



0 to 450 ft WELL-GRADED SAND with silt and gravel (SW-SM)

Thinly bedded SW-SM layers 5 to 25 ft thick predominate. Several thin lenses of well-graded gravel with silt and sand (GW-GM) ranging from 2.5 to 12.5 ft thick are present in the interval. Fines are non-plastic throughout most of the interval but display low to high plasticity at the base of the unit (435 to 450 ft). Gravel clasts are volcanic in origin and subrounded to angular. Sediment color ranges predominantly from light to moderate brown (5YR 5/4, 4/4 and 3/4). Weak cementation is present from surface to 32.5 ft, and from 290 to 450 ft. Sediments displayed a weak to strong reaction to 10% HCl from 0 to 45 ft and 290 to 450 ft. Samples were dry throughout the interval.

450 to 1200 ft CLAYEY SAND with gravel (SC)*

A very thick relatively uniform unit of SC predominates. The plasticity of fines in these layers are moderate to high. Layers containing higher contents of fat clay (CH) are present from 700 to 710 ft and from 920 to 965 ft. The fines in these layers exhibit a high plasticity, high dry strength, high toughness, and no dilatency. In addition, layers containing higher contents of lean clay (CL) 5 to 25 ft thick are present from 600 to 605 ft and from 965 to 1200 ft. Gravel clasts are predominantly volcanic in origin and subrounded in shape. Black glassy gravel clasts are present from 620 to 625 ft, chert and siltstone chert fragments from 630 to 635 ft, laminated siltstone clasts from 670 to 675 ft, porphyritic clasts from 840 to 845 ft, and laminated siltstone clasts from 935 to 940 ft. Sediment color is variable, but primarily ranges from light to moderate brown (5YR 6/4 to 5/4) to grayish orange pink (5YR 7/2) to pale yellowish brown (10YR 6/2). All samples are weakly cemented and react strongly with 10% HCl. All samples were wet below 500 ft.

1200 to 1340 ft (T.D.) WELL-GRADED SAND with silt (SW-SM)**

SW-SM layer 90 ft thick predominates interval. A bed of rounded basaltic gravel, possibly cobbles and boulders, is present from 1320 to 1325 ft. Fines in the SM layers are non-plastic. Gravel clasts are volcanic in origin and subrounded in shape. Basaltic gravel clasts contain numerous white feldspar crystals in a dark gray crystalline and vesicular groundmass. Sediment color is variable and ranges from dusky brown (5YR 3/4) to grayish brown (5YR 4/2). Cementation is moderate and drill cuttings contain fragments of cemented sand grains. A weak to strong reaction to 10% HCl was observed. All samples were wet.

*The presence of greater than 15 percent gravel throughout this interval is assumed based on: similarity of particle size distributions in this borehole and NC-EWDP-22SA, and the likelihood that the same drilling impacts on particle size distributions observed in -22SA are also operative in -23P. These same drilling impacts may cause the amount of silt and clay measured in NC-EWDP-23P drill cuttings to be significantly higher than actual in situ silt and clay contents (i.e. CL and CH layers identified in this log may actually be SC layers).

**Samples from this interval were washed of fines content and the actual USCS classification is less certain than in above intervals.

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| Nye County, Nevada Nuclear Waste Repository Project Office | |
| Early Warning Drilling Program Summary Lithology Log NC-EWDP-23P | |
| Date: 2/12/03 | Geologist: BW/JW |
| Scale: Not to scale | Drawn by: RFD |