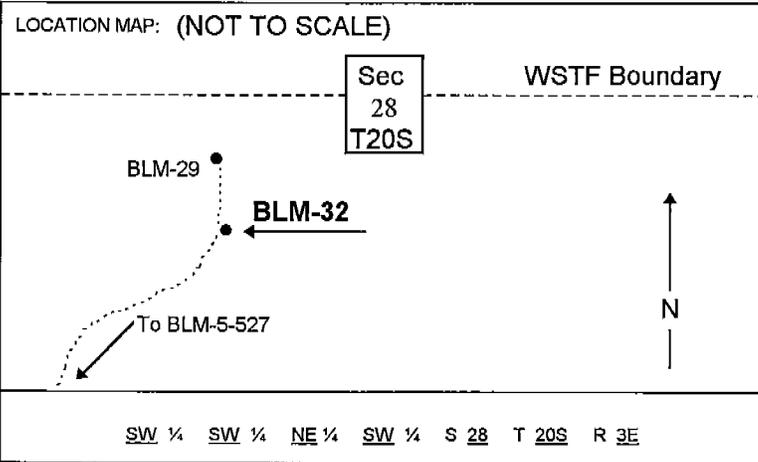


LITHOLOGIC LOG



SITE ID: NASA-WSTF LOCATION ID: BLM-32

SITE COORDINATES (ft.):
 N: 234393.51 E: 404889.36

GROUND ELEVATION (ft. MSL): 4595.51

STATE: New Mexico COUNTY: Dona Ana

DRILLING METHOD: Mud/Air Foam Rotary

DRILLING CONTR.: Stewart Brothers Drilling Co.

DATE STARTED/COMPLETED: _____

FIELD REP.: GILES/PEARSON/RUSSELL

COMMENTS: Drilled Mud Rotary (83/4") 0'-376'. Installed 376' of 5 1/2" diameter surface casing. Drilled Air Foam Rotary 376' to 750' (TD).

LOCATION DESCRIPTION: _____

Depth (ft)	Visual %										Lith	Drilling Time Scale: ft/hr	Sample Type and Interval	Lithologic Description
10	+	+	+	+	+	v	v	v	//	::	[Lithology Column]	38	Grab Sample every 10' 0' - 750'	0' - 372' : ALLUVIUM (Santa Fe Group): Samples range in color from pale red (10 YR 6/2) to light brownish gray (5 YR 6/1). Individual clasts are highly variable in color, characteristic of the polygenetic nature of the alluvium. Clast size ranges from 1 mm to 2 cm and sorting ranges from poor to moderate. There is an overall decrease in grain size and increase in sorting with depth. Cuttings are well rounded formational grains to angular (broken) chips with the majority (mixed origin) being sub-angular in nature. Alluvium of the Santa Fe Group is classified as a polygenetic, poorly sorted, poorly - moderately consolidated pebble to boulder conglomerate . Lithology: Many different lithologic sources are represented. Rock types occur in varying percentages and include (but are not limited to): medium - dark gray (N3-N5) microcrystalline limestone; grayish orange pink (10 R 8/2) to grayish red (5 R 4/2) or pale red iron-oxidized arenitic sandstone (5 R 6/2); pale olive (10 Y 6/2) and grayish red (5 R 4/2) siltstones; and pale red (10 R 6/2) granites; miscellaneous tuffs and andesites. Caliche clasts and coatings, present in minimal percentages, and silty clay-bearing zones (reaching 80%) are noted where present.
20	+	+	+	+	+	v	v	//	//	o				
30	+	+	+	+	+	v	v	v	//	::	38		20' - 40' < 5% caliche coatings present	
40	+	+	+	+	v	v	v	//	//	::				
50	+	+	+	+	v	v	v	//	//	=	20		0' - 80' Alluvium- mostly subrounded clasts to 1 cm. Limestone is medium - dark gray (N5 - N4); Rhyolite is light brown (5 YR 6/4); and granite is light brown (5 YR 7/4), Bleached and altered volcanics are present.	
60	+	+	+	+	v	v	v	//	//	=				
70	+	+	+	+	+	v	v	//	//	=	80' - 120' 40% tan brown clayey silt			
80	+	+	+	+	v	v	//	//	=	=				
90	=	=	=	=	+	+	+	v	v	//	20			
100	=	=	=	=	+	+	+	v	v	//				

Depth (ft)	Visual %										Lith	Drilling Time Scale: ft/hr	Sample Type and Interval	Lithologic Description
110	=	=	=	=	+	+	+	v	v	//		30	Grab Sample every 10' 0' - 750'	
120	=	=	=	=	+	+	+	v	v	//				
130	+	+	+	+	=	=	v	v	::	//				
140	+	+	+	+	=	=	v	v	::	//				
150	+	+	+	+	v	v	=	=	//	::		30		
160	+	+	+	+	v	v	//	//	=	=				
170	+	+	+	+	v	v	//	//	=	=				
180	+	+	+	+	v	v	//	//	=	=				
190	+	+	+	+	v	v	//	//	=	=		33		
200	+	+	+	+	v	v	//	//	=	=				200' - 210' increase in % of clay present
210	=	=	=	=	=	=	=	+	+	+		30		
220	=	=	=	=	+	+	+	v	v	//				
230	=	=	=	=	+	+	+	v	v	//		36		
240	=	=	=	+	+	+	+	v	v	//				

Depth (ft)	Visual %										Lith	Drilling Time Scale: ft/hr	Sample Type and Interval	Lithologic Description
250	+	+	+	+	v	v	//	//	=	=		36	Grab Sample every 10' 0' - 750'	
260	+	+	+	+	v	v	//	//	=	=				
270	+	+	+	+	v	v	//	//	=	=		36		270' - 280' Poorly sorted. Grain size ranges from 1 mm - .5 cm
280	+	+	+	+	v	v	//	//	=	=		30		
290	+	+	+	+	v	v	//	//	=	=				
300	+	+	+	+	+	v	v	//	//	=		24		
310	+	+	+	+	+	v	v	//	//	=				
320	+	+	+	+	+	v	v	//	//	=				
330	+	+	+	+	+	v	v	//	//	=		32		
340	+	+	+	+	v	v	v	//	//	=		16		
350	+	+	+	+	v	v	v	//	//	=		16		
360	+	+	+	+	v	v	v	//	//	=		12		360' - 370' Cuttings are coarser. (5 mm - 1 cm) and angular
370	v	v	v	v	+	+	//	//	::	=				372' VOLCANIC BEDROCK. (Rhyolite To Dacite Porphyry): Aphanitic groundmass ranges from grayish red purple (5 RP 4/2) to pale red purple (5 RP 6/2) and comprises < 25% to 75% of rock. Blocky white - translucent feldspar phenocrysts range from < .5 mm to 2 mm in length and may be present in % up to 50%. Black sub - to euhedral biotite books make up 1 - 10% of rock and show Fe Ox alteration halos in many instances. Anhedral granular and disseminated quartz is present in percentages ranging from 1 - 25%. Cuttings are tabular to blocky and pre-
380	v	v	v	v	v	v	v	v	v	v				

Depth (ft)	Visual %										Lith	Drilling Time Scale: ft/hr	Sample Type and Interval	Lithologic Description
	v	v	v	v	v	v	v	v	v	v				
390	v	v	v	v	v	v	v	v	v	v		27	Grab Sample every 10' 0' - 750'	<p>dominantly subangular to angular (where broken). Where groundmass is not evident, samples are very light in color (grayish pink 5 R 8/2) and mottled, possibly indicative of alteration (?) zones. Some zones show evidence of flow banding. Bladed mafic (hbl) crystals present in trace amounts. Epidotization of mafics occurs sporadically. Where phenocrysts do not show clear boundaries, rock may have a mottled appearance.</p> <p>405' - 515' Increase in occurrence of disseminated mafics, including hornblende and magnetite (?) in aphanitic groundmass. Possibly zoned feldspars are an- to subhedral.</p>
400	v	v	v	v	v	v	v	v	v	v				
410	v	v	v	v	v	v	v	v	v	v				
420	v	v	v	v	v	v	v	v	v	v				
430	v	v	v	v	v	v	v	v	v	v				
440	v	v	v	v	v	v	v	v	v	v				
450	v	v	v	v	v	v	v	v	v	v				
460	v	v	v	v	v	v	v	v	v	v				
470	v	v	v	v	v	v	v	v	v	v				
480	v	v	v	v	v	v	v	v	v	v				
490	v	v	v	v	v	v	v	v	v	v				
500	v	v	v	v	v	v	v	v	v	v				
510	v	v	v	v	v	v	v	v	v	v				
520	v	v	v	v	v	v	v	v	v	v				

515' - 555' As above. 5% iron oxidation of grains. Lighter - colored (altered ?) zone is predominantly grayish pink (5 R 8/2).

Depth (ft)	Visual %	Lith	Drilling Time Scale: ft/hr	Sample Type and Interval	Lithologic Description
670	v v v v v v v v v v	[Hatched Lithology]	24	Grab Sample every 10' 0' - 750'	670' - 685' Blocky vein-filling calcite is present and comprises up to 5% of sample.
680	v v v v v v v v v v		24		
690	v v v v v v v v v v		18		
700	v v v v v v v v v v				
710	v v v v v v v v v v		12		715' - 720' Mixed brown-purple to light gray rhyolite. No flow banding. Noncalcareous. Angular chips 1 - 8 mm. Samples are gritty
720	v v v v v v v v v v		19		720' - 740' Rock is 80%/20% purple/gray. Several vuggy areas on chips appear to be filled with cryptocrystalline quartz. Not much evidence of fracturing.
730	v v v v v v v v v v				730' - 750' Grain size is predominantly fine sand. Presence of up to 20% angular pyroclastic material (partially welded). Rhyolitic composition. Angular quartz/feldspar sands with disseminated mafics.
740	v v v v v v v v v v		19		745' - 750 Thirty % of sample of loosely cemented tuff. Mineralogy is similar to the above unit. Angular fine sand size clasts. Very friable. Remaining % is as above.
750	v v v v v v v v v v		10		750' TD
760					
770					
780					
790					
800					