



0 to 280 ft WELL-GRADED SAND with silt and gravel (SW-SM)

SW-SM layers up to 60 ft thick predominate. Numerous thin (10 or more) well-graded sand with gravel layers (SW) up to 15 ft thick are present in the upper 225 ft. Less numerous well-graded gravels with silt layers (GW-GM) predominantly less than 5 ft thick are present in the upper 250 ft. Several widely spaced layers of silty sand with gravels (SM) less than 5 ft thick are present below 200 ft. Fines in the SM layers are non-plastic. Samples exhibited weak cementation from 0 to 70 ft and 102.5 to 112.5 ft. Gravel clasts are volcanic in origin and are subangular to subrounded. Sediment color ranges from moderate yellowish brown (10YR 5/4) to dark yellowish brown (10YR 4/2). A strong reaction to 10% HCl is displayed in sediments from 0 to 50 ft; moderate reaction from 50 to 70 ft and 102.5 to 112.5 ft; and no reaction in the remaining sediments. All samples were dry.

280 to 595 ft ALTERNATING WELL-GRADED SAND with silt and gravel (SW-SM) and SILTY SAND with gravel (SM)*

Overall proportion of SW-SM and SM layers are approximately equal with SM layers becoming more frequent with depth. A thin well-graded gravel layer (GW) is present from 560 to 565 ft. Fines in SM layers are predominantly non-plastic with minor occurrence of low plasticity. Gravel clasts are predominantly volcanic in origin and range from subangular to subrounded. Sediment color ranges from moderate yellowish brown (10YR 4/4) to dark yellowish brown (10YR 4/2). No cementation was observed except a weakly cemented zone from 362 to 390 ft. No reaction to 10% HCl was observed. Samples were dry to 362 ft, moist and wet from 362 to 396 ft, and wet thereafter.

595 to 825 ft SILTY SAND with gravel (SM)**

SM layers up to 150 ft thick predominate. Several widely spaced, 5 ft thick well-graded sands with silt (SW-SM) are also present. The plasticity of fines in SM layers ranges from non-plastic to low plasticity. Gravel clasts are predominantly volcanic in origin and subrounded. Sediment color ranges from moderate yellowish brown (10YR 4/4) to dark yellowish brown (10YR 4/2) and no cementation or reaction to 10% HCl was observed. All samples were wet.

825 to 900 ft ASHFLOW TUFF

Homogeneous, dusky yellow colored (5Y 6/4), weakly welded, aphyric, unweathered tuff with an open/porous sugary texture. Trace amounts of colorless quartz crystals and trace amounts of pumice are present.

*Below approximately 420 ft percent fines measured in drill cuttings become markedly higher and percent gravel becomes markedly lower. It is probable that these changes are due to drilling impacts that were also observed in NC-EWDP-10SA and in -22SA. Therefore, some of the SM layers identified in this log interval based on drilling cutting samples may in fact be SW-SM under in situ conditions. This also is likely the case in the underlying depth interval from 595 to 825 ft.

**The presence of greater than 15 percent gravel throughout this interval is assumed based on the likelihood that drilling impacts that decrease gravel percentages in drill cuttings compared to in situ conditions in NC-EWDP-10SA and in -22SA are also operative in -19IM2A.

Nye County, Nevada Nuclear Waste Repository Project Office	
Early Warning Drilling Program Summary Lithology Log NC-EWDP-19IM2A	
Date: 12/20/02	Geologist: JSW
Scale: Not to scale	Drawn by: RFD