

NYE County NWRPO -Technical Data Report

RID No.	Transmitter	Org.	Receiver	Org.	Key word1	Title/Description
5613	Walker	NYE	Qarc	NYE	EWDP I,	Alluvium Geologic Cross Sections of Fortymile Wash

Doc. Date 4/17/2003 General Doc. Type REPORT Keyword2 GEOLOGIC

Entry Date 4/21/2003 Detailed Doc. Type PRESENTATION Keyword3 CROSS

Data Originator
Preparer Jamie Walker

Title of Data Alluvium Geologic Cross Sections of Fortymile Wash

Description of Data Two geologic cross sections of alluvial sediments (classified with Unified Soils Classification System) and first bedrock unit. One cross section through Nye County boreholes NC-EWDP-2DB, -19IM2A, -22SA and -10SA. One cross section through Nye County boreholes NC-EWDP-22SA, -23P and -5S. Cross sections consists of an AutoCAD Map Release 3 file ("PhaseIIAlluvialCrossSections PhaseIIReportFinal.dwg") and an Excel data file ("Fortymile Wash Sections Data Final.xls"). For ease of use, the AutoCAD file was translated into Windows metafile format and inserted into a Word document as a figure (PhaseIIAlluvialCrossSectionFinal.doc). Added color to figure, filename: "PhaseIIAlluvialCrossSectionPhaseIIReportFinalColor.dwg" and "Xsect.pdf" for posting to the web.

Data Collection Method Product compiled from existing datasets. Geological information from summary lithologic logs and geophysical logs. Borehole location data collected by GPS surveys. Water level data from routine water level sounding data.

Data Location(s) Boreholes drilled in lower Fortymile Wash, Amargosa Valley, Nevada.

Data Collection Period(s) Early Warning Drilling Program Phase I (11/98) to Phase III (03/02).

Data Source(s) Borehole survey data: RIDs 5047, 3970, 3698, 4118
 Borehole deviation data: RID 4382 (NC-EWDP-22SA), RID 4381 (NC-EWDP-10SA), RID 4380 (NC-EWDP-19IM2A), RID 5008 (NC-EWDP-23P), RID 1239 (NC-EWDP-5S), RID 3353 (NC-EWDP-2DB)
 Summary Lithologic Logs: RID 5095 (NC-EWDP-22SA), RID 5093 (NC-EWDP-10SA), RID 5094 (NC-EWDP-19IM2A), RID 5473 (NC-EWDP-23P), RID 5541 (NC-EWDP-5S), RID 4490 (NC-EWDP-2DB)
 Water table (water level) data: RID 5354 (Phase I, II wells, NC-EWDP-5S and -2DB), RID 5355 (Phase III wells, NC-EWDP-23P), RID 4946 (NC-EWDP-22SA, pg. 15), RID 4787 (NC-EWDP-19IM2A, pg. 16), RID 5051 (NC-EWDP-10SA, pg. 21)
 USGS borehole stratigraphic data: RID 5046 (NYE 1, 2, 3 Geologic Cross Sections)

Data Censuring None

Data Processing Borehole data were compiled into Excel spreadsheets to provide input files for cross sectioning software. Interdex software (Version 5.21 6/98) was used for creating cross sections. Three tables of data were required for input to Interdex: collar survey data, downhole deviation data and stratigraphic interval data. Data originally recorded in feet were converted to meters where required. Cross section lines were constructed in segments to intersect boreholes and extended by 50 meters on each end to assure that deviated boreholes would plot on the section lines.

Following is a list of section line segments, coordinates and boreholes that were drawn on the section segment.

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Section A - A'						
Section Segment	Northing (UTM)	Easting (UTM)	Northing (UTM)	Easting (UTM)	Boreholes	
2DB to 19IM2A	4057162.4	547758.2	4058319.1	549376.3	2DB	
19IM2A to 22SA	4058249.5	549306.5	4062060.2	552047.0	19IM2A, 22SA	
22SA to 10SA	4061965.2	551996.5	4064945.2	553157.2	10SA	
Section B - B'						
Section Segment	Northing (UTM)	Easting (UTM)	Northing (UTM)	Easting (UTM)	Boreholes	
22SA to 23P	4062057.0	551984.6	4059837.1	553955.7	22SA, 23P	
23P to 5S	4059906.6	553884.2	4058203.0	555915.8	5S	

Following the generation of each cross section segment in Interdex, the section segment was exported to AutoCAD .dxf format. For each section segment, the .dxf file was generated in AutoCAD and inserted into the section drawings with a scaling factor of 5 in the Y-direction. The individual section segments were inserted at the borehole coordinates or bend in sections. The compiled sections were extended approximately 300 meters beyond the extent of the boreholes and 550 meters southwest of NC-EWDP-2DB. On the compiled borehole cross sections, the geological interpretation (contacts) were drawn between boreholes. Inferred (buried) faults from a preliminary version of the Geological Map of the Yucca Mountain Region, Nye County, Nevada (published later as Geologic Investigation Series I-2755) were projected onto the cross sections. Approximate water table surface was drawn based on recent water level soundings. The topographic profile was drawn as a generalized line connecting borehole collars.

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Data Limitations

Data limitations for each input dataset are included in the input dataset RIDs listed above. Geologic units (USCS units) are a generalization of data collected from drilling of each borehole. Data limitations are available in the metadata for each borehole summary log. Geologic units for boreholes NC-EWDP-2DB and -5S were derived from non-quantitative data. The interpretation of the apparent discontinuity between boreholes NC-EWDP-22SA and -23P on cross section B - B' is drawn as a down-cutting unit of silty sand with gravel in 22SA through an older sequence of dominantly clayey sand in 23P. Alternative depictions could be drawn based on other possible geologic interpretations including but not limited to: 1) rapid facies change between the boreholes; 2) structural offset along Fortymile Wash fault(s); and 3) difference in source area of the sediments (and therefore textural classification) between the boreholes. Further data collection (drilling data) would provide evidence to exclude one or more these possible interpretations.

All boreholes depicted on the cross sections, except NC-EWDP-19IM2A, intersect a bedrock unit of sedimentary origin. The stratigraphic position relative to the well-documented YMP (USGS) volcanic sequence and the petrology of these rocks is poorly understood. In general, these sedimentary rocks are classified as volcanic conglomerate (Tal) or older alluvium (Tal) as the exact stratigraphic position (age) is uncertain. The cross section geology of USCS divisions compiles units of like textural classification. Well graded sand units include well graded sand with silt and gravel, well graded sand with clay and gravel and well graded sand with gravel. Similarly, well graded gravel units include well graded gravel with sand, well graded gravel with sand and silt and clayey gravel with sand. Clayey sand units include clayey sand and clayey sand with gravel. The water table surface between NC-EWDP-2DB and -19IM2A slopes toward 19IM2A as a result of the higher water level elevation recorded for NC-EWDP-2DB. Borehole NC-EWDP-2DB is a deeper borehole penetrating the basal Tertiary valley-fill deposits and Paleozoic rocks with water levels likely at a higher head than the more shallow valley-fill penetrated by NC-EWDP-19IM2A. The topographic profile as shown on the cross sections was drawn as a generalized line connecting borehole collars and does not reflect the actual topographic surface except at the borehole locations.

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Key word1

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Frequency As required by PI
of
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Direct Questions Reina Downing
About Data
To-
