

Drill Hole NC-EWDP-23P

Location=Latitude:36° 41' 05.137", Longitude:116° 23' 50.412"

Interpreted and compiled by Richard W. Spengler, 9/04/02

Elevation= 2800.2 feet (ground)

Nomenclature of lower volcanic units and Tertiary sedimentary strata, for the most part, follows that found in Wahl and others (1997).

Geophysical log observations based on raw counts of geophysical logs. Geophysical measurements from Nye County drill holes are currently (9/2002) considered non-Q data.

Schlumberger resistivity survey referred to in this log is currently considered unqualified data.

<u>Stratigraphy</u>	<u>Lithologic Description</u>	<u>Petrographic and Trace Element Characteristics</u>	<u>Geophysical Signature</u>	<u>Confidence Assessment</u>	<u>Unit Top (feet)</u>	<u>Unit Base (feet)</u>	<u>Thickness (feet)</u>	<u>Elevation of Base of Unit (feet)</u>	
Qal	Quaternary Alluvium (undivided)	Sand, tuffaceous, pale yellowish brown (10 YR 6/2), medium grained, abundant sanidine phenocrysts, rare gravel size fragments.			Medium to high confidence is assigned to this interval based on the conspicuous amount of sand in contrast to the underlying gravel deposit.	0	5	5	2795
Qal	Quaternary Alluvium (undivided)	Gravel, minor coarse sand, grayish orange pink (5 YR 7/2), grayish red (10 R 4/2), composed dominantly of clasts of tuffaceous rock, minor amount of Paleozoic rock clasts.		Caliper log indicates extreme hole enlargement from 17 to 65 feet.	Abrupt decrease in hole enlargement provides indirect support for the selection of the base of this interval.	5	68	63	2732
QTu	Quaternary Alluvium (undivided)	Sand, pale yellowish brown (10 YR 6/2), coarse to very coarse, minor gravel size fragments. Gravel size fragments increase toward base of unit.		Caliper log indicates a conspicuous interval of hole enlargement from 77 to 89 feet.	Low confidence is assigned to the top and base of this interval, based on the inconsistency with the large "wash out", identified on the caliper log.	68	80	12	2720
QTu	Quaternary Alluvium (undivided)	Gravel, colors vary from very pale orange (10 YR 8/2) to grayish red (10 R 4/2), pale brown (5 YR 5/2), pale		Density log indicates an abrupt increase in counts from about 400 to 417 feet followed by an abrupt	Sample processing has eliminated most of the finer fraction of very fine sand, silt, and clay. This	80	690	610	2110

Drill Hole NC-EWDP-23P

Location=Latitude:36° 41' 05.137", Longitude:116° 23' 50.412"

Interpreted and compiled by Richard W. Spengler, 9/04/02

Elevation= 2800.2 feet (ground)

Nomenclature of lower volcanic units and Tertiary sedimentary strata, for the most part, follows that found in Wahl and others (1997).

Geophysical log observations based on raw counts of geophysical logs. Geophysical measurements from Nye County drill holes are currently (9/2002) considered non-Q data.

Schlumberger resistivity survey referred to in this log is currently considered unqualified data.

<u>Stratigraphy</u>	<u>Lithologic Description</u>	<u>Petrographic and Trace Element Characteristics</u>	<u>Geophysical Signature</u>	<u>Confidence Assessment</u>	<u>Unit Top (feet)</u>	<u>Unit Base (feet)</u>	<u>Thickness (feet)</u>	<u>Elevation of Base of Unit (feet)</u>
	<p>yellowish brown (5YR5/2), and medium dark gray (N4), minor coarse sand; gravel fragments composed of Tertiary volcanic rock and minor Paleozoic rock. Intervals that display an increase in the proportion of coarse- to medium-grained sand occur between 415 and 447.5 feet, 510 and 530 feet, 540 and 550 feet, 570 and 580 feet, and 650 and 660 feet. A concentration of basalt fragments occurs within the intervals from 250 to 260 feet and 312.5 to 315 feet. No samples are available from 382.5 to 385.0 feet.</p>		<p>decrease in values from 417 to 435 feet.</p> <p>Caliper log indicates extreme hole enlargement from 416 to 580 feet.</p> <p>The temperature indicates an abrupt increase at 418 feet.</p> <p>No conspicuous variation in lithologies or grain sizes of fragments could be identified in bit-cutting samples near the depth of about 417 feet, which probably represents the top of the saturated zone. Due to hole problems, geophysical logs were only obtained to a depth of about 700 feet.</p>	<p>Interval may contain more clay and silt-size fragments than is observed and documented in processed samples.</p>				

Drill Hole NC-EWDP-23P

Location=Latitude:36° 41' 05.137", Longitude:116° 23' 50.412"

Interpreted and compiled by Richard W. Spengler, 9/04/02

Elevation= 2800.2 feet (ground)

Nomenclature of lower volcanic units and Tertiary sedimentary strata, for the most part, follows that found in Wahl and others (1997).

Geophysical log observations based on raw counts of geophysical logs. Geophysical measurements from Nye County drill holes are currently (9/2002) considered non-Q data.

Schlumberger resistivity survey referred to in this log is currently considered unqualified data.

<u>Stratigraphy</u>	<u>Lithologic Description</u>	<u>Petrographic and Trace Element Characteristics</u>	<u>Geophysical Signature</u>	<u>Confidence Assessment</u>	<u>Unit Top (feet)</u>	<u>Unit Base (feet)</u>	<u>Thickness (feet)</u>	<u>Elevation of Base of Unit (feet)</u>
Tal	Tertiary Alluvium		Caliper log indicates extreme hole enlargement beginning at a depth of 693 feet.	Top of this sand interval corresponds to the top of interval indicating extreme hole enlargement. Only medium confidence is given to the base of this interval based on lack of geophysical logging below 700 feet.	690	865	175	1935
Tal	Tertiary Alluvium		No geophysical logs below 700 feet are currently available.	Interval probably contains significantly more silt- and clay-size particles than is described due to processing of samples.	865	1140	275	1660

Drill Hole NC-EWDP-23P

Location=Latitude:36° 41' 05.137", Longitude:116° 23' 50.412"

Interpreted and compiled by Richard W. Spengler, 9/04/02

Elevation= 2800.2 feet (ground)

Nomenclature of lower volcanic units and Tertiary sedimentary strata, for the most part, follows that found in Wahl and others (1997).

Geophysical log observations based on raw counts of geophysical logs. Geophysical measurements from Nye County drill holes are currently (9/2002) considered non-Q data.

Schlumberger resistivity survey referred to in this log is currently considered unqualified data.

<u>Stratigraphy</u>	<u>Lithologic Description</u>	<u>Petrographic and Trace Element Characteristics</u>	<u>Geophysical Signature</u>	<u>Confidence Assessment</u>	<u>Unit Top (feet)</u>	<u>Unit Base (feet)</u>	<u>Thickness (feet)</u>	<u>Elevation of Base of Unit (feet)</u>
	commonly angular to subangular, and dominantly composed of volcanic rock and rare Paleozoic rock fragments. Sand is coarse to medium grained, well-rounded to sub-rounded, well sorted; interval from 925 to 940 feet, interval appears to be poorly cemented with clay; notable increase in amount of sand size particles from 995 to 1025 feet, 1100 to 1105 feet, and 1115 to 1125 feet, these intervals also contain well- to sub-rounded gravel-size fragments of reworked tuff, composed of well-consolidated particles of sanidine, quartz, and biotite.							
Tal	Tertiary Alluvium	Sand with some gravel, tuffaceous, sand is very pale orange (10YR 8/2)	No geophysical logs below 700 feet are currently available.	Medium to high confidence is assigned to the top of	1140	1300	160	1500

Drill Hole NC-EWDP-23P

Location=Latitude:36° 41' 05.137", Longitude:116° 23' 50.412"

Interpreted and compiled by Richard W. Spengler, 9/04/02

Elevation= 2800.2 feet (ground)

Nomenclature of lower volcanic units and Tertiary sedimentary strata, for the most part, follows that found in Wahl and others (1997).

Geophysical log observations based on raw counts of geophysical logs. Geophysical measurements from Nye County drill holes are currently (9/2002) considered non-Q data.

Schlumberger resistivity survey referred to in this log is currently considered unqualified data.

<u>Stratigraphy</u>	<u>Lithologic Description</u>	<u>Petrographic and Trace Element Characteristics</u>	<u>Geophysical Signature</u>	<u>Confidence Assessment</u>	<u>Unit Top (feet)</u>	<u>Unit Base (feet)</u>	<u>Thickness (feet)</u>	<u>Elevation of Base of Unit (feet)</u>
	<p>and grayish orange pink (5 YR 7/2), very coarse to medium grained, composed dominantly of tuff fragments and phenocrysts of sanidine, quartz, and trace of biotite, dominantly angular to subangular, some subrounded; fragments of tuff commonly range in color from pale brown (5 YR 5/2) to very pale orange (10 YR 8/2), moderate pink (10 R 6/2), and grayish red (5 R 4/2). Gravel fragments are commonly angular to subangular, non- to densely welded tuff, and rhyolite flow deposits, conspicuous medium dark gray (N4) limestone fragments and olive gray (5 Y 4/3) dolomite fragments found in sample</p>			<p>this interval, based on the appearance of significantly more sand fraction in bit-cutting samples. This interval may contain more silt and clay-size particles than described in bit-cutting samples due to sample processing. Conspicuous appearance of dark basalt fragments at 1300 feet provides sufficient evidence for assigning a high confidence level to the base of the unit, even though no geophysical logs are available.</p>				

Drill Hole NC-EWDP-23P

Location=Latitude:36° 41' 05.137", Longitude:116° 23' 50.412"

Interpreted and compiled by Richard W. Spengler, 9/04/02

Elevation= 2800.2 feet (ground)

Nomenclature of lower volcanic units and Tertiary sedimentary strata, for the most part, follows that found in Wahl and others (1997).

Geophysical log observations based on raw counts of geophysical logs. Geophysical measurements from Nye County drill holes are currently (9/2002) considered non-Q data.

Schlumberger resistivity survey referred to in this log is currently considered unqualified data.

<u>Stratigraphy</u>	<u>Lithologic Description</u>	<u>Petrographic and Trace Element Characteristics</u>	<u>Geophysical Signature</u>	<u>Confidence Assessment</u>	<u>Unit Top (feet)</u>	<u>Unit Base (feet)</u>	<u>Thickness (feet)</u>	<u>Elevation of Base of Unit (feet)</u>	
		interval from 1165 to 1170 feet. A higher concentration of gravel-size fragments occurs from 1215 to 1250 feet and 1265 to 1275 feet.							
Tb	Basalt	Olivine basalt, medium dark gray (N4) and pale reddish brown (10 R 5/4). In addition to abundant phenocrysts, the rock contains abundant very light gray (N8) clasts of calcium carbonate, rare vesicles present that are filled with a pale greenish yellow (10 Y 8/2) mineral, possibly a zeolite. Forty to as much as 50 percent of the processed sample is composed of very coarse-grained sand. This sand is made up of angular to sub-rounded tuff fragments and	Fragments of olivine basalt contain about 56 percent phenocrysts. Phenocrysts range in size from 0.3 mm to 1.3 mm. Of the phenocrysts, 60 percent plagioclase, 30 percent are altered olivine, and the rest include a few percent of amphibole, clinopyroxene, opaques, and calcium carbonate. Laths of both plagioclase and olivine are highly altered.	Driller's log indicates a significant reduction in drilling rate at 1300 feet from approximately 1-foot per minute to about 0.3-foot per minute. No geophysical logs could be obtained from this interval, containing fragments of olivine basalt due to a collapsed lowermost section of the borehole. A Schlumberger resistivity sounding-"AMAR 14" is located 425 feet from this drill hole. A review of this	Samples from 1300 to 1340 feet contain a mixture of basalt fragments and sand-size particles. The existence of this mixture could be interpreted to indicate that the basalt fragments represent an alluvial accumulation of basalt boulders and cobbles and not bedrock. However, medium to high confidence is assigned to the existence of basalt bedrock within this interval, based on the coincidence with a high resistivity layer	1300	1340	40	1460

Drill Hole NC-EWDP-23P

Location=Latitude:36° 41' 05.137", Longitude:116° 23' 50.412"

Interpreted and compiled by Richard W. Spengler, 9/04/02

Elevation= 2800.2 feet (ground)

Nomenclature of lower volcanic units and Tertiary sedimentary strata, for the most part, follows that found in Wahl and others (1997).

Geophysical log observations based on raw counts of geophysical logs. Geophysical measurements from Nye County drill holes are currently (9/2002) considered non-Q data.

Schlumberger resistivity survey referred to in this log is currently considered unqualified data.

<u>Stratigraphy</u>	<u>Lithologic Description</u>	<u>Petrographic and Trace Element Characteristics</u>	<u>Geophysical Signature</u>	<u>Confidence Assessment</u>	<u>Unit Top (feet)</u>	<u>Unit Base (feet)</u>	<u>Thickness (feet)</u>	<u>Elevation of Base of Unit (feet)</u>
	phenocrysts of sanidine and quartz.	Texture of the basalt can be described as seriate, wherein phenocrysts vary from a maximum size of about 1.3 mm and progressively decrease in size to become part of the groundmass. The groundmass consists of altered mesostasis. XRF analysis of selected trace elements of a sample from 1325 to 1330 feet indicates the rock contains 8471 ppm of Ti, 396 ppm of Zr, and 1308 ppm of Ba.	resistivity profile provides corroborative information, which indicates an abrupt increase in resistivity between the approximate depths of 990 and 1300 feet. This increase may reflect the presence of this basalt layer.	identified on the Schlumberger resistivity sounding "AMAR14". The existence of abundant sand in bit-cutting samples of this interval is presumed to be due to contamination from the sand interval that overlies the basalt.				

Drill Hole NC-EWDP-23P

Location=Latitude:36° 41' 05.137", Longitude:116° 23' 50.412"

Interpreted and compiled by Richard W. Spengler, 9/04/02

Elevation= 2800.2 feet (ground)

Nomenclature of lower volcanic units and Tertiary sedimentary strata, for the most part, follows that found in Wahl and others (1997).

Geophysical log observations based on raw counts of geophysical logs. Geophysical measurements from Nye County drill holes are currently (9/2002) considered non-Q data.

Schlumberger resistivity survey referred to in this log is currently considered unqualified data.

<u>Stratigraphy</u>	<u>Lithologic Description</u>	<u>Petrographic and Trace Element Characteristics</u>	<u>Geophysical Signature</u>	<u>Confidence Assessment</u>	<u>Unit Top (feet)</u>	<u>Unit Base (feet)</u>	<u>Thickness (feet)</u>	<u>Elevation of Base of Unit (feet)</u>
---------------------	-------------------------------	---	------------------------------	------------------------------	------------------------	-------------------------	-------------------------	---

Borehole NC-EWDP-23P was sampled at 2.5-foot intervals from 0 to 450 feet and at 5-foot intervals from 450 to 1340 feet. Total depth was 1340 feet. Processing includes the discarding of sample material larger than 4.75 mm (in bedrock) and 8 mm (in alluvium) and smaller than .045 mm. Therefore, all processed samples will not include any estimates of very fine nor large sample fragments.

References: Wahl, Ronald R., Sawyer, David A., Minor, Scott A., Carr, Michael D., Cole, James C., Swadley, WC, Laczniak, Randell J., Warren, Richard G., Green, Katryn S., and Engle Colin M., 1997, Digital Geologic Map Database of the Nevada Test Site area, Nevada, U.S Geological Survey Open-File Report 97-140, 47 p. (TIC #247201). Greenhaus, M. R, and Zablocki, C. J., 1982, A Schlumberger Resistivity Survey of the Amargosa Desert, Southern Nevada, U. S. Geological Survey Open-File Report 82-897, 150 p. (DTN:MO9903COV8172Z.000).