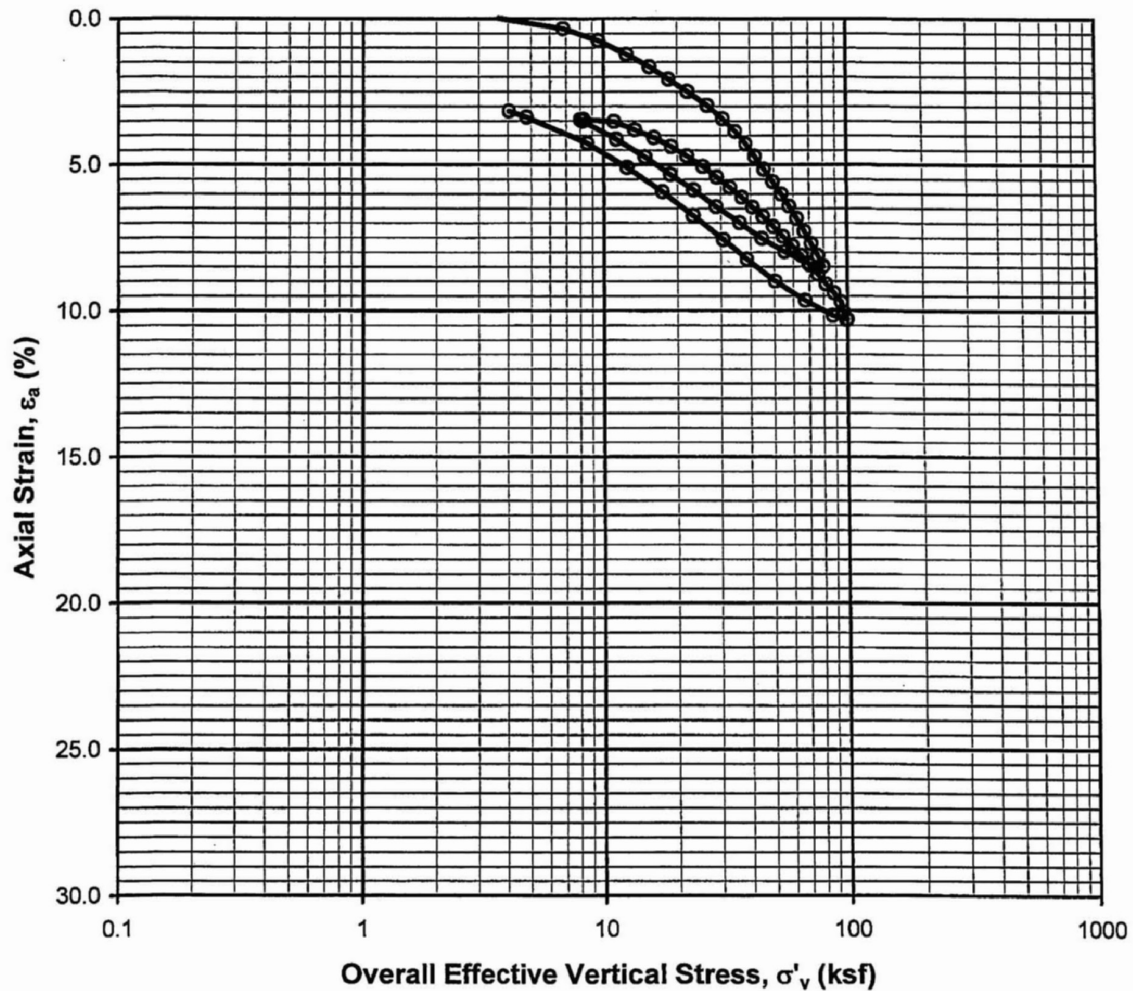
| Loading Info.<br>(1) | Elapsed Time from Start of Loading, $\Delta t_n$ (min) | Overall Effective Vertical Stress, $\sigma'_{v,n}$ (ksf) | Corrected Volumetric (Axial) Strain, $\varepsilon_{v,n}$ ( $\varepsilon_{ac,n}$ ) $\Delta H_{c,n} / H_o$ (%) | Overall Void Ratio, $e_n$ | Total Vertical Stress, $\sigma_{v,n}$ (ksf) | Excess Pore-Water Pressure, $\Delta U_n$ (2) (ksf) | Loading Pore-Water Pressure Ratio, $R_u$ $\Delta U_n / \sigma_{v,n}$ (%) | Corrected Specimen Height, $H_{c,n}$ (mm) | Calculations Between n and n-1                                                                    |                                                         |                               |                                          | Steady State Ratio, $SSR_n = \frac{C_v \cdot t_n \cdot UCF}{T_v \cdot (H_{c,avg})^2}$ | Rate of Secondary Comp. (3), $C_\alpha = \frac{\Delta d_{a,SC}}{H_o} (\times 10^{-4})$ |
|----------------------|--------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------|-------------------------------|------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
|                      |                                                        |                                                          |                                                                                                              |                           |                                             |                                                    |                                                                          |                                           | Average Effective Vertical Stress, $\sigma'_{v,avg}$ (ksf)                                        | Coefficient of Consolidation, $C_v$ (m <sup>2</sup> /y) | Average Void Ratio, $e_{avg}$ | Hydraulic Conductivity, $k$ @ 20°C (m/y) |                                                                                       |                                                                                        |
| S                    |                                                        |                                                          |                                                                                                              |                           | 0.17                                        |                                                    |                                                                          |                                           | Data on given line represents average conditions between that line and the previous line of data. |                                                         |                               |                                          |                                                                                       |                                                                                        |
| BS                   |                                                        |                                                          | 0.21                                                                                                         | 0.881                     | 2.22                                        |                                                    |                                                                          | 19.264                                    |                                                                                                   |                                                         |                               |                                          |                                                                                       |                                                                                        |
| BE                   |                                                        | 5.71                                                     | -0.03                                                                                                        | 0.885                     | 5.71                                        | 0.000                                              | 0.0                                                                      | 19.310                                    |                                                                                                   |                                                         | 0.883                         |                                          |                                                                                       |                                                                                        |
| CS                   | 0                                                      | 5.71                                                     | -0.03                                                                                                        | 0.885                     | 5.71                                        | 0.000                                              | 0.0                                                                      | 19.310                                    |                                                                                                   |                                                         | 0.885                         |                                          |                                                                                       |                                                                                        |
|                      | 103                                                    | 8.80                                                     | 0.35                                                                                                         | 0.878                     | 10.21                                       | 2.044                                              | 20.0                                                                     | 19.236                                    | 7.26                                                                                              |                                                         | 0.882                         |                                          |                                                                                       |                                                                                        |
|                      | 308                                                    | 10.66                                                    | 0.81                                                                                                         | 0.869                     | 13.50                                       | 4.015                                              | 29.7                                                                     | 19.148                                    | 9.73                                                                                              |                                                         | 0.874                         |                                          |                                                                                       |                                                                                        |
|                      | 568                                                    | 13.12                                                    | 1.35                                                                                                         | 0.859                     | 17.18                                       | 5.715                                              | 33.3                                                                     | 19.043                                    | 11.89                                                                                             |                                                         | 0.864                         |                                          |                                                                                       |                                                                                        |
| US                   | 828                                                    | 15.91                                                    | 1.90                                                                                                         | 0.849                     | 21.05                                       | 7.218                                              | 34.3                                                                     | 18.936                                    | 14.51                                                                                             |                                                         | 0.854                         |                                          |                                                                                       |                                                                                        |
|                      | 1088                                                   | 18.81                                                    | 2.43                                                                                                         | 0.839                     | 24.68                                       | 8.257                                              | 33.5                                                                     | 18.835                                    | 17.36                                                                                             |                                                         | 0.844                         |                                          | 0.39                                                                                  |                                                                                        |
|                      | 1348                                                   | 21.75                                                    | 2.96                                                                                                         | 0.829                     | 28.15                                       | 9.034                                              | 32.1                                                                     | 18.732                                    | 20.28                                                                                             |                                                         | 0.834                         |                                          | 0.66                                                                                  |                                                                                        |
|                      | 1608                                                   | 25.00                                                    | 3.48                                                                                                         | 0.819                     | 32.05                                       | 9.965                                              | 31.1                                                                     | 18.633                                    | 23.37                                                                                             | 0.12                                                    | 0.824                         | 4.20E-05                                 | 1.03                                                                                  |                                                                                        |
|                      | 1868                                                   | 28.33                                                    | 4.02                                                                                                         | 0.809                     | 35.96                                       | 10.814                                             | 30.1                                                                     | 18.528                                    | 26.66                                                                                             | 0.11                                                    | 0.814                         | 3.97E-05                                 | 1.26                                                                                  |                                                                                        |
|                      | 2128                                                   | 31.71                                                    | 4.55                                                                                                         | 0.799                     | 39.93                                       | 11.677                                             | 29.2                                                                     | 18.426                                    | 30.02                                                                                             | 0.10                                                    | 0.804                         | 3.53E-05                                 | 1.49                                                                                  |                                                                                        |
|                      | 2388                                                   | 35.21                                                    | 5.07                                                                                                         | 0.789                     | 44.14                                       | 12.693                                             | 28.8                                                                     | 18.325                                    | 33.46                                                                                             | 0.10                                                    | 0.794                         | 3.20E-05                                 | 1.76                                                                                  |                                                                                        |
|                      | 2648                                                   | 38.83                                                    | 5.61                                                                                                         | 0.779                     | 48.52                                       | 13.782                                             | 28.4                                                                     | 18.222                                    | 37.02                                                                                             | 0.09                                                    | 0.784                         | 2.96E-05                                 | 1.97                                                                                  |                                                                                        |
|                      | 2908                                                   | 42.52                                                    | 6.13                                                                                                         | 0.769                     | 52.88                                       | 14.756                                             | 27.9                                                                     | 18.121                                    | 40.67                                                                                             | 0.09                                                    | 0.774                         | 2.64E-05                                 | 2.08                                                                                  |                                                                                        |
|                      | 3168                                                   | 46.42                                                    | 6.65                                                                                                         | 0.759                     | 57.60                                       | 15.933                                             | 27.7                                                                     | 18.021                                    | 44.47                                                                                             | 0.09                                                    | 0.764                         | 2.42E-05                                 | 2.37                                                                                  |                                                                                        |

# ONE - DIMENSIONAL CONSOLIDATION TEST: CRS LOADING RESULTS (Load Time - Deformation Properties)

| Loading Info.<br>(1) | Elapsed Time from Start of Loading, $\Delta t_n$ (min) | Overall Effective Vertical Stress, $\sigma'_{v,n}$ (ksf) | Corrected Volumetric (Axial) Strain, $\epsilon_{v,n}$ ( $\epsilon_{ac,n}$ ) $\Delta H_{c,n} / H_o$ (%) | Overall Void Ratio, $e_n$ | Total Vertical Stress, $\sigma_{v,n}$ (ksf) | Excess Pore-Water Pressure, $\Delta U_n$ (2) (ksf) | Loading Pore-Water Pressure Ratio, $R_u$ $\Delta U_n / \sigma_{v,n}$ (%) | Corrected Specimen Height, $H_{c,n}$ (mm) | Calculations Between n and n-1                             |                                                         |                               |                                          | Steady State Ratio, $SSR_n = \frac{c_v \cdot t_n \cdot UCF}{T_v \cdot (H_{c,avg})^2}$ | Rate of Secondary Comp. (3), $c_{\alpha} = \frac{\Delta d_{s,c}}{H_o} (\times 10^{-4})$ |
|----------------------|--------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------|---------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------|------------------------------------------------------------|---------------------------------------------------------|-------------------------------|------------------------------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
|                      |                                                        |                                                          |                                                                                                        |                           |                                             |                                                    |                                                                          |                                           | Average Effective Vertical Stress, $\sigma'_{v,avg}$ (ksf) | Coefficient of Consolidation, $c_v$ (m <sup>2</sup> /y) | Average Void Ratio, $e_{avg}$ | Hydraulic Conductivity, $k$ @ 20°C (m/y) |                                                                                       |                                                                                         |
|                      | 3428                                                   | 50.35                                                    | 7.16                                                                                                   | 0.750                     | 62.14                                       | 16.814                                             | 27.1                                                                     | 17.921                                    | 48.39                                                      | 0.08                                                    | 0.755                         | 2.23E-05                                 | 2.37                                                                                  |                                                                                         |
|                      | 3688                                                   | 54.54                                                    | 7.68                                                                                                   | 0.740                     | 67.12                                       | 17.952                                             | 26.7                                                                     | 17.821                                    | 52.45                                                      | 0.08                                                    | 0.745                         | 2.08E-05                                 | 2.71                                                                                  |                                                                                         |
|                      | 3948                                                   | 58.73                                                    | 8.19                                                                                                   | 0.730                     | 71.98                                       | 18.935                                             | 26.3                                                                     | 17.724                                    | 56.64                                                      | 0.07                                                    | 0.735                         | 1.88E-05                                 | 2.72                                                                                  |                                                                                         |
|                      | 4208                                                   | 63.10                                                    | 8.68                                                                                                   | 0.721                     | 77.17                                       | 20.108                                             | 26.1                                                                     | 17.628                                    | 60.91                                                      | 0.07                                                    | 0.726                         | 1.72E-05                                 | 2.98                                                                                  |                                                                                         |
| UE                   | 4468                                                   | 67.66                                                    | 9.19                                                                                                   | 0.712                     | 82.36                                       | 21.026                                             | 25.5                                                                     | 17.531                                    | 65.38                                                      | 0.07                                                    | 0.716                         | 1.65E-05                                 | 3.06                                                                                  |                                                                                         |
|                      | 4728                                                   | 72.48                                                    | 9.69                                                                                                   | 0.702                     | 87.79                                       | 21.929                                             | 25.0                                                                     | 17.433                                    | 70.07                                                      |                                                         | 0.707                         |                                          |                                                                                       |                                                                                         |
|                      | 4988                                                   | 77.14                                                    | 10.14                                                                                                  | 0.694                     | 92.28                                       | 21.740                                             | 23.6                                                                     | 17.347                                    | 74.81                                                      |                                                         | 0.698                         |                                          |                                                                                       |                                                                                         |
|                      | 5130                                                   | 80.10                                                    | 10.39                                                                                                  | 0.689                     | 95.74                                       | 22.466                                             | 23.5                                                                     | 17.298                                    | 78.62                                                      |                                                         | 0.691                         |                                          |                                                                                       |                                                                                         |
|                      | 5148                                                   | 79.31                                                    | 10.40                                                                                                  | 0.689                     | 94.45                                       | 21.770                                             | 23.0                                                                     | 17.297                                    | 79.71                                                      |                                                         | 0.689                         |                                          |                                                                                       |                                                                                         |
|                      | 5888                                                   | 64.79                                                    | 10.13                                                                                                  | 0.694                     | 65.31                                       | 0.772                                              | 1.2                                                                      | 17.348                                    | 72.05                                                      |                                                         | 0.691                         |                                          |                                                                                       |                                                                                         |
|                      | 6628                                                   | 52.97                                                    | 9.66                                                                                                   | 0.703                     | 51.00                                       | -2.973                                             | -5.8                                                                     | 17.439                                    | 58.88                                                      |                                                         | 0.698                         |                                          |                                                                                       |                                                                                         |
|                      | 7368                                                   | 42.79                                                    | 9.06                                                                                                   | 0.714                     | 39.85                                       | -4.489                                             | -11.3                                                                    | 17.555                                    | 47.88                                                      |                                                         | 0.708                         |                                          |                                                                                       |                                                                                         |
| US                   | 8108                                                   | 34.36                                                    | 8.41                                                                                                   | 0.726                     | 30.56                                       | -5.861                                             | -19.2                                                                    | 17.681                                    | 38.57                                                      |                                                         | 0.720                         |                                          |                                                                                       |                                                                                         |
|                      | 8849                                                   | 27.75                                                    | 7.68                                                                                                   | 0.740                     | 23.63                                       | -6.436                                             | -27.2                                                                    | 17.821                                    | 31.05                                                      | 0.14                                                    | 0.733                         | 2.60E-05                                 | 1.26                                                                                  |                                                                                         |
|                      | 9589                                                   | 22.23                                                    | 6.97                                                                                                   | 0.753                     | 17.96                                       | -6.776                                             | -37.7                                                                    | 17.959                                    | 24.99                                                      | 0.11                                                    | 0.747                         | 2.41E-05                                 | 1.99                                                                                  |                                                                                         |
|                      | 10329                                                  | 17.77                                                    | 6.21                                                                                                   | 0.768                     | 13.42                                       | -7.033                                             | -52.4                                                                    | 18.104                                    | 20.00                                                      | 0.09                                                    | 0.760                         | 2.43E-05                                 | 2.40                                                                                  |                                                                                         |
|                      | 11069                                                  | 14.05                                                    | 5.43                                                                                                   | 0.782                     | 9.71                                        | -7.186                                             | -74.0                                                                    | 18.255                                    | 15.91                                                      | 0.08                                                    | 0.775                         | 2.46E-05                                 | 2.70                                                                                  |                                                                                         |
|                      | 11809                                                  | 10.88                                                    | 4.63                                                                                                   | 0.797                     | 6.82                                        | -6.926                                             | -101.6                                                                   | 18.410                                    | 12.46                                                      | 0.07                                                    | 0.790                         | 2.54E-05                                 | 2.87                                                                                  |                                                                                         |
| UE                   | 12609                                                  | 8.32                                                     | 3.80                                                                                                   | 0.813                     | 4.56                                        | -6.693                                             | -146.9                                                                   | 18.571                                    | 9.60                                                       | 0.06                                                    | 0.805                         | 2.53E-05                                 | 2.88                                                                                  |                                                                                         |
|                      | 12949                                                  | 15.15                                                    | 4.24                                                                                                   | 0.805                     | 12.09                                       | -4.861                                             | -40.2                                                                    | 18.486                                    | 11.74                                                      |                                                         | 0.809                         |                                          |                                                                                       |                                                                                         |
|                      | 13249                                                  | 19.42                                                    | 4.79                                                                                                   | 0.794                     | 18.20                                       | -1.863                                             | -10.2                                                                    | 18.380                                    | 17.28                                                      |                                                         | 0.800                         |                                          |                                                                                       |                                                                                         |
|                      | 13549                                                  | 22.52                                                    | 5.29                                                                                                   | 0.785                     | 24.84                                       | 3.392                                              | 13.7                                                                     | 18.282                                    | 20.97                                                      |                                                         | 0.790                         |                                          |                                                                                       |                                                                                         |
| US                   | 13849                                                  | 25.81                                                    | 5.85                                                                                                   | 0.774                     | 31.67                                       | 8.371                                              | 26.4                                                                     | 18.175                                    | 24.16                                                      |                                                         | 0.780                         |                                          |                                                                                       |                                                                                         |
|                      | 14149                                                  | 29.81                                                    | 6.40                                                                                                   | 0.764                     | 38.26                                       | 11.948                                             | 31.2                                                                     | 18.069                                    | 27.81                                                      |                                                         | 0.769                         |                                          | 0.55                                                                                  |                                                                                         |
|                      | 14449                                                  | 34.38                                                    | 6.97                                                                                                   | 0.753                     | 44.83                                       | 14.729                                             | 32.9                                                                     | 17.959                                    | 32.09                                                      |                                                         | 0.759                         |                                          | 0.82                                                                                  |                                                                                         |
|                      | 14749                                                  | 39.53                                                    | 7.54                                                                                                   | 0.743                     | 51.30                                       | 16.597                                             | 32.4                                                                     | 17.849                                    | 36.95                                                      | 0.10                                                    | 0.748                         | 2.25E-05                                 | 1.02                                                                                  |                                                                                         |
|                      | 15049                                                  | 45.40                                                    | 8.09                                                                                                   | 0.732                     | 58.27                                       | 18.191                                             | 31.2                                                                     | 17.743                                    | 42.47                                                      | 0.09                                                    | 0.737                         | 1.92E-05                                 | 1.33                                                                                  |                                                                                         |
|                      | 15349                                                  | 51.44                                                    | 8.64                                                                                                   | 0.722                     | 65.13                                       | 19.413                                             | 29.8                                                                     | 17.635                                    | 48.42                                                      | 0.08                                                    | 0.727                         | 1.77E-05                                 | 1.53                                                                                  |                                                                                         |
|                      | 15649                                                  | 57.98                                                    | 9.18                                                                                                   | 0.712                     | 72.59                                       | 20.772                                             | 28.6                                                                     | 17.531                                    | 54.71                                                      | 0.09                                                    | 0.717                         | 1.58E-05                                 | 1.89                                                                                  |                                                                                         |
|                      | 15949                                                  | 64.98                                                    | 9.72                                                                                                   | 0.701                     | 80.28                                       | 21.819                                             | 27.2                                                                     | 17.427                                    | 61.48                                                      | 0.08                                                    | 0.706                         | 1.47E-05                                 | 2.16                                                                                  |                                                                                         |

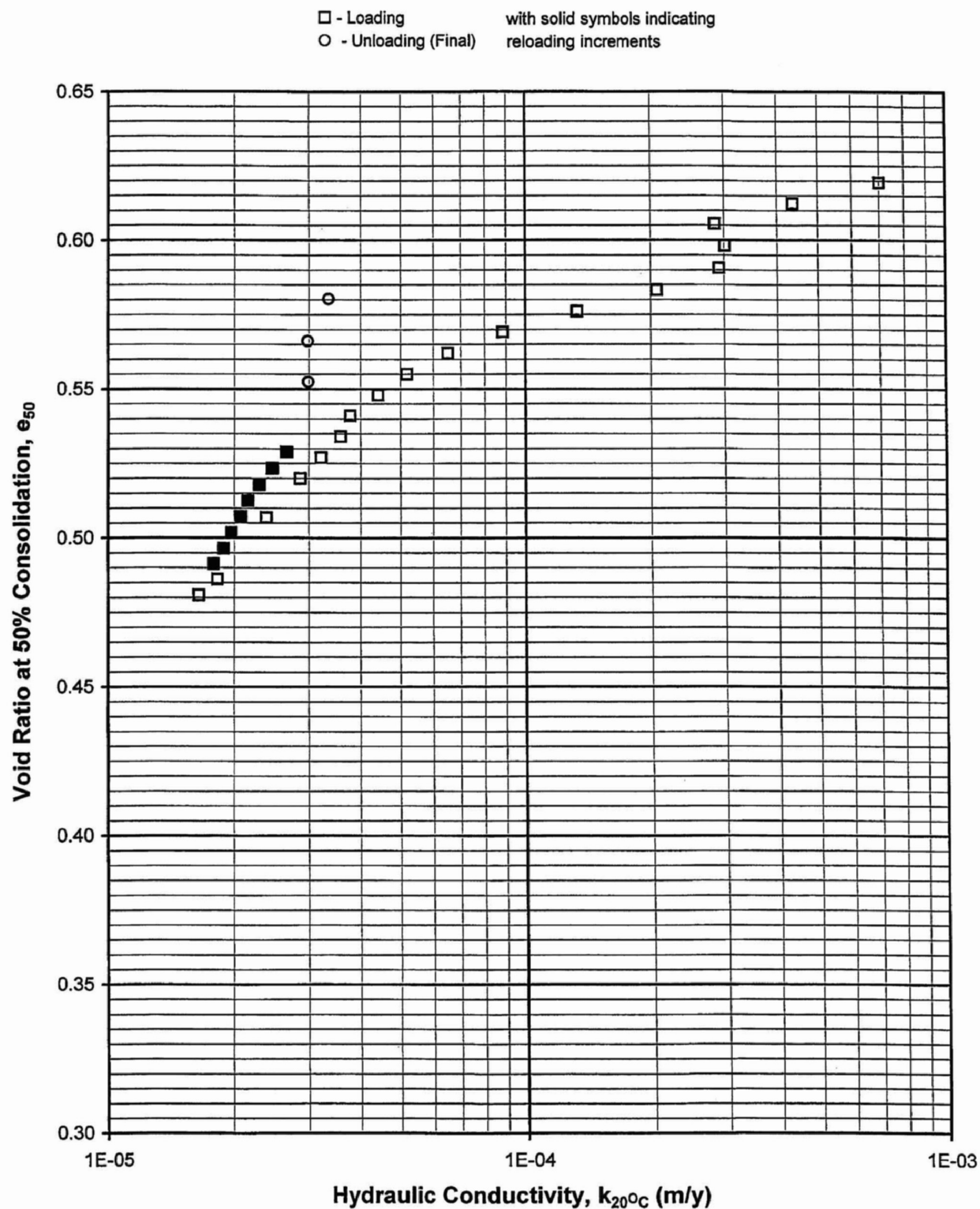
DCN# EXE808

**FUGRO CONSULTANTS, INC.**



**1-D CONSOLIDATION TEST: CRS**  
 Sample No. UD-11A - Depth 111.0 - 113.0 ft  
 Boring B-2304UD





**1-D CONSOLIDATION TEST: CRS**  
 Sample No. UD-11A - Depth 111.0 - 113.0 ft  
 Boring B-2304UD

# ONE - DIMENSIONAL CONSOLIDATION TEST: Specimen Setup / Take Down

Project Number: 0411-08-1686 Test Station No.: CRS-11 File Name: B-2304\_UD11a  
 Task No.: NA Specific Gravity,  $G_s$ : 2.720 ☒ Meas. ; ☐ Assumed Ring No.: 10  
 Project Name: Exelon (Victoria) Assig. Remarks: Ring Area,  $A_r$  (cm<sup>2</sup>) = 31.644  
 TEST TYPE: ☒ CRS (D 4186-06); ☐ Method A; ☐ Method B; ☐ Method C; ☐ Method D; Ring Height (mm) = NA  
☐ Method E; ☐ Method F; ☐ Method G; ☐ Method H; ☐ Method I; ☐ Method J; Summary of Methods: NA

|                                                    |                                           |                                        |                                   |                                           |                                           |                         |
|----------------------------------------------------|-------------------------------------------|----------------------------------------|-----------------------------------|-------------------------------------------|-------------------------------------------|-------------------------|
| <input checked="" type="checkbox"/> Tube           | <input type="checkbox"/> Field Extruded   | <input type="checkbox"/> Liner         | <input type="checkbox"/> Remolded | <input type="checkbox"/> Tamping          | <input type="checkbox"/> Constant Effort: | Blows/Tamps per Layer = |
| Boring No.: B-2304UD                               | <input type="checkbox"/> LPC Core         | <input type="checkbox"/> Impact/Rammer |                                   | Rammer Wgt. (lbf) =                       | No. Layers =                              |                         |
| Sample No.: UD-11                                  | Compostite No.:                           | <input type="checkbox"/> Pluviated:    |                                   | Tamper Force (lbf) =                      | Drop (in.) =                              |                         |
| Depth (ft): 111.0 - 113.0                          | Specimen No.: A                           | <input type="checkbox"/> Kneading      |                                   | <input type="checkbox"/> Undercompaction: | $U_{ni}$ (%) =                            | Dia. (in.) =            |
| <input type="checkbox"/> Spec. Selection by X-ray; | <input type="checkbox"/> Geomarine Sample |                                        |                                   | Ref. Effort =                             | % Comp. =                                 | ± Opt. =                |

| Water Content (W);                                       |  | Initial - Trimming Location |                                   |            | Final, W <sub>at</sub><br>(see below) | Soil and Ring Masses                                       | Initial | Final  |
|----------------------------------------------------------|--|-----------------------------|-----------------------------------|------------|---------------------------------------|------------------------------------------------------------|---------|--------|
|                                                          |  | Top (W1)                    | Bottom (W2)                       | Sides (W3) |                                       | Mass Moist Soil + Ring (g)                                 | 338.09  | 337.95 |
| Container No.                                            |  | S6                          | 836                               | 2012       | 829                                   | Mass Ring (g)                                              | 215.51  |        |
| Mass Moist Soil + Container (g)                          |  | 114.74                      | 122.27                            | 104.11     | 65.84                                 | Mass Moist Soil, M <sub>t,o</sub> or M <sub>t,at</sub> (g) | 122.58  | 122.44 |
| Mass Dry Soil + Container (g)                            |  | 100.31                      | 106.23                            | 90.54      | 59.75                                 | EXCESS DRY SOIL (soil not incl. in final mass above)       |         |        |
| Mass Container (g)                                       |  | 30.33                       | 32.32                             | 30.56      | 32.30                                 | Container No.                                              |         | 2014   |
| WATER CONTENT (%)                                        |  | 20.62                       | 21.70                             | 22.62      | 22.19                                 | Mass Dry Soil + Container (g)                              |         | 30.36  |
| Avg. Initial Water Content, W4 (%)                       |  | 21.65                       | Final W <sub>at</sub> : X Slice ; |            | Whole Spec.                           | Mass Container (g)                                         |         | 30.24  |
| See attached data sheet(s) for additional water contents |  |                             |                                   |            |                                       | Mass Excess Dry Soil, M <sub>d,es</sub> (g)                |         | 0.12   |

| Soil Height: Measurements (mm)                                                                                                                                              |                                        |                                           |                             | Soil Height: Calculations, (mm)                         |  | Initial                                                             | Final  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-------------------------------------------|-----------------------------|---------------------------------------------------------|--|---------------------------------------------------------------------|--------|
| Initial                                                                                                                                                                     |                                        | Final                                     |                             | Height of Gauge Block, $H_{gb}$ (1)                     |  | 0.000                                                               | 19.050 |
| with Spec.                                                                                                                                                                  | without Spec.                          | with Spec.                                | without Spec.               | Reading on Gauge Block, $d_{gb}$                        |  | 0.000                                                               | 0.000  |
| 19.190                                                                                                                                                                      | 0.000                                  | 12.980                                    | 13.280                      | Avg. Reading on Soil, $d_{soil}$                        |  | 19.186                                                              | 12.948 |
| 19.210                                                                                                                                                                      | 0.000                                  | 12.880                                    | 13.200                      | Avg. Reading on Apparatus without Specimen, $d_{app}$   |  | 0.000                                                               | 13.238 |
| 19.180                                                                                                                                                                      | 0.000                                  | 12.940                                    | 13.220                      | Soil Height, $H = d_{soil} - d_{app} + H_{gb} - d_{gb}$ |  | 19.186                                                              | 18.760 |
| 19.170                                                                                                                                                                      | 0.000                                  | 13.020                                    | 13.260                      | Soil Height: Final by Dial Change During Test (mm)      |  |                                                                     |        |
| 19.180                                                                                                                                                                      | 0.000                                  | 12.920                                    | 13.230                      | Initial Height, $H_0$                                   |  | 19.186                                                              |        |
| <input type="checkbox"/> Yes ;                                                                                                                                              | <input checked="" type="checkbox"/> No | <input checked="" type="checkbox"/> Yes ; | <input type="checkbox"/> No | Require $H_{gb}$ & $d_{gb}$ (1)                         |  | Final (end of test) Corr. Total Spec. Deformation, $\Delta H_{e,f}$ |        |
| <input type="checkbox"/> Yes ;                                                                                                                                              | <input checked="" type="checkbox"/> No | <input checked="" type="checkbox"/> Yes ; | <input type="checkbox"/> No | Filter Paper Included:                                  |  | Final Calculated Height, $H_{f,c} = H_0 - \Delta H_{e,f}$           |        |
| (1) Req. block ht. to set bench comparator so the final soil ht. can be determined directly by the diff. between the reading with and without spec.: ~ 12.7 mm; CRS ~ 25 mm |                                        |                                           |                             | Final Soil Height Measurement, $H_{f,m}$                |  | 18.760                                                              |        |
| Enter value of $H_{gb}$ & $d_{gb}$ only when that value has to be included in the determination of the soil height.                                                         |                                        |                                           |                             | Normalized Difference in %, $(H_{f,c} - H_{f,m})/H_0$   |  | -0.94                                                               |        |

| Estimated Initial Unit Weight                                                                         |                                    | Soil Extruded During Loading                            |      |
|-------------------------------------------------------------------------------------------------------|------------------------------------|---------------------------------------------------------|------|
| Total, $\gamma_{t,0}$ (pcf) = 126.04                                                                  | Dry, $\gamma_{d,0}$ (pcf) = 103.61 | Container No.                                           |      |
| Filter Paper Used: <input checked="" type="checkbox"/> Whatman No. 54; <input type="checkbox"/> Other |                                    | Mass Dry Soil + Cont. (g)                               | NA   |
| Incremental Test: Top & Bottom: <input type="checkbox"/> Yes ; <input type="checkbox"/> No            |                                    | Mass Cont. (g)                                          | NA   |
| CRS Test: Top Only: <input checked="" type="checkbox"/> Yes ; <input type="checkbox"/> No             |                                    | Dry Mass - Soil Extruded During Loading, $M_{d,el}$ (g) | 0.00 |

Photo taken of Sliced Test Specimen: ☐ Yes ; ☒ No

Final Visual Description: Mottled Pale Yellow and Yellow Fat CLAY (CH)

Trimming/Etc. Remarks:

Method of trimming periphery: ☒ "Casagrande" Lathe ; ☐ Cutting Shoe ; ☐ Wire Saw ; ☐ Other  
 Method of trimming ends: ☐ Wire Saw & Sharp (knife) Straight Edge ; ☒ Wire Saw & Straight Edge ; ☐ Wire Saw

Trim./Recon. By: JTG Setup By: JTG Prelim. Calc. By: LF Take Down By: JTG  
 Date: 3/27/2008 Date: 3/27/2008 Final Calc. By: LF Date: 4/5/2008  
 Reviewed By: HP

Note: NA - Not Applicable

KAW 7/16/08