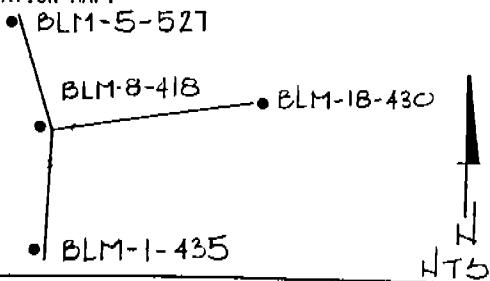


LITHOLOGIC LOG

Page 1 of 8

LOCATION MAP:



LOCATION DESCRIPTION:

SITE ID: NASA-WSTF LOCATION ID: BLM-18-430
 SITE COORDINATES (ft.):
 N 231671.53 E 405970.80
 GROUND ELEVATION (ft. MSL): 4609.84 (Brass Cap)
 STATE: NEW MEXICO COUNTY: DOÑA ANA
 DRILLING METHOD: Mud Rotary/Air-Foam Rotary
 DRILLING CONTR.: Larion Drilling Co.
 DATE STARTED: 08/28/89 DATE COMPLETED: 09/19/89
 FIELD REP.: G. Contaldo
 COMMENTS: 0'-70' mud rotary (12 1/2" bit, reamed with 16" bit), 70'-500' air-foam rotary (9 7/8" bit).
Total Depth = 500'.

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
5	====+VVV//		6	0'-500' (Cuttings)	0'-375' Alluvium (Santa Fe Group): Samples range in color from light brown (5 YR 6/4) to moderate brown (5 YR 4/4); samples comprised of cuttings which range in size from much less than 0.1 inches to 0.7 inches and average 0.3 to 0.4 inches; cuttings are rounded to angular and poorly sorted. Samples represent unconsolidated to moderately consolidated, polygenetic alluvium which contains clasts ranging in size from silts to boulders. Clay and caliche-bearing intervals which occur throughout the alluvium are noted below. Cuttings which represent lithologies of clasts occurring within the alluvium are composed of dark grey (N3) micritic limestone, moderate reddish brown (10 YR 4/6) to dusky red (5 R 3/4) siltstone, white (N9) iron-stained rhyolite, grayish pink (5 R 8/2) to moderate pink (5 R 7/4) granite, moderate brown (5 YR 4/4) clay, light brown (5 YR 6/4) clay, light brown (5 YR 6/4) to pinkish grey (5 YR 8/1) caliche, and grayish black (N2) to grayish red (10 R 4/2) andesite with plagioclase phenocrysts in some cuttings.
10	====+VVV//		9		
15	====+VVV//		10		
20	====+VVV//		5		
25	====+VVV//		8		
30	====+VVV//		5	0'-30'	Silt and clay rich alluvium.
35	====+VVV//		6		
40	====+VVV//		9		40'-50' Silt and clay rich alluvium.
45	====+VVV//		8		
50	====+VVV//		6		

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
50			6	Cuttings (cont'd)	50'-60' Decrease in average cutting size to 0.15-0.25 inches.
55			7		
60			9		60'-70' Slight increase in average cutting size to 0.3-0.4 inches.
65			12		
70			16		70'-75' Decrease in average cutting size to 0.1-0.2 inches.
75			14		
80			5		80'-135' Increase in average cutting size to 0.2-0.3 inches.
85			7		85'-120' Increase in percentage of silt and clay.
90			3		
95			6		
100			5		
105			5		
110			5		
115			5		

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
115			6	Cuttings (cont'd)	
120			5		
125			5		
130			5		
135			5		135'-235' Further increase in average cutting size to 0.3-0.4 inches.
140			3		
145			4		
150			3		
155			3		
160			3		
165			5		165'-180' Decrease in percentage of silt and clay.
170			5		
175			3		
180			3		180'-190' Increase in percentage of silt and clay.

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
180	====+vvv		3		
185	=====+vvv		4		
190	====+vvv		3		190'-195' Decrease in percentage of silt and clay.
195	====+vvv		4		195'-240' Increase in percentage of silt and clay.
200	====+vvv		3		
205	====+vvv		4		
210	====+vvv		3		
215	====+vvv		4		
220	====+vvv		3		
225	====+vvv		3		
230	====+vvv		5		
235	====+vvv		7		
240	====+vvv		6		240'-250' Decrease in percentage of silt and clay.
245	====+vvv		7		

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
245			7	Cuttings (cont'd)	
250			8		
255			5		
260			4		
265			7		
270			8		
275			16		
280			17		
285			18		285'-330' Increase in average cutting size to 0.3-0.4 inches.
290			14		
295			12		
300			7		
305			22		
310			13		

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
310	+ + + + + V V V V V		13		
315	+ + + + + V V V V V /		19		
320	+ + + + + V V V V V		15		320'-330' Increase in percentage of caliche cuttings.
325	+ + + + + V V V V C		22		
330	+ + + + + V V V V V		26		330'-375' Decrease in percentage of limestone cuttings and increase in percentage of volcanic cuttings with depth.
335	+ + + + V V V V V V		9		
340	+ + + + V V V V V V		13		
345	+ + + + V V V V V V		18		
350	+ + + + V Y V V V V V		21		
355	+ + + + V V V V V V V		22		
360	+ + V V V V V V V V		16		
365	+ + V V V V V V V V		7		
370	+ + V V V V V V V V		6		
375	V V V V V V V V V V		5		

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
375	VVVVVVVVVVVVVV	> ^ L A v < ^ L A	5	Cuttings (cont'd)	375'-500' Air-fall Tuff: Samples range in color from pale red (5 R 6/2) to moderate red (5 R 4/6); samples comprised of clay and cuttings which range in size from much less than 0.1 inches to 1.2 inches and average 0.5 to 0.6 inches. Cuttings are subangular to angular and well sorted. Samples represent a rhyolitic air-fall tuff containing glass fragments, rock fragments (predominantly andesite) and minor crystals of feldspar, quartz, and biotite in an ash (glassy) matrix. Porosity is relatively low due to devitrification of matrix. Alteration is moderate to intense and generally increases with depth. Alteration variations are described in detail below.
380	VVVVVVVVVVVVVV	> ^ L A v < ^ L A	4		
385	VVVVVVVVVVVVVV	> ^ L A v < ^ L A	6		
390	VVVVVVVVVVVVVV	> ^ L A v < ^ L A	5		
395	VVVVVVVVVVVVVV	> ^ L A v < ^ L A	7		375'-465' Gradual change in color from pale red (5 R 6/2) to moderate red (5 R 4/6) due to increased alteration of iron-bearing minerals.
400	VVVVVVVVVVVVVV	> ^ L A v < ^ L A	12		
405	VVVVVVVVVVVVVV	> ^ L A v < ^ L A	9		
410	VVVVVVVVVVVVVV	> ^ L A v < ^ L A	9		
415	VVVVVVVVVVVVVV	> ^ L A v < ^ L A	9		
420	VVVVVVVVVVVVVV	> ^ L A v < ^ L A	7		
425	VVVVVVVVVVVVVV	> ^ L A v < ^ L A	8		
430	VVVVVVVVVVVVVV	> ^ L A v < ^ L A	9		
435	VVVVVVVVVVVVVV	> ^ L A v < ^ L A	9		
440	VVVVVVVVVVVVVV	> ^ L A v < ^ L A	13		

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
440	VVVVVVVVVVVVVV		13		
445	VVVVVVVVVVVVVV		6		
450	VVVVVVVVVVVVVV		9		
455	VVVVVVVVVVVVVV		8		
460	VVVVVVVVVVVVVV		3		
465	VVVVVVVVVVZEE		3		465'-470' Increased alteration including alteration (devitrification) of ash matrix to clay minerals. Decrease in percentage of cuttings vs. clay.
470	VVVVVVVVZEE		4		470'-475' Matrix, accessory minerals, and glass shards almost completely devitrified (very few cuttings present) to pale yellowish brown (10 YR 6/2) clay.
475	VVZEE		4		475'-485' Decreased alteration, increase in percentage of cuttings vs. clay.
480	VVVVVVVVZEE		4		
485	VVVVVVVVZEE		5		485'-500' Further decrease in alteration and increase in percentage of cuttings vs. clay. color of approx. 50% of cuttings is moderate pink (5 R 7/4) to light red (5 R 6/6). Color of other cuttings is grayish pink (5 R 8/2) to pale red (5 R 6/2).
490	VVVVVVVVZEE		7		
495	VVVVVVVVZEE		4		
500	VVVVVVVVZEE		4		Total Depth = 500'.
505					