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# Table 1.3-1
## Well Completion Summary for Early Warning Drilling Program Phase III

| Well ID[a] | Well Type | Well Status | Start Drilling Date | Drilling Completion Date | Total Depth (feet, bgs) | Survey Coordinates | | Ground Elevation (feet, amsl) | Approx Open Hole Water Level at End of Drilling (feet, bgs) | Screened Interval(s) (feet, bgs) | Sand Pack Interval(s) (feet, bgs) | Lithology at Sand Pack Intervals | Westbay Packer Interval(s) (feet, bgs) | Well Casing Type | Well Casing Depth (feet, bgs) | Well Casing Outside Diameter (in.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Latitude | Longitude | | | | | | | | | |
| 19IM1A | Exploratory Borehole | Abandoned | 7/10/01 | 7/13/01 | 900 | 36° 40' 14.615" | 116° 26' 56.397" | 2687.3 | 366 | NA | NA | NA | NA | NA | NA | NA |
| 19IM1 | Monitor Well - Multiple Screen | Completed | 8/13/01 | 8/28/01 | 1012.5 | 36° 40' 14.615" | 116° 26' 56.397" | 2687.3 | 358 | 410.0-430.0<br>515.0-535.0<br>574.9-674.9<br>724.9-784.8<br>849.5-949.3 | 394.1-440.6<br>503.3-545.4<br>562.3-689.6<br>715.0-797.7<br>838.8-967.3<br>967.3-1012.5[b] | Alluvium<br>Alluvium<br>Alluvium<br>Alluvium<br>Tertiary Tuff<br>Tertiary Tuff | 404-436<br>508-540<br>568-680<br>722-788<br>846-949.3 | Steel | 949.3 | 7 |
| 19IM2A | Exploratory Borehole | Abandoned | 7/13/01 | 7/17/01 | 900 | 36° 40' 14.614" | 116° 26' 55.597" | 2688.1 | 369 | NA | NA | NA | NA | NA | NA | NA |
| 19IM2 | Monitor Well - Multiple Screen | Completed | 8/14/01 | 9/13/01 | 965.6 | 36° 40' 14.614" | 116° 26' 55.597" | 2688.1 | 358 | 410.2-430.2<br>515.0-534.9<br>574.9-674.9<br>724.9-784.9<br>849.9-950.1 | 382.7-443.4<br>500.5-550.4<br>561.2-684.6<br>715.8-797.6<br>840.1-965.8 | Alluvium<br>Alluvium<br>Alluvium<br>Alluvium<br>Tertiary Tuff | NA | Steel | 950.1 | 7 |
| 10SA | Exploratory Borehole | Abandoned | 7/18/01 | 7/28/01 | 1200 | 36° 43' 48.339" | 116° 24' 20.725" | 2963.5 | 383 | NA | NA | NA | NA | NA | NA | NA |
| 10S | Monitor Well - Multiple Screen | Completed | 9/20/01 | 10/3/01 | 900 | 36° 43' 48.339" | 116° 24' 20.725" | 2963.5 | 579 | 660.0-700.0<br>800.0-860.0 | 650.5-710.8<br>787.2-900.0 | Alluvium<br>Tertiary Volcanic Conglomerate | 652-702<br>796-870 | Steel | 880 | 6 5/8 |
| 10P | Piezometer | Completed | 9/20/01 | 1/13/02 | 910.5 | 36° 43' 48.874" | 116° 24' 20.362" | 2964.6 | 580 | 660.1-699.3<br>801.2-860.0 | 145.6-154.4[c]<br>247.2-256.8[c]<br>347.0-350.0[c]<br>444.7-464.4[c]<br>530.0-583.8[c]<br>650.9-706.1<br>776 - 910.5 | Alluvium<br>Alluvium<br>Alluvium<br>Alluvium<br>Alluvium<br>Alluvium<br>Tertiary Volcanic Conglomerate | NA | PVC | 879.9 | 2 3/8 |
| 18P | Piezometer | Completed | 9/20/01 | 10/21/01 | 890.4 | 36° 45' 04.797" | 116° 25' 50.340" | 3164.5 | 777 | 835.8-885 | 830.2-890.4 | Tertiary Tuff | NA | PVC | 885 | 2 3/8 |
| 22SA | Exploratory Borehole | Abandoned | 7/28/01 | 8/2/01 | 1200 | 36° 42' 15.132" | 116° 25' 06.636" | 2849.0 | 474 | NA | NA | NA | NA | NA | NA | NA |
| 22S | Monitor Well - Multiple Screen | Completed | 9/21/01 | 10/25/01 | 1196.5 | 36° 42' 15.132" | 116° 25' 06.636" | 2849.0 | 473 | 521.5-581.3<br>661.2-760.6<br>880.2-980.0<br>1140.0-1180.0 | 510.4-590.1<br>648.8-770.6<br>866.5-991.0<br>1127.5-1196.5 | Alluvium<br>Alluvium<br>Alluvium<br>Tertiary Volcanic Conglomerate | 514-582<br>650-766<br>874-982<br>1134-1188 | Steel | 1190.1 | 6 5/8 |
| 22PA | Piezometer | Completed | 1/13/02 | 2/5/02 | 779.8 | 36° 42' 15.712" | 116° 25' 06.581" | 2849.9 | 471 | 520.7-579.7<br>661.5-759.8 | 47.3-53.3[c]<br>147.4-153.6[c]<br>244.2-253.0[c]<br>346.7-353.9[c]<br>445.7-455.0[c]<br>508.7-587.0<br>649.7-779.8 | Alluvium<br>Alluvium<br>Alluvium<br>Alluvium<br>Alluvium<br>Alluvium<br>Alluvium | NA | PVC | 770 | 2 3/8 |
| 22PB | Piezometer | Completed | 2/21/02 | 2/27/02 | 1199.7 | 36° 42' 15.665" | 116° 25' 05.863" | 2849.3 | 474 | 881.3-979.7<br>1140.3-1179.7 | 868.7-989.7<br>1125.2-1199.7 | Alluvium<br>Tertiary Volcanic Conglomerate | NA | PVC | 1189.9 | 2 3/8 |
| 23P | Piezometer | Completed | 3/9/02 | 3/20/02 | 1339.9 | 36° 41' 05.317" | 116° 23' 50.412" | 2800.2 | 426 | 460.9-519.9<br>650.5-689.8 | 449.1-531.0<br>635.9-700.0 | Alluvium<br>Alluvium | NA | PVC | 700 | 2 3/8 |

NOTES: bgs = below ground surface; amsl = above mean sea level; NA = not applicable; all depth data have not been corrected for borehole deviation

[a] The official prefix for all new Nye County wells is "NC-EWDP-."

[b] Caved interval of the borehole.

[c] Air piezometers.

**Table 1.4-1**
**List of Relevant Early Warning Drilling Program Phase III**
**Work Plan and Technical Procedure Quality Assurance Documents**

| Document | Title | Date |
|---|---|---|
| Work Plan 5 | Early Warning Drilling Program Phase III Drilling and Well Construction Work Plan | 5/17/01, Revision 2 |
| Work Plan 6 | Early Warning Drilling Program Geophysical Logging Work Plan | 5/31/01, Revision 1 |
| Work Plan 8 | Sample Management Plan | 5/31/01, Revision 2 |
| Technical Procedure TP-7.0 | Drill Site Management | 9/21/01, Revision 2 |
| Technical Procedure TP-8.0 | Field Logging and Handling of Borehole Samples | 9/25/01, Revision 3 |

## Table 2.3-1
## Drill Cuttings Sampling, Splitting, and Testing Summary

| Borehole ID (NC-EWDP-)[a] | Geologic Material Description | Drilling Method[b] | Drill Cuttings Sample Interval (feet) | Total Number of Drill Cuttings Samples | Density-Related Field Measure-ments[c] | Number of Drill Cuttings Samples | | | | | | Hydro-meter |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Splits (5-lb. bags) | | | NWRPO Lab Analyses | | | |
| | | | | | | NWRPO SMF split | DOE/YMP SMF Split | NWRPO Lab Split | Gravimetric Water Content[d] | Soil Water Extract EC[d] | Wet Sieve | |
| 19IM1A | Alluvium[e] | RC | 2.5 | 276 | Selected samples | 276 | 276 | 154 | 105 | 86 | 154 | 8 |
| | Non-alluvium | RC | 5 | 16 | Selected samples | 16 | 16 | 0 | 0 | 0 | 0 | 0 |
| 19IM2A | Alluvium | RC | 2.5 | 277 | Selected samples | 277 | 277 | 165 | 79 | 84 | 165 | 9 |
| | Non-alluvium | RC | 5 | 15 | Selected samples | 15 | 15 | 0 | 0 | 0 | 0 | 0 |
| 10SA | Alluvium | RC | 2.5 | 283 | Selected samples | 283 | 283 | 150 | 133 | 133 | 150 | 15 |
| | Non-alluvium | RC | 5 | 90 | Selected samples | 90 | 90 | 0 | 0 | 0 | 0 | 0 |
| 10P | Alluvium | CA | 2.5 | 314 | Selected samples | 314 | 314 | 156 | 131 | 131 | 156 | 2 |
| | Non-alluvium | CA | 5 | 25 | Selected samples | 25 | 25 | 0 | 0 | 0 | 0 | 0 |
| 22SA | Alluvium | RC | 2.5 | 334 | Selected samples | 334 | 334 | 222 | 93 | 93 | 222 | 11 |
| | Non-alluvium | RC | 5 | 18 | Selected samples | 18 | 18 | 0 | 0 | 0 | 0 | 0 |
| 22PA | Alluvium | CA | 2.5 | 275 | Selected samples | 275 | 275 | 156 | 98 | 98 | 156 | 4 |
| | Non-alluvium | CA | 5 | 0 | Selected samples | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22PB | Alluvium | RC | 2.5 | 340 | Selected samples | 340 | 340 | 240 | 103 | 103 | 240 | 6 |
| | Non-alluvium | RC | 5 | 16 | Selected samples | 16 | 16 | 0 | 0 | 0 | 0 | 0 |
| 23P | Alluvium | RC | 2.5 | 358 | Selected samples | 358 | 358 | 240 | 88 | 88 | 240 | 11 |
| | Non-alluvium | RC | 5 | 0 | Selected samples | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18P | Alluvium | CA | 2.5 | 17 | Selected samples | 17 | 17 | 10 | 10 | 10 | 10 | 0 |
| | Non-alluvium | CA | 5 | 170 | Selected samples | 170 | 170 | 0 | 0 | 0 | 0 | 0 |
| **TOTALS** | | | | 2,824 | NA | 2,824 | 2,824 | 1,493 | 840 | 826 | 1,493 | 66 |

NOTES: DOE = U.S. Department of Energy; EC = electrical conductivity; NA = not applicable; NWRPO = Nuclear Waste Repository Project Office; SMF = Sample Management Facility; YMP = Yucca Mountain Project

[a]Official prefix of all Nye County wells.

[b]RC = air-rotary dual-wall reverse circulation; CA = casing advance.

[c]Measurements not made on samples below the water table, or where water was being used as a drilling fluid.

[d]Analyses not conducted on samples below the water table.

[e]Alluvium is defined as all unconsolidated sediments.

## Table 2.3-2
## Drive Core Sampling, Splitting, and Testing Summary

| Borehole ID[a] | Geologic Material Description | Drilling Method | Number of Core Runs per Borehole | Density-Related Field Measure-ments | Number of Splits (6- and 3-in.-long liners) | | | Number of NWRPO Lab Analyses | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | NWRPO SMF Subsamples | DOE/YMP SMF Subsamples | NWRPO Lab Subsamples | Volumetric Water Content | Grain and Bulk Density | Wet Sieve | Hydrometer | Saturated Hydraulic Conductivity |
| 10P | Alluvium–Unsaturated Zone | CA | 3 | 3 | 6 | 9 | 3 | 5 | 5 | 5 | 5 | 5 |
| | Alluvium–Saturated Zone | CA | 3 | 3 | 6 | 9 | 3 | 9 | 9 | 9 | 9 | 8 |
| 22PA | Alluvium–Unsaturated Zone | CA | 1 | 1 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 3 |
| | Alluvium–Saturated Zone | CA | 6 | 6 | 11 | 13 | 6 | 12 | 12 | 12 | 12 | 12 |
| **TOTALS** | | | 13 | 13 | 25 | 34 | 13 | 29 | 29 | 29 | 29 | 28 |

NOTES: CA = casing advance drilling method; DOE = U.S. Department of Energy; NA = not applicable; NWRPO = Nuclear Waste Repository Project Office; SMF = Sample Management Facility; YMP = Yucca Mountain Project

[a]Official prefix of all Nye County wells is "NC-EWDP-".

## Table 2.4-1
## Laboratory Test Methods

| Sample Type | Lab Test | Method |
|---|---|---|
| Core | Volumetric Water Content | ASTM D-2216-92. Method for laboratory determination of water (moisture content) of soil, rock, and soil-aggregate mixtures. In: *1996 Annual Book of ASTM Standards,* Vol. 04.08, American Society for Testing and Materials. |
| | Dry Bulk Density | Blake, G.R. and K.H. Hartge. 1986. "Bulk Density." In: Klute, A. (ed), *Methods of Soil Analysis,* Part 1, Physical and Mineralogical Methods (2nd ed.), American Society of Agronomy, Chapter 13, pp. 363-367. |
| | Specific Gravity (grain density) | ASTM D-854-92. Standard test method for specific gravity of soils. In: *1996 Annual Book of ASTM Standards,* Vol. 04.08, American Society for Testing and Materials. |
| | Saturated Hydraulic Conductivity (constant head method) | Klute, A. , and C. Dirksen, 1986. "Hydraulic Conductivity and Diffusivity: Laboratory Methods." In: Klute, A. (ed), *Methods of Soil Analysis,* Part 1, Physical and Mineralogical Methods (2nd ed.), American Society of Agronomy, Chapter 28, pp. 694-700. |
| Drill Cuttings | Gravimetric Water Content | ASTM D-2216-92. Method for laboratory determination of water (moisture content) of soil, rock, and soil-aggregate mixtures. In: *1996 Annual Book of ASTM Standards,* Vol. 04.08, American Society for Testing and Materials. |
| | Soil Extract Electrical Conductivity | Rhoades, J.D. 1986. Soluble salts—Electrical conductivity of saturation extract. In: Page, A.L. (ed), *Methods of Soil Analysis,* Part 2, Chemical and Microbiological Properties (2nd ed.), American Society of Agronomy, pp. 172-173. |
| Core and Drill Cuttings | Wet Sieve Analysis | ASTM D-1140-97. Standard test method for amount of material in soil finer than the No. 200 (75 um) sieve (Method B for wet sieve analysis). In: *1997 Annual Book of ASTM Standards,* Vol. 04.08, American Society for Testing and Materials. |
| | Hydrometer Analysis (silt/clay break starting with No. 4 sieve) | ASTM D-422. Standard method for Particle Size Analysis of Soils. In: *1996 Annual Book of ASTM Standards,* Vol. 04.08, American Society for Testing and Materials. |

**Table 2.6-1**
**Summary of Types and Application of Geophysical Logs Used in Phase III Boreholes**

| Type of Log | Suites[a] | Properties Measured | Application |
|---|---|---|---|
| Caliper | 2 | Borehole diameter | Provides borehole correction (e.g., wash-out zones) for other logs, borehole volume for well completions, possible identification of fractures and contacts. |
| Density | 1, 2, 3 | Tool generated radiation altered by formation materials | Yields density information on adjacent borehole wall formation material; identifies wash-out zones. |
| Deviation | 1, 2, 3 | Deviation of borehole from vertical | Permits calculation of true elevations for lithologic contacts, well screens, water levels, and other borehole depth measurements. |
| Fluid Resistivity | 2 | Borehole fluid resistivity and conductivity | Estimates relative amount of dissolved salts in borehole fluid and may provide an indication of inflow in open borehole. |
| Fluid Temperature (Temperature) | 1, 2, 3 | Borehole fluid temperature | Helps to identify locations of inflow/outflow in open borehole; geothermal gradient in cased borehole. |
| Gamma (Natural Gamma) | 1, 2, 3 | Gamma radiation from natural sources in formation and borehole drilling fluids | Assists in identification of lithology and stratigraphic correlation of units; may respond to differences in clay content. |
| Magnetic Susceptibility | 2 | Ferromagnetism in rocks | Assists in identification of lithology changes involving ferromagnetic rocks, including hydrothermal alteration. |
| Moisture | 1, 2, 3 | Tool generated radiation altered by water in formation and borehole | Identifies moisture content changes in the unsaturated zone; possibly indicates porosity changes in the saturated zone. |
| Resistivity (R8, R16, R32, R64) | 2 | Apparent resistivity of formation at different distances from borehole | Assists in the identification of lithology and stratigraphic correlation; indicates relative changes in water quality. |
| Single-Point Resistivity (SPR) | 2 | Resistivity of borehole fluids and adjacent formation | Assists in identification of lithology and changes in borehole fluid composition. |
| Sonic (Acoustic Velocity) | 2, 3 | Compressional-wave velocity through fluids and formations | Helps define saturated zones and lithology; indicator of fractures. |
| Spectral Gamma | 1, 2 | Radiation emitted by U, Th, and K | Can help in identification of minerals containing U, Th, and K. |
| Spontaneous Potential (SP) | 2 | Electrical potential between fluids in borehole and adjacent formation | Assists in identification of lithology, clay, and shale content and relative changes in formation water quality. |

Source: Modified from Keys (1990).

NOTES: [a]1 = logged inside drill pipe or casing (drill-string log); 2 = logged in open borehole (open-hole log); 3 = logged inside well casing (well-completion log)

## Table 2.6-2
## Geophysical Logging Summary

| Borehole ID (NC-EWDP-) | Date | Log Suite Type[a] | Borehole/Well Depth at Time of Logging (feet) | Logged Interval (feet) | Log Type | | | | | | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Gamma | Density | Spectral Gamma | Moisture | Fluid Temperature | Deviation | Resistivity (SPR, R8-R64) | Fluid Resistivity | Spontaneous Potential | Caliper | Acoustic Velocity (Sonic) | Magnetic Susceptibility | |
| 10SA | 7/27/01 | 1 | 1200 | 0-1180 | x | x | x | x | x | x | | | | | | | Run inside 4.5-in. dual-wall drill pipe in 5.375-in. borehole with approximately 20 ft of 6.625-in. OD steel surface casing. |
| 10S | 9/30/01 | 2 | 900 | 0-895 | x | x | x | x | x | x | x | x | x | x | x | x | Run in 14.75-in. flooded mud borehole with 62.5 ft of 18-in. OD steel conductor casing and drilling mud from approximately 5 ft to total depth. |
| 10S | 2/18/02 | 3 | 880 | 0-880 | x | x | | x | | | | | | | | | Run inside 6.625-in. OD steel well casing. |
| 10S | 9/25/02 | 3 | 870 | 0-867 | | | | | | x | | | | | | x | Run inside 4-in. Schedule 80 PVC riser pipe from 0 to 647 ft and 2.9-in. OD PVC Westbay® casing from 647 to 867 ft. |
| 10P | 12/27/01 | 1 | 910.5 | 0-900 | x | | | | | x | | | x | | x | x | Run in 6.625-in. OD drill casing from 0 to 792 ft, telescoped inside of 9.625-in. drill casing from 0 to 304 ft, and in 5.875 in. open hole from 792 to 900 ft. |
| 10P | 12/27/01 | 2 | 910.5 | 790-907 | x | x | x | x | x | x | x | x | x | x | x | x | Run inside 5.875-in. open hole beyond drill casing from 790 to 900 ft. |
| 10P | 2/19/02 | 3 | 880 | 0-880 | x | x | | x | | x | | | | | | | Run inside 2-in. Schedule 80 PVC well casing, unable to run deviation tool below 128 ft. |
| 10P | 9/25/02 | 3 | 880 | 0-879 | | | | | | x | | | | | | x | Run inside 2-in. Schedule 80 PVC well casing. |
| 18P | 2/20/02 | 3 | 885 | 0-885 | x | x | | x | | x | | | | | | | Run inside 2-in. Schedule 80 PVC well casing. |
| 19IM1A | 7/13/01 | 1 | 900 | 0-880 | x | x | x | x | x | x | | | | | | | Run inside 4.5-in. dual-wall drill pipe in 5.375-in. borehole with approximately 20 ft of 6.625-in. OD steel surface casing. |
| 19IM1[b] | 10/2/01 | 3 | 950 | 0-935 | x | x | | | x | x | | | | | | | Run inside 7-in. OD steel well casing prior to pump testing. |
| 19IM2A | 7/17/01 | 1 | 900 | 0-880 | x | x | x | x | x | x | | | | | | | Run inside 4.5-in. dual-wall drill pipe in 5.375-in. borehole with approximately 20 ft of 6.625-in. OD steel surface casing. |
| 19IM2 | 9/8/02 - 9/9/02 | 2 | 965 | 0-965 | x | x | x | x | x | x | x | x | x | x | x | x | Run in 14.75-in. flooded mud borehole with 75 ft of 18-in. OD steel conductor casing and drilling mud from approximately 12 ft to total depth. |
| 19IM2 | 10/2/01 | 3 | 950 | 0-925 | x | x | | | x | x | | x | | | | | Run inside 7-in. OD steel well casing prior to pump testing. |
| 19IM2 | 9/26/02 | 3 | 950 | 0-917 | | | | | | | | | | | x | | Run inside 7-in. OD steel well casing. |
| 22SA | 8/1/01 | 1 | 1200 | 0-1180 | x | x | x | x | x | x | | | | | | | Run inside 4.5-in. dual-wall drill pipe in 5.375-in. borehole with approximately 20 ft of 6.625-in. OD steel surface casing. |
| 22S | 10/20/01 | 2 | 1197 | 0-1190 | x | x | x | x | x | x | x | x | x | x | x | x | Run in 14.75-in. flooded mud borehole with 75 ft of 18-in. OD steel conductor casing and drilling mud from approximately 5 ft to total depth. |
| 22S | 2/19/02 | 3 | 1190 | 0-1180 | x | x | | x | | | | | | | | | Run inside 6.625-in. OD steel well casing. |
| 22S | 9/26/02 | 3 | 1183 | 0-1181 | | | | | | x | | | | | | x | Run inside 4-in. Schedule 80 PVC riser pipe from 0 to 508 ft and 2.9-in. OD PVC Westbay® casing from 508 to 1183 ft. |
| 22PA | 2/19/02 | 3 | 770 | 0-770 | x | x | | x | | x | | | | | | | Run inside 2-in. Schedule 80 PVC well casing, unable to run deviation tool below 229 ft. |
| 22PA | 9/25/02 | 3 | 770 | 0-767 | | | | | | x | | | | | | x | Run inside 2-in. Schedule 80 PVC well casing. |
| 22PB | 3/3/02 | 1 | 1212 | 1212 | x | x | x | x | x | x | x | x | x | x | x | x | Run inside 8.5-in. open hole with 15.1 ft of 10.75-in. OD steel surface casing. |
| 22PB | 3/18/02 | 3 | 1212 | 0-987 | | | x | | | | | | | | | | Run inside 2-in. Schedule 80 PVC well casing: to total depth in the shallow piezometer and to 271 ft in the deep piezometer. |
| 22PB | 9/25/02 | 3 | 1190 | 0-1188 | | | | | | x | | | | | | x | Run inside 2-in. Schedule 80 PVC well casing in the deep piezometer. |
| 23P | 3/26/02 | 2 | 702 | 0-702 | x | x | | x | x | x | x | x | x | x | | x | Run inside 8.5-in. open hole with 16.9 ft of 10.75-in. OD steel surface casing. |
| 23P | 9/26/02 | 3 | 700 | 0-691 | x | x | x | x | | | | | | | | | Run inside 2-in. Schedule 80 PVC well casing in the deep piezometer. |

NOTES: NA = not applicable; OD = outer diameter; PVC = polyvinyl chloride

[a]1 = logged inside drill pipe or casing (drill-string log); 2 = logged in open borehole (open-hole log); 3 = logged inside well casing (well-completion log).

[b]No open-hole logging was conducted in well borehole NC-EWDP-19IM1 due to borehole instability problems at total depth.

## Table 3.1-1
## Well Elevation and Water Level Summary

| Well Name (NC-EWDP-) | Casing | Top of Casing Elevation (ft amsl)[a] | Original Ground Surface Elevation (ft amsl) | Date of Water Level Measurement (mo./day/yr.) | Groundwater Elevation (ft amsl) | Depth to Water (ft)[b] |
|---|---|---|---|---|---|---|
| 19IM1 | 7-in. OD steel | 2,688.96[c] | 2,687.29 | 10/15/01 | 2,329.3[d] | 359.7[d, e] |
| 19IM2 | 7-in. OD steel | 2,690.00 | 2,688.06 | 9/24/02 | 2,333.6[d] | 356.4[d] |
| 10S | 6.625-in. OD steel | 2,965.92[c] | 2,963.62[f] | 2/5/02 | 2,385.1[d] | 580.8[d, e] |
| 10P (deep) | 2-in. SCH 80 PVC | 2,966.65 | 2,964.60 | 9/25/02 | 2,385.0 | 581.67 |
| 10P (shallow) | 2-in. SCH 80 PVC | 2,966.65 | 2,964.60 | 9/25/02 | 2,385.1 | 581.52 |
| 22S | 6.625-in. OD steel | 2,851.37[c] | 2,849.00 | 2/25/02 | 2,378.4[d] | 473.0[d, e] |
| 22PA (deep) | 2-in. SCH 80 PVC | 2,852.15 | 2,849.86 | 9/25/02 | 2,378.2 | 473.98 |
| 22PA (shallow) | 2-in. SCH 80 PVC | 2,852.15 | 2,849.86 | 9/25/02 | 2,378.1 | 474.03 |
| 22PB (deep) | 2-in. SCH 80 PVC | 2,851.79 | 2,849.33 | 9/25/02 | 2,378.1 | 473.68 |
| 22PB (shallow) | 2-in. SCH 80 PVC | 2,851.79 | 2,849.33 | 8/28/02 | 2,377.9 | 473.90 |
| 23P (deep) | 2-in. SCH 80 PVC | 2,802.65 | 2,800.15 | 10/01/02 | 2,376.0 | 426.70 |
| 23P (shallow) | 2-in. SCH 80 PVC | 2,802.65 | 2,800.15 | 10/01/02 | 2,376.3 | 426.40 |
| 18P | 2-in. SCH 80 PVC | 3,166.56 | 3,163.19[f] | 8/22/02 | 2,386.9 | 779.65 |

NOTES: OD = outer diameter; all subsurface elevation and depth data have not been corrected for borehole deviation.

[a] ft amsl = feet above mean sea level

[b] Depth to water measurements are most recent available.

[c] A Westbay® packer system has been installed in NC-EWDP-19IM1, -10S, and -22S. The reference casing elevation (measuring point) for the new Westbay® casing has not been surveyed as of February 2003.

[d] Depth to water based on composite head in multiple screened well.

[e] Further data on Westbay® packer zone interval water levels are available.

[f] Original ground surface elevation based on GPS survey elevation at top of casing less stick-up of casing. All other original ground surface elevations based on GPS survey of ground elevation.

## Table 4.0-1
## Summary of Censored Geologic Sample Data from Phase III Boreholes

| Borehole No.[a] | Geologic Logging Data–Depth Interval Censored (ft, bgs) | | | | | | Laboratory Test Data–Depth Interval Censored (ft, bgs) | | | | | Drilling Data–Depth Interval Censored (ft, bgs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Drill Cuttings Samples | | | | | Drive Core Samples | Alluvium Drill Cuttings Samples | | | | Drive Core Samples | |
| | Alluvium Field Estimated PSD and USCS Group Symbol Data[b] | Alluvium Sample Bulk Density Related Data[c] | Non-Alluvium Sample Bulk Density Related Data[c] | Alluvium Sample Recovery Data[d] | Non-Alluvium Sample Recovery Data[d] | Alluvium Field Estimated PSD and USCS Group Symbol Data[b] | Wet Sieve PSD Data | Electrical Conductivity Data[e] | Gravimetric Water Content Data[e] | Hydrometer PSD Data[f] | Dry Bulk Density, Volumetric Water Content, and Saturated Hydraulic Conductivity Data[g] | Water Production Data |
| 10SA | 0–750 | | | 665-750 | 750-1,200 | | 665–750[h] | 582.5–665 | 582.5–665 | 665–670<br>675-680<br>685–690<br>700–705<br>725–730<br>745–750 | | 865-1,200[i] |
| 10P | 0–787.5 | | 787.5-910 | 587.5-787.5 | 787.5-910 | 57.5-60[j]<br>58.35-58.85<br>168.22-168.72<br>667.47-667.72<br>703.16-703.66<br>704.16-704.41<br>743.11-743.61<br>744.11-744.36 | 2.5–790[k] | 582.5–665 | 582.5–665 | 297.5–300<br>367.5–370 | 58.85-59.35<br>347.87-348.37<br>666.97-667.47 | |
| 18P | 0–45 | | 45–135 | | 850-890 | | 45–50 | 45–50 | | | | 0-890[l] |
| 19IM1A | 0–820 | | | 522.5-820 | | | 522.5–820[n] | 362.5–430 | 362.5–525 | 537.5–540<br>620–625<br>695–700 | | 0-900[l] |
| 19IM2A | 0–825 | | | 392.5-825 | | | 372.5-380[m]<br>750-825[h] | 362.5–395<br>542.5-545<br>547.5-550<br>552.5-555<br>560-565<br>575-580 | 362.5–395 | | | 825-900[l] |
| 22SA | 0–1,110 | | | 482.5-1,110 | | | 487.5-590[m]<br>665–1,110[h] | 472.5–485 | 472.5–485 | 750–755<br>825–830<br>990–995 | | 1,110-1,200[l] |
| 22PA | 2.5–780 | | | 500-780 | | 392.25-392.75<br>393.25-393.5<br>553.24-553.74<br>572.64-573.14<br>670.11-670.61<br>710.33-710.58<br>740.85-741.35<br>741.85-742.10 | 0–780[k] | 472.5–490 | 472.5–490 | 172.5–175<br>292.5–295<br>437.5–440<br>770–775 | 523.00–523.50 | |
| 22PB | 0–1,120 | | 1,120-1,200 | 517.5-1,120 | 1,120-1,200 | | 2.5–1,120[k]<br>1,120-1,200[n] | 472.5–515 | 472.5–515 | 302.5–305<br>352.5–355<br>507.5–510<br>765–770<br>935–940<br>1,100–1,105 | | |
| 23P | 0–1,340 | | | 450-1,340 | | | 555–1,200[n] | 427.5–435 | 427.5–435 | 585–590<br>685–690<br>815-820<br>840–845<br>1,025–1,030<br>1,100–1,105<br>1,125–1,130 | | 1,200-1,340[l] |

NOTES: [a] Prefix for all Nye County EWDP wells is "NC-EWDP-".

[b] Particle size distribution (PSD) and Unified Soil Classification Group Symbol data are censored because field estimates differ significantly from laboratory measurements.

[c] Data (tare weight, sample plus tare weight, and sample weight) are censored because a significant amount of sample was not collected and weighed over 10- or 20-ft drill run intervals.

[d] Data are censored because they were not accurately adjusted to account for splitting of samples when water production was greater than zero.

[e] Electrical conductivity of soil-water extract and gravimetric water content data obtained from drill cuttings are applicable to regions above the water table only.

[f] Data are censored for the same reasons given for the PSD wet sieve data.

[g] Data are censored because core sample density and porosity were disturbed during coring and/or during lab sample preparation.

[h] Data are censored because drilling reduced relatively soft rock clasts to smaller particle size fractions.

[i] Data are censored because 5-gal. bucket measurements were not made and too few air lift measurements at the end of drill runs were made to provide a basis for estimating water production.

[j] These data plus all other logging parameter data are censored for this depth interval because errors were made in recording data on the logging form.

[k] Data are censored because of significant drilling and/or sample handling disturbance of PSDs.

[l] Data are censored because air-lift production measurements were conducted in an open borehole with more than 750 ft of unsaturated zone where a significant amount of air-lift water was likely lost to the formation.

[m] Data are censored because bentonite drilling fluid contaminated samples.

[n] Data are censored because PSDs are not applicable below alluvium and non-alluvium contact at 1,120 ft.

## Table 4.1-1
## Example of an Alluvium Logging Form for Borehole NC-EWDP-22SA (Cuttings)

Borehole ID: **NC-EWDP-22SA** (Phase 3) Driller/Drilling Company B. Mikelson/Eklund Drilling Method: Reverse Circulation - Air Alluvium Depth (ft bgs): 0 to 1110 Start Date: 7/28/01 End Date: 8/1/01 

| Date Logged | Logged By (Initials) | Date Checked | Checked By (Initials) | Sample Number | Sample Type | Depth Interval (feet bgs) | | Drilling/Coring Data | | | | | Sample Density Measurements | | | Munsell Color Symbol | Moisture Content | | | Particle Size Distribution (%) | | | | | Grading | | Estimated Plasticity | | | | USCS Group Symbol | Gravel/Sand GrainShape | | | | Cementation | | | | HCL Reaction | | | Major Rock Type (%) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | From | To | Liquid Drilling Fluid Injection Rate (gpm) | Drilling/Coring Rate (feet/min) | Water Production (gpm) | Sample Recovery (gallons) | Borehole/Core Diameter (inches) | Tare Weight (kg) | Sample Plus Tare Weight (kg) | Sample Weight (kg) | | Dry | Moist | Wet | Gravel | Sand | Silt | Clay | Fines (Silt plus Clay) | Well Graded | Poorly Graded | None | Low | Moderate | High | | Angular | Subangular | Subrounded | Rounded | None | Weak | Moderate | Strong | None | Weak | Strong | Volcanics | Carbonates | Other |
| 7/28/01 | KDD | 8/12/01 | GH | BCS00010401-22SA-554 | Cuttings | 0.00 | 2.50 | 0.0 | 2.5 | 0.0 | 3.0 | 5.4 | **0.85** | **9.90** | **9.05** | 5YR 5/4 | ☑ | ☐ | ☐ | **13** | **77** | **10** | **0** | **10** | ☐ | ☑ | ☑ | ☐ | ☐ | ☐ | **SP-SM** | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | 100 | | |
| 7/28/01 | KDD | 8/12/01 | GH | BCS00010402-22SA-555 | Cuttings | 2.50 | 5.00 | 0.0 | 2.5 | 0.0 | 3.2 | 5.4 | **0.85** | **21.50** | **20.65** | 5YR 5/4 | ☑ | ☐ | ☐ | **25** | **65** | **10** | **0** | **10** | ☐ | ☑ | ☑ | ☐ | ☐ | ☐ | **SP-SM** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | 100 | | |
| 7/28/01 | KDD | 8/12/01 | GH | BCS00010403-22SA-556 | Cuttings | 5.00 | 7.50 | 0.0 | 2.5 | 0.0 | 1.8 | 5.4 | **0.85** | **10.50** | **9.65** | 5YR 5/4 | ☑ | ☐ | ☐ | **19** | **71** | **10** | **0** | **10** | ☑ | ☐ | ☑ | ☐ | ☐ | ☐ | **SW-SM** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | 100 | | |
| 7/28/01 | KDD | 8/12/01 | GH | BCS00010404-22SA-557 | Cuttings | 7.50 | 10.00 | 0.0 | 2.5 | 0.0 | 2.0 | 5.4 | **0.85** | **12.10** | **11.25** | 5YR 5/4 | ☐ | ☑ | ☐ | **29** | **66** | **5** | **0** | **5** | ☑ | ☐ | ☑ | ☐ | ☐ | ☐ | **SW** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | 100 | | |
| 7/28/01 | KDD | 8/12/01 | GH | BCS00010405-22SA-558 | Cuttings | 10.00 | 12.50 | 0.0 | 2.5 | 0.0 | 1.8 | 5.4 | **0.85** | **7.50** | **6.65** | 10YR 5/4 | ☐ | ☑ | ☐ | **27** | **69** | **4** | **0** | **4** | ☑ | ☐ | ☑ | ☐ | ☐ | ☐ | **SW** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | 100 | | |
| 7/28/01 | KDD | 8/12/01 | GH | BCS00010406-22SA-559 | Cuttings | 12.50 | 15.00 | 0.0 | 2.5 | 0.0 | 2.0 | 5.4 | **0.85** | **11.80** | **10.95** | 5YR 4/4 | ☐ | ☑ | ☐ | **40** | **55** | **5** | **0** | **5** | ☑ | ☐ | ☑ | ☐ | ☐ | ☐ | **SW** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | 100 | | |
| 7/28/01 | KDD | 8/12/01 | GH | BCS00010407-22SA-560 | Cuttings | 15.00 | 17.50 | 0.0 | 5.0 | 0.0 | 1.8 | 5.4 | **0.85** | **8.10** | **7.25** | 5YR 4/4 | ☐ | ☑ | ☐ | **28** | **67** | **5** | **0** | **5** | ☑ | ☐ | ☑ | ☐ | ☐ | ☐ | **SW** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | 100 | | |
| 7/28/01 | KDD | 8/12/01 | GH | BCS00010408-22SA-561 | Cuttings | 17.50 | 20.00 | 0.0 | 5.0 | 0.0 | 1.8 | 5.4 | **0.85** | **10.70** | **9.85** | 5YR 4/4 | ☐ | ☑ | ☐ | **37** | **58** | **5** | **0** | **5** | ☑ | ☐ | ☑ | ☐ | ☐ | ☐ | **SW** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | 100 | | |
| 7/28/01 | KDD | 8/12/01 | GH | BCS00010409-22SA-562 | Cuttings | 20.00 | 22.50 | 0.0 | 5.0 | 0.0 | 2.2 | 5.4 | **0.85** | **13.80** | **12.95** | 5YR 4/4 | ☐ | ☑ | ☐ | **37** | **58** | **5** | **0** | **5** | ☑ | ☐ | ☑ | ☐ | ☐ | ☐ | **SW** | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | 100 | | |
| 7/29/01 | KDD | 8/12/01 | GH | BCS00010410-22SA-563 | Cuttings | 22.50 | 25.00 | 0.0 | 2.5 | 0.0 | 1.0 | 5.4 | **0.85** | **7.80** | **6.95** | 5YR 4/4 | ☑ | ☐ | ☐ | **29** | **61** | **10** | **0** | **10** | ☑ | ☐ | ☑ | ☐ | ☐ | ☐ | **SW-SM** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☑ | ☐ | 100 | | |
| 7/29/01 | KDD | 8/12/01 | GH | BCS00010411-22SA-564 | Cuttings | 25.00 | 27.50 | 0.0 | 2.5 | 0.0 | 2.0 | 5.4 | **0.85** | **9.55** | **8.70** | 5YR 4/4 | ☑ | ☐ | ☐ | **38** | **54** | **8** | **0** | **8** | ☑ | ☐ | ☑ | ☐ | ☐ | ☐ | **SW-SM** | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☑ | ☐ | 100 | | |
| 7/29/01 | KDD | 8/12/01 | GH | BCS00010412-22SA-565 | Cuttings | 27.50 | 30.00 | 0.0 | 1.3 | 0.0 | 1.9 | 5.4 | **0.85** | **10.55** | **9.70** | 5YR 4/4 | ☑ | ☐ | ☐ | **26** | **59** | **15** | **0** | **15** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | **SM** | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☑ | ☐ | 100 | | |
| 7/29/01 | KDD | 8/12/01 | GH | BCS00010413-22SA-566 | Cuttings | 30.00 | 32.50 | 0.0 | 2.5 | 0.0 | 2.0 | 5.4 | **0.85** | **17.45** | **16.60** | 5YR 4/4 | ☑ | ☐ | ☐ | **17** | **63** | **20** | **0** | **20** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | **SM** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☑ | ☐ | 100 | | |
| 7/29/01 | KDD | 8/12/01 | GH | BCS00010414-22SA-567 | Cuttings | 32.50 | 35.00 | 0.0 | 3.8 | 0.0 | 1.7 | 5.4 | **0.85** | **8.10** | **7.25** | 5YR 4/4 | ☑ | ☐ | ☐ | **18** | **67** | **15** | **0** | **15** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | **SM** | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☑ | ☐ | 100 | | |
| 7/29/01 | KDD | 8/12/01 | GH | BCS00010415-22SA-568 | Cuttings | 35.00 | 37.50 | 0.0 | 3.8 | 0.0 | 1.8 | 5.4 | **0.85** | **10.15** | **9.30** | 5YR 4/4 | ☑ | ☐ | ☐ | **22** | **63** | **15** | **0** | **15** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | **SM** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | 100 | | |
| 7/29/01 | KDD | 8/12/01 | GH | BCS00010416-22SA-569 | Cuttings | 37.50 | 40.00 | 0.0 | 3.8 | 0.0 | 2.0 | 5.4 | **0.85** | **12.40** | **11.55** | 5YR 4/4 | ☑ | ☐ | ☐ | **48** | **37** | **15** | **0** | **15** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | **GM** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☑ | 100 | | |
| 7/29/01 | KDD | 8/12/01 | GH | BCS00010417-22SA-570 | Cuttings | 40.00 | 42.50 | 0.0 | 2.2 | 0.0 | 1.4 | 5.4 | **0.85** | **9.20** | **8.35** | 5YR 4/4 | ☑ | ☐ | ☐ | **23** | **62** | **15** | **0** | **15** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | **SM** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☑ | ☐ | 100 | | |
| 7/29/01 | KDD | 8/12/01 | GH | BCS00010418-22SA-571 | Cuttings | 42.50 | 45.00 | 0.0 | 2.2 | 0.0 | 1.0 | 5.4 | **0.85** | **6.80** | **5.95** | 5YR 4/4 | ☑ | ☐ | ☐ | **36** | **49** | **15** | **0** | **15** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | **SM** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | 100 | | |
| 7/28/01 | KDD | 8/12/01 | GH | BCS00010419-22SA-572 | Cuttings | 45.00 | 47.50 | 0.0 | 2.2 | 0.0 | 1.6 | 5.4 | **0.85** | **10.30** | **9.45** | 5YR 6/4 | ☑ | ☐ | ☐ | **38** | **47** | **15** | **0** | **15** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | **SM** | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☑ | 100 | | |
| 7/28/01 | KDD | 8/12/01 | GH | BCS00010420-22SA-573 | Cuttings | 47.50 | 50.00 | 0.0 | 2.2 | 0.0 | 2.0 | 5.4 | **0.85** | **13.40** | **12.55** | 5YR 6/4 | ☑ | ☐ | ☐ | **21** | **64** | **15** | **0** | **15** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | **SM** | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☑ | ☐ | 100 | | |
| 7/28/01 | KDD | 8/12/01 | GH | BCS00010421-22SA-574 | Cuttings | 50.00 | 52.50 | 0.0 | 2.2 | 0.0 | 2.3 | 5.4 | **0.85** | **16.45** | **15.60** | 5YR 6/4 | ☑ | ☐ | ☐ | **21** | **64** | **15** | **0** | **15** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | **SM** | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☑ | ☐ | 100 | | |
| 7/28/01 | KDD | 8/12/01 | GH | BCS00010422-22SA-575 | Cuttings | 52.50 | 55.00 | 0.0 | 2.2 | 0.0 | 1.7 | 5.4 | **0.85** | **11.20** | **10.35** | 5YR 6/4 | ☑ | ☐ | ☐ | **28** | **57** | **15** | **0** | **15** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | **SM** | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☑ | ☐ | 100 | | |
| 7/28/01 | KDD | 8/12/01 | GH | BCS00010423-22SA-576 | Cuttings | 55.00 | 57.50 | 0.0 | 2.2 | 0.0 | 1.6 | 5.4 | **0.85** | **13.00** | **12.15** | 5YR 6/4 | ☑ | ☐ | ☐ | **16** | **69** | **15** | **0** | **15** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | **SM** | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☑ | ☐ | 100 | | |
| 7/28/01 | KDD | 8/12/01 | GH | BCS00010424-22SA-577 | Cuttings | 57.50 | 60.00 | 0.0 | 2.2 | 0.0 | 2.0 | 5.4 | **0.85** | **14.05** | **13.20** | 5YR 6/4 | ☑ | ☐ | ☐ | **11** | **69** | **20** | **0** | **20** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | **SM** | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☑ | ☐ | 100 | | |
| 7/28/01 | KDD | 8/12/01 | GH | BCS00010425-22SA-578 | Cuttings | 60.00 | 62.50 | 0.0 | 1.7 | 0.0 | 1.4 | 5.4 | **0.85** | **9.55** | **8.70** | 5YR 6/4 | ☑ | ☐ | ☐ | **10** | **75** | **15** | **0** | **15** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | **SM** | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☑ | ☐ | 100 | | |
| 7/28/01 | KDD | 8/12/01 | GH | BCS00010426-22SA-579 | Cuttings | 62.50 | 65.00 | 0.0 | 1.7 | 0.0 | 1.7 | 5.4 | **0.85** | **10.55** | **9.70** | 5YR 6/4 | ☑ | ☐ | ☐ | **42** | **43** | **15** | **0** | **15** | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | **SM** | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☐ | ☑ | ☐ | 100 | | |

NOTE: Shading indicates censored data

## Table 4.1-2
## Example of a Non-Alluvium Logging Form for Borehole NC-EWDP-22SA (Cuttings)

Borehole ID: **NC-EWDP-22SA** (Phase 3)
Driller/Drilling Company: B. Mikelson/Eklund
Drilling Method: Reverse Circulation - Air
Alluvium Depth (ft bgs): 1110 to 1200
Start Date: 8/1/01
End Date: 8/1/01
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| Logged Date | Logged By | Checked Date | Checked By | Sample Number | Depth Interval (feet/bgs) From | Depth Interval (feet/bgs) To | Drilling/Coring Data: Liquid Drilling Fluid Injection Rate (gpm) | Drilling/Coring Rate (feet/min) | Water Production (gpm) | Sample Recovery (gallons) | Sample Density Data: Borehole Diameter (inches) | Tare Weight (kg) | Sample Plus Tare Weight (kg) | Sample Weight (kg) | Munsell Color Symbol |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 08/01/01 | KDD | 09/07/01 | jsw | BCS00010735 | 1110.00 | 1115.00 | 2.0 | 1.7 | | | 5.4 | | | | 5YR 4/4 |
| 08/01/01 | KDD | 09/07/01 | jsw | BCS00010736 | 1115.00 | 1120.00 | 2.0 | 1.7 | | | 5.4 | | | | 5YR 4/4 |
| 08/01/01 | KDD | 09/07/01 | jsw | BCS00010737 | 1120.00 | 1125.00 | 2.0 | 2.0 | | | 5.4 | | | | 5YR 4/4 |
| 08/01/01 | KDD | 09/07/01 | jsw | BCS00010738 | 1125.00 | 1130.00 | 2.0 | 2.0 | | | 5.4 | | | | 5YR 4/4 |
| 08/01/01 | KDD | 09/07/01 | jsw | BCS00010739 | 1130.00 | 1135.00 | 2.0 | 2.0 | | | 5.4 | | | | 10R 4/2 |
| 08/01/01 | KDD | 09/07/01 | jsw | BCS00010740 | 1135.00 | 1140.00 | 2.0 | 2.0 | | | 5.4 | | | | 10R 4/2 |
| 08/01/01 | KDD | 09/07/01 | jsw | BCS00010741 | 1140.00 | 1145.00 | 2.0 | 1.3 | | | 5.4 | | | | 10YR 3/4 |
| 08/01/01 | KDD | 09/07/01 | jsw | BCS00010742 | 1145.00 | 1150.00 | 2.0 | 1.3 | | | 5.4 | | | | 10YR 3/4 |
| 08/01/01 | KDD | 09/07/01 | jsw | BCS00010743 | 1150.00 | 1155.00 | 2.0 | 1.3 | | | 5.4 | | | | 10YR 3/4 |
| 08/01/01 | KDD | 09/07/01 | jsw | BCS00010744 | 1155.00 | 1160.00 | 2.0 | 2.5 | | | 5.4 | | | | 10YR 3/4 |
| 08/01/01 | KDD | 09/07/01 | jsw | BCS00010745 | 1160.00 | 1165.00 | 2.0 | 1.7 | | | 5.4 | | | | 10YR 3/4 |
| 08/01/01 | KDD | 09/07/01 | jsw | BCS00010746 | 1165.00 | 1170.00 | 2.0 | 1.7 | | | 5.4 | | | | 10YR 3/4 |
| 08/01/01 | KDD | 09/07/01 | jsw | BCS00010747 | 1170.00 | 1175.00 | 2.0 | 2.0 | | | 5.4 | | | | 10YR 3/4 |
| 08/01/01 | KDD | 09/07/01 | jsw | BCS00010748 | 1175.00 | 1180.00 | 2.0 | 2.0 | | | 5.4 | | | | 10YR 3/4 |
| 08/01/01 | KDD | 09/07/01 | jsw | BCS00010749 | 1180.00 | 1185.00 | 2.0 | 2.0 | | | 5.4 | | | | 10YR 3/4 |
| 08/01/01 | KDD | 09/07/01 | jsw | BCS00010750 | 1185.00 | 1190.00 | 2.0 | 2.0 | | | 5.4 | | | | 10YR 3/4 |
| 08/01/01 | KDD | 09/07/01 | jsw | BCS00010751 | 1190.00 | 1195.00 | 2.0 | 1.7 | | | 5.4 | | | | 10YR 3/4 |
| 08/01/01 | KDD | 09/07/01 | jsw | BCS00010752 | 1195.00 | 1200.00 | 2.0 | 1.7 | | | 5.4 | | | | 10YR 3/4 |

| Sample Number | Moisture Content: Not Applicable | Dry | Moist | Wet | HCL Re-action: None | Weak | Strong | Rock Unit – Tuff – Depo-sition: Ash Fall | Ash Flow | Reworked | Welding: Dense | Moderate | Weak | None | Alteration: Vitric | Devitrified | Matrix | Vapor Phase | Spherulitic | Sedimentary: Claystone | Mudstone | Siltstone | Sandstone | Conglomerate | Chert | Car-bon-ate: Limestone | Dolomite | Other | Weathering: Fresh | Slight | Moderate | High | Decomposed | Structure: None Observed | Stratified | Laminated | Fractured | Other | Matrix: Dense/Non-porous | Open/Porous | Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BCS00010735 | | | | ✓ | | ✓ | | | ✓ | | ✓ | | | | | | | | | | | | | ✓ | | | | | ✓ | | | | | ✓ | | | | | ✓ | | |
| BCS00010736 | | | | ✓ | | ✓ | | | ✓ | | ✓ | | | | | | | | | | | | | ✓ | | | | | ✓ | | | | | ✓ | | | | | ✓ | | |
| BCS00010737 | | | | ✓ | | ✓ | | | ✓ | | ✓ | | | | | | | | | | | | | ✓ | | | | | ✓ | | | | | ✓ | | | | | ✓ | | |
| BCS00010738 | | | | ✓ | | ✓ | | | ✓ | | ✓ | | | | | | | | | | | | | ✓ | | | | | ✓ | | | | | ✓ | | | | | ✓ | | |
| BCS00010739 | | | | ✓ | | ✓ | | | ✓ | | ✓ | | | | | | | | | | | | | ✓ | | | | | ✓ | | | | | ✓ | | | | | ✓ | | |
| BCS00010740 | | | | ✓ | | | ✓ | | ✓ | | ✓ | | | | | | | | | | | | | ✓ | | | | | ✓ | | | | | ✓ | | | | | ✓ | | |
| BCS00010741 | | | | ✓ | | | ✓ | ✓ | | | ✓ | | | | | | | | | | | | | ✓ | | | | | ✓ | | | | | ✓ | | | | | ✓ | | |
| BCS00010742 | | | | ✓ | | | ✓ | | ✓ | | ✓ | | | | | | | | | | | | | ✓ | | | | | ✓ | | | | | ✓ | | | | | ✓ | | |
| BCS00010743 | | | | ✓ | | ✓ | | | ✓ | | ✓ | | | | | | | | | | | | | ✓ | | | | | ✓ | | | | | ✓ | | | | | ✓ | | |
| BCS00010744 | | | | ✓ | | ✓ | | | ✓ | | ✓ | | | | | | | | | | | | | ✓ | | | | | ✓ | | | | | ✓ | | | | | ✓ | | |
| BCS00010745 | | | | ✓ | | ✓ | | | ✓ | | ✓ | | | | | | | | | | | | | ✓ | | | | | ✓ | | | | | ✓ | | | | | ✓ | | |
| BCS00010746 | | | | ✓ | | ✓ | | | ✓ | | ✓ | | | | | | | | | | | | | ✓ | | | | | ✓ | | | | | ✓ | | | | | ✓ | | |
| BCS00010747 | | | | ✓ | | ✓ | | | ✓ | | ✓ | | | | | | | | | | | | | ✓ | | | | | ✓ | | | | | ✓ | | | | | ✓ | | |
| BCS00010748 | | | | ✓ | | ✓ | | | ✓ | | ✓ | | | | | | | | | | | | | ✓ | | | | | ✓ | | | | | ✓ | | | | | ✓ | | |
| BCS00010749 | | | | ✓ | | ✓ | | | ✓ | | ✓ | | | | | | | | | | | | | ✓ | | | | | ✓ | | | | | ✓ | | | | | ✓ | | |
| BCS00010750 | | | | ✓ | | ✓ | | | ✓ | | ✓ | | | | | | | | | | | | | ✓ | | | | | ✓ | | | | | ✓ | | | | | ✓ | | |
| BCS00010751 | | | | ✓ | | ✓ | | | ✓ | | ✓ | | | | | | | | | | | | | ✓ | | | | | ✓ | | | | | ✓ | | | | | ✓ | | |
| BCS00010752 | | | | ✓ | | ✓ | | | ✓ | | ✓ | | | | | | | | | | | | | ✓ | | | | | ✓ | | | | | ✓ | | | | | ✓ | | |

| Sample Number | Phenocrysts – Mafics: % by Vol. | Munsell Color Symbol | Max. Size (mm) | Quartz: % by Vol. | Munsell Color Symbol | Max. Size (mm) | Feldspar: % by Vol. | Munsell Color Symbol | Max. Size (mm) | Clasts – Pumice: % by Vol. | Munsell Color Symbol | Max. Size (mm) | Lithics: % by Vol. | Munsell Color Symbol | Max. Size (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BCS00010735 | 2 | N2 | 1 | 5 | COLORLESS | 2 | 0 | N/A | 0 | 0 | N/A | 0 | 2 | N2 | 2 |
| BCS00010736 | 5 | N2 | 1 | 5 | COLORLESS | 2 | 0 | N/A | 0 | 0 | N/A | 0 | 2 | N2 | 2 |
| BCS00010737 | 2 | N2 | 1 | 5 | COLORLESS | 2 | 0 | N/A | 0 | 0 | N/A | 0 | 1 | N2 | 1 |
| BCS00010738 | 1 | N2 | 1 | 5 | COLORLESS | 2 | 0 | N/A | 0 | 0 | N/A | 0 | 1 | N2 | 1 |
| BCS00010739 | 1 | N2 | 1 | 5 | COLORLESS | 2 | 0 | N/A | 0 | 0 | N/A | 0 | 1 | N2 | 1 |
| BCS00010740 | 2 | N2 | 1 | 5 | COLORLESS | 2 | 0 | N/A | 0 | 0 | N/A | 0 | 1 | N2 | 1 |
| BCS00010741 | 1 | N2 | 1 | 5 | COLORLESS | 2 | 0 | N/A | 0 | 0 | N/A | 0 | 1 | N2 | 1 |
| BCS00010742 | 1 | N2 | 1 | 5 | COLORLESS | 2 | 0 | N/A | 0 | 0 | N/A | 0 | 1 | N2 | 1 |
| BCS00010743 | 1 | N2 | 1 | 5 | COLORLESS | 2 | 0 | N/A | 0 | 0 | N/A | 0 | 1 | N2 | 1 |
| BCS00010744 | 1 | N2 | 1 | 5 | COLORLESS | 2 | 0 | N/A | 0 | 0 | N/A | 0 | 1 | N2 | 1 |
| BCS00010745 | 1 | N2 | 1 | 5 | COLORLESS | 2 | 0 | N/A | 0 | 0 | N/A | 0 | 1 | N2 | 1 |
| BCS00010746 | 1 | N2 | 1 | 5 | COLORLESS | 2 | 0 | N/A | 0 | 0 | N/A | 0 | 1 | N2 | 1 |
| BCS00010747 | 1 | N2 | 1 | 5 | COLORLESS | 2 | 0 | N/A | 0 | 0 | N/A | 0 | 1 | N2 | 1 |
| BCS00010748 | 1 | N2 | 1 | 5 | COLORLESS | 2 | 0 | N/A | 0 | 0 | N/A | 0 | 1 | N2 | 1 |
| BCS00010749 | 1 | N2 | 1 | 5 | COLORLESS | 2 | 0 | N/A | 0 | 0 | N/A | 0 | 1 | N2 | 1 |
| BCS00010750 | 1 | N2 | 1 | 5 | COLORLESS | 2 | 0 | N/A | 0 | 0 | N/A | 0 | 1 | N2 | 1 |
| BCS00010751 | 1 | N2 | 1 | 5 | COLORLESS | 2 | 0 | N/A | 0 | 0 | N/A | 0 | 1 | N2 | 1 |
| BCS00010752 | 1 | N2 | 1 | 5 | COLORLESS | 2 | 0 | N/A | 0 | 0 | N/A | 0 | 1 | N2 | 1 |

**Table 4.1-3**
**Summary Statistics for Fines in Alluvium Drill Cuttings Samples**

| Borehole Number[a] | Measure-ment Type | Depth Interval (ft, bgs) | Number of Samples | Percent Fines in Samples | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Minimum | Maximum | Average | Standard Deviation | Coefficient of Variation |
| 10SA | Field[b] | 0–750 | 276 | 1 | 51 | 9 | 7 | 122 |
| | Lab[c] | 2.5–750 | 150 | 4.9 | 54.0 | 20.6 | 9.6 | 213 |
| 19IM1A | Field | 0–820 | 261 | 1 | 35 | 6 | 5 | 126 |
| | Lab | 2.5–820 | 154 | 5.0 | 33.0 | 14.0 | 5.4 | 257 |
| 19IM2A | Field | 0–825 | 274 | 1 | 23 | 6 | 5 | 124 |
| | Lab | 2.5–825 | 165 | 2.5 | 34.9 | 16.1 | 8.1 | 198 |
| 22SA | Field | 0–1,110 | 332 | 2 | 60 | 15 | 8 | 187 |
| | Lab | 7.5–1,110 | 222 | 4.4 | 48.9 | 23.6 | 10.2 | 232 |

NOTES: [a] Prefix for all Nye County EWDP wells is "NC-EWDP-".

[b] Field estimates were by geologic logging visual-manual method. Raw field estimate data have been censored.

[c] Laboratory measurements were by wet sieve method.

## Table 4.1-4
## Summary of Drilling Rates in Phase III Boreholes

| Bore-hole No.[a] | Unsaturated Alluvium | | | | | Saturated Alluvium | | | | | Saturated Non-Alluvium | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Depth Interval (ft, bgs) | Drill Method[b] | Drill Bit OD (in.) | Average Drilling Rate (ft/min.) | Standard Deviation | Depth Interval (ft, bgs) | Drill Method | Drill Bit OD (in.) | Average Drilling Rate (ft/min.) | Standard Deviation | Depth Interval (ft, bgs) | Drill Method | Drill Bit OD (in.) | Average Drilling Rate (ft/min.) | Standard Deviation |
| 10SA | 0–580 | RC | 5.375 | 1.2 | 0.5 | 580–750 | RC | 5.375 | 1.2 | 1.0 | 750–1,200 | RC | 5.375 | 2.1 | 0.8 |
| 19IM1A | 0–360 | RC | 5.375 | 0.9 | 0.5 | 360–820 | RC | 5.375 | 1.0 | 0.5 | 820–900 | RC | 5.375 | 1.2 | 0.3 |
| 19IM2A | 0–360 | RC | 5.375 | 1.2 | 0.8 | 360–825 | RC | 5.375 | 1.9 | 0.8 | 825–900 | RC | 5.375 | 1.2 | 0.3 |
| 22SA | 0–472.5 | RC | 5.375 | 1.7 | 0.7 | 472.5–1,110 | RC | 5.375 | 2.0 | 1.0 | 1,110–1,200 | RC | 5.375 | 1.8 | 0.3 |
| 10P | 0–304 | CA Stradex | 10.0 | 0.8 | 0.4 | 580–787.5 | CA Tubex | 6.625 | 0.7 | 0.2 | 792–910 | Rotary | 5.875 | 1.1 | 0.5 |
| | 304–580 | CA Tubex | 6.625 | 0.6 | 0.2 | | | | | | | | | | |
| 22PA | 0–356 | CA Stradex | 10 | 1.1 | 0.8 | 472.5–709 | CA Tubex | 6.625 | 0.9 | 0.4 | | | | | |
| | 356–472.5 | CA Tubex | 6.625 | 0.9 | 0.3 | 709–780 | Rotary | 5.875 | 0.8 | 0.2 | | | | | |
| 22PB | 0–472.5 | RC | 8.5 | 0.4 | 0.3 | 472.5–1,120 | RC | 8.5 | 1.2 | 0.7 | 1,120–1,200 | RC | 8.5 | 0.8 | 0.1 |
| 23P | 0–425 | RC | 8.5 | 0.5 | 0.3 | 425–1,340 | RC | 8.5 | 1.0 | 0.4 | | | | | |
| 18P | 0–45 | CA Stradex | 10.0 | 1.3 | 1.2 | | | | | | 45–770[c] | Rotary[c] | 7.875[c] | 0.5[c] | 0.2[c] |
| | | | | | | | | | | | 779–890 | Rotary | 7.875 | 0.3 | 0.1 |

NOTE: [a] Prefix for all Nye County EWDP wells is "NC-EWDP-".

[b] RC = air-rotary dual-wall reverse circulation; CA = casing advance.

[c] This interval is in unsaturated non-alluvium.

**Table 4.2-1**
**Drive-Core Intervals and Recoveries**

| Borehole Number[a] | Core Run Number | Core Barrel Length (ft)[b] | Cored (Cut) Interval (ft, bgs)[c] | | Total Cut[d] (ft) | Recovered Core Length[d] (ft) | Percent Recovery[d] |
|---|---|---|---|---|---|---|---|
| | | | From | To | | | |
| 10P | 1 | 2.69 | 57.35 | 59.85 | 2.50 | 2.00 | 80 |
| | 2 | 2.69 | 167.22 | 169.72 | 2.50 | censored | censored |
| | 3 | 2.69 | 347.95 | 349.06 | 1.11 | censored | censored |
| | 4 | 2.69 | 665.28 | 667.97 | 2.69 | 2.69 | 100 |
| | 5 | 2.69 | 702.46 | 704.85 | 2.39 | 2.39 | 100 |
| | 6 | 2.69 | 742.49 | 744.80 | 2.31 | 2.31 | 100 |
| 22PA | 1 | 2.69 | 391.06 | 394.01 | 2.95 | 2.57 | 87 |
| | 2 | 2.26 | 522.14 | 524.26 | 2.12 | 2.12 | 100 |
| | 3 | 2.26 | 552.52 | 554.99 | 2.47 | 2.04 | 83 |
| | 4 | 2.26 | 572.33 | 574.40 | 2.07 | 2.07 | 100 |
| | 5 | 2.26 | 669.79 | 671.87 | 2.08 | 2.08 | 100 |
| | 6 | 2.26 | 709.22 | 711.09 | 1.87 | censored | censored |
| | 7 | 2.26 | 740.50 | 742.60 | 2.10 | 2.10 | 100 |

NOTES: [a] Prefix for all Nye County EWDP wells is "NC-EWDP-".

[b] 2.69-ft-long core barrels include 0.19-ft-long shoes. 2.26-ft-long core barrels include 0.26-ft-long shoes.

[c] Includes sediments in core barrel shoes.

[d] These measurements and calculations may contain errors.

## Table 4.2-2
## Estimated Major Rock and Mineral Percentages in Different Gravel and Sand Fractions

| Borehole ID[a] | Depth Interval (ft, bgs) | % in Gravel Fraction Retained on #4 Sieve | | | | | % in Sand Fraction Retained on #10 Sieve | | | | % in Sand Fraction Retained on #40 Sieve | | | | % in Sand Fraction Retained on #100 Sieve | | | | % in Sand Fraction Retained on #200 Sieve | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Welded Tuffs | Non-Welded Tuffs | Felsic Flows | Porphyritic Intrusives | Basalt | Welded Tuffs | Non-Welded Tuffs | Pumice | Crystals | Welded Tuffs | Non-Welded Tuffs | Pumice | Crystals | Welded Tuffs | Non-Welded Tuffs | Pumice | Crystals | Welded Tuffs | Non-Welded Tuffs | Pumice | Crystals |
| 10P | 58.35–58.85 | 50 | 50 | 0 | 0 | 0 | 40 | 58 | 1 | 1 | 30 | 63 | 2 | 5 | 15 | 78 | 2 | 5 | 0 | 96 | 2 | 2 |
| | 168.22–168.72 | 75 | 24 | 0 | 0 | 1 | 50 | 48 | 2 | 0 | 47 | 50 | 1 | 2 | 35 | 53 | 2 | 10 | 25 | 70 | 0 | 5 |
| | 666.47—666.97 | 90 | 10 | 0 | 0 | 0 | 89 | 10 | 1 | 0 | 77 | 20 | 1 | 2 | 30 | 60 | 5 | 5 | 10 | 86 | 2 | 2 |
| | 667.47–667.72 | 50 | 50 | 0 | 0 | 0 | 25 | 72 | 1 | 2 | 15 | 70 | 10 | 5 | 10 | 65 | 15 | 10 | 0 | 85 | 10 | 5 |
| | 703.16–703.66 | 10 | 90 | 0 | 0 | 0 | 5 | 94 | 1 | 0 | 0 | 93 | 2 | 5 | 0 | 90 | 5 | 5 | 0 | 94 | 5 | 1 |
| | 704.16–704.41 | 40 | 60 | 0 | 0 | 0 | 30 | 68 | 1 | 1 | 19 | 75 | 1 | 5 | 5 | 88 | 2 | 5 | 0 | 97 | 2 | 1 |
| | 743.11–743.61 | 5 | 95 | 0 | 0 | 0 | 5 | 84 | 1 | 10 | 0 | 83 | 2 | 15 | 0 | 80 | 5 | 15 | 0 | 93 | 2 | 5 |
| | 744.11–744.36 | 5 | 95 | 0 | 0 | 0 | 5 | 89 | 5 | 1 | 2 | 80 | 8 | 10 | 0 | 80 | 10 | 10 | 0 | 87 | 8 | 5 |
| 22PA | 392.25–392.75 | 50 | 50 | 0 | 0 | 0 | 59 | 40 | 1 | 0 | 25 | 73 | 2 | 0 | 10 | 80 | 5 | 5 | 0 | 94 | 5 | 1 |
| | 393.25–393.50 | 25 | 75 | 0 | 0 | 0 | 15 | 85 | 0 | 0 | 5 | 93 | 1 | 1 | 3 | 90 | 2 | 5 | 0 | 98 | 1 | 1 |
| | 553.24–553.74 | 50 | 50 | 0 | 0 | 0 | 25 | 73 | 1 | 1 | 25 | 71 | 2 | 2 | 5 | 90 | 1 | 4 | 0 | 99 | 0 | 1 |
| | 572.64–573.14 | 95 | 5 | 0 | 0 | 0 | 67 | 30 | 2 | 1 | 20 | 72 | 3 | 5 | 15 | 75 | 5 | 5 | 5 | 90 | 5 | 0 |
| | 670.11–670.61 | 10 | 10 | 50 | 30 | 0 | 25 | 74 | 1 | 0 | 20 | 70 | 5 | 5 | 19 | 75 | 1 | 5 | 0 | 98 | 1 | 1 |
| | 710.33–710.58 | 90 | 10 | 0 | 0 | 0 | 68 | 30 | 2 | 0 | 45 | 45 | 5 | 5 | 25 | 60 | 10 | 5 | 4 | 90 | 5 | 1 |
| | 740.85–741.35 | 80 | 20 | 0 | 0 | 0 | 63 | 30 | 5 | 2 | 45 | 47 | 3 | 5 | 25 | 60 | 10 | 5 | 4 | 90 | 5 | 1 |
| | 741.85–742.10 | 40 | 59 | 0 | 0 | 1 | 30 | 69 | 1 | 0 | 20 | 73 | 2 | 5 | 10 | 77 | 5 | 8 | 0 | 94 | 5 | 1 |

NOTE: [a] Prefix for all Nye County EWDP wells is "NC-EWDP-".

## Table 4.2-3
## Summary of Laboratory Hydraulic Parameter Test Results on Selected Core Segments

| Bore-hole No.[a] | Core Interval | | Initial Water Content | | Sat. Water Content | Density | | Calculated Porosity ($cm^3/cm^3$) | Wet Sieve | | | Hydrometer | | | Saturated Hydraulic Conductivity (cm/sec) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Depth From (ft) | Depth To (ft) | Gravimetric Water Content (g/g) | Volumetric Water Content ($cm^3/cm^3$) | Volumetric Water Content ($cm^3/cm^3$) | Grain Density ($g/cm^3$) | Dry Bulk Density ($g/cm^3$) | | Gravel (%) | Sand (%) | Fines (%) | Silt (%) | Clay (%) | Sand (%) | |
| **Initial Testing on 6-in.-Long Core Samples** | | | | | | | | | | | | | | | |
| 10P | 58.85 | 59.35 | 0.062 | censored | NM | 2.51 | censored | censored | 18 | 75 | 7 | 2 | 4 | NM | censored |
| | 168.72 | 169.22 | 0.169 | 0.272 | NM | 2.55 | 1.60 | 0.369 | 14 | 78 | 8 | 2 | 5 | NM | 1.0E-02 |
| | 347.87 | 348.37 | 0.168 | censored | NM | 2.50 | censored | censored | 23 | 62 | 15 | 6 | 9 | 61 | censored |
| | 666.97 | 667.47 | 0.267 | censored | NM | 2.53 | censored | censored | 41 | 35 | 24 | 13 | 15 | 34 | censored |
| | 703.66 | 704.16 | 0.301 | 0.461 | NM | 2.53 | 1.54 | 0.393 | 22 | 43 | 35 | 19 | 17 | 41 | NM |
| | 743.61 | 744.11 | 0.315 | 0.490 | NM | 2.52 | 1.56 | 0.382 | 22 | 45 | 33 | 16 | 18 | 44 | 6.0E-03 |
| 22PA | 392.59 | 393.09 | 0.142 | 0.251 | NM | 2.50 | 1.76 | 0.296 | 32 | 59 | 9 | 5 | 9 | 58 | 1.0E-03 |
| | 523.00 | 523.50 | 0.215 | censored | NM | 2.55 | censored | censored | 38 | 45 | 17 | 9 | 14 | 45 | censored |
| | 553.74 | 554.24 | 0.210 | 0.367 | NM | 2.58 | 1.75 | 0.321 | 31 | 53 | 16 | 10 | 10 | 52 | 3.0E-03 |
| | 573.14 | 573.64 | 0.233 | 0.384 | NM | 2.57 | 1.65 | 0.360 | 38 | 44 | 18 | 12 | 11 | 43 | 3.0E-03 |
| | 670.61 | 671.11 | 0.221 | 0.377 | NM | 2.55 | 1.71 | 0.380 | 47 | 42 | 11 | 6 | 6 | 40 | 4.0E-03 |
| | 710.02 | 710.33 | 0.128 | 0.217 | NM | 2.52 | 1.69 | 0.329 | 19 | 69 | 12 | 7 | 7 | 68 | 4.0E-03 |
| | 741.35 | 741.85 | 0.141 | 0.271 | NM | 2.53 | 1.92 | 0.216 | 41 | 54 | 5 | 5 | 7 | 53 | 1.0E-03 |
| **Additional Testing on 6-in.- and 3-in.-Long Core Samples** | | | | | | | | | | | | | | | |
| 10P | 58.35 | 58.85 | 0.062 | 0.116 | 0.270 | 2.51 | 1.88 | 0.250 | 56 | 34 | 10 | 5 | 4 | 35 | 1.7E-03 |
| | 168.22 | 168.72 | 0.111 | 0.180 | 0.365 | 2.52 | 1.62 | 0.357 | 46 | 44 | 10 | 6 | 3 | 45 | 3.7E-03 |
| | 666.47 | 666.97 | 0.143 | 0.261 | 0.301 | 2.50 | 1.82 | 0.272 | 64 | 26 | 10 | 6 | 4 | 25 | 6.3E-06 |
| | 667.47 | 667.72 | 0.247 | 0.411 | 0.443 | 2.55 | 1.67 | 0.347 | 44 | 28 | 28 | 15 | 13 | 33 | 2.1E-05 |
| | 703.16 | 703.66 | 0.261 | 0.400 | 0.467 | 2.53 | 1.53 | 0.394 | 57 | 29 | 14 | 6 | 8 | 28 | 5.0E-05 |
| | 704.16 | 704.41 | 0.235 | 0.364 | 0.425 | 2.51 | 1.55 | 0.382 | 33 | 43 | 24 | 11 | 13 | 44 | 3.0E-05 |
| | 743.11 | 743.61 | 0.240 | 0.373 | 0.403 | 2.52 | 1.55 | 0.383 | 21 | 50 | 29 | 14 | 15 | 47 | 2.5E-05 |
| | 744.11 | 744.36 | 0.232 | 0.355 | 0.420 | 2.51 | 1.53 | 0.390 | 35 | 42 | 23 | 10 | 12 | 42 | 5.1E-04 |
| 22PA | 392.25 | 392.75 | 0.161 | 0.284 | NM | 2.50 | 1.77 | 0.292 | 31 | 49 | 20 | 8 | 12 | 47 | 1.2E-04 |
| | 393.25 | 393.50 | 0.147 | 0.266 | NM | 2.51 | 1.81 | 0.279 | 52 | 32 | 16 | 6 | 9 | 32 | 7.0E-05 |
| | 553.24 | 553.74 | 0.198 | 0.342 | 0.364 | 2.58 | 1.73 | 0.331 | 18 | 67 | 15 | 6 | 9 | 64 | 1.2E-03 |
| | 572.64 | 573.14 | 0.201 | 0.343 | 0.367 | 2.57 | 1.71 | 0.335 | 20 | 60 | 20 | 8 | 12 | 58 | 1.2E-04 |
| | 670.11 | 670.61 | 0.185 | 0.325 | 0.361 | 2.55 | 1.76 | 0.310 | 57 | 28 | 15 | 7 | 8 | 29 | 7.6E-04 |
| | 710.33 | 710.58 | 0.184 | 0.319 | NM | 2.52 | 1.74 | 0.311 | 39 | 39 | 22 | 10 | 12 | 40 | 5.2E-04 |
| | 740.85 | 741.35 | 0.165 | 0.304 | 0.318 | 2.53 | 1.84 | 0.272 | 45 | 38 | 17 | 6 | 9 | 38 | 3.7E-05 |
| | 741.82 | 742.10 | 0.194 | 0.372 | 0.385 | 2.55 | 1.92 | 0.246 | 40 | 46 | 14 | 7 | 9 | 47 | 9.2E-07 |

NOTES: NM = not measured; [a] Prefix for all Nye County Early Warning Drilling Program wells is "NC-EWDP-."

**Table 4.2-4**
**Saturated Hydraulic Conductivity Results**
**from Laboratory Core Tests and Aquifer Pump Tests**

| Bore-hole ID[a] | Core Sample Laboratory Test Results | | | | | Aquifer Pump Test Results | | |
|---|---|---|---|---|---|---|---|---|
| | Test Intervals (ft, bgs) | | Test Results (cm/sec) | | | Test Intervals (ft, bgs) | | Interval Result (cm/sec) |
| | From | To | Core Result | Arithmetic Mean | Geometric Mean | From | To | |
| 10P | 168.72 | 169.22 | 1.0E-02 | 2.1E-03 | 1.4E-04 | 653.4 | 707.6 | 3.2E-03 |
| | 666.47 | 666.97 | 6.3E-06 | | | | | |
| | 667.47 | 667.72 | 2.1E-05 | | | | | |
| | 703.16 | 703.66 | 5.0E-05 | | | | | |
| | 704.16 | 704.41 | 3.0E-05 | | | | | |
| | 743.11 | 743.61 | 2.5E-05 | | | | | |
| | 743.61 | 744.11 | 6.0E-03 | | | | | |
| | 744.11 | 744.36 | 5.1E-04 | | | | | |
| 22PA | 392.59 | 393.09 | 1.0E-03 | 1.6E-03 | 5.1E-04 | 508.5 | 587.0 | 1.5E-02 |
| | 553.24 | 553.74 | 1.2E-03 | | | | | |
| | 553.74 | 554.24 | 3.0E-03 | | | | | |
| | 572.64 | 573.14 | 1.2E-04 | | | | | |
| | 573.14 | 573.64 | 3.0E-03 | | | | | |
| | 670.11 | 670.61 | 7.6E-04 | | | 649.7 | 779.8 | 1.7E-02 |
| | 670.61 | 671.11 | 4.0E-03 | | | | | |
| | 710.02[b] | 710.33 | 4.0E-03 | | | | | |
| | 710.33 | 710.58 | 5.2E-04 | | | | | |
| | 740.85 | 741.35 | 3.7E-05 | | | | | |
| | 741.35 | 741.85 | 1.0E-03 | | | | | |
| | 741.85 | 742.10 | 9.2E-07 | | | | | |

NOTE: [a]The official prefix of all Nye County wells is "NC-EWDP-".

[b]6-in.-long sample liner filled approximately two-thirds full.