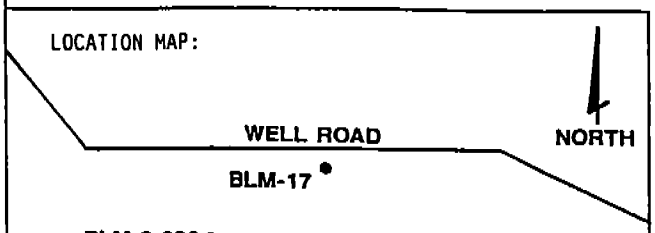
LITHOLOGIC LOG

LOCATION MAP:



NE 1/4 SW 1/4 NW 1/4 SE 1/4 S4 T215 R3E

SITE ID: NASA-WSTF LOCATION ID: BLM-6-488

SITE COORDINATES (ft.):

N 224682.43 E 405938.50

GROUND ELEVATION (ft. MSL): 4588.36'(BC)

STATE: NEW MEXICO COUNTY: DOÑA ANA

DRILLING METHOD: Air-foam/Mud Rotary

DRILLING CONTR.: Larjon Drilling Co.

DATE STARTED: 04-03-90 DATE COMPLETED: 04-18-90

FIELD REP.: P. Egan, R. Cooper

COMMENTS: Mud Rotary (0-70' drilled 12¼" bit, reamed to 16") Air-foam rotary (70'-375' drilled 9 7/8" bit; 375'-506' drilled 9" hammer bit) Top of bedrock = 350'; TD = 506'.

LOCATION DESCRIPTION:

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
			Start Drillograph	Cuttings 0'-506'	0'-350' Alluvium (Santa Fe Group): Moderate orange pink (10 R 7/4) to light brown (5yr 6/4) colored alluvium from clay content. Cutting samples are multicolored due to different lithologies of alluvial clasts. Cutting size ranges from silt-size to 20mm (0.8 inches); average size is 3 to 5mm (0.12 - 0.20 inches). Cutting shapes range from rounded to angular. Subrounded to rounded cuttings are whole alluvial clasts and comprise up to 80% of each sample. Alluvium is an unconsolidated to well-cemented pebble to boulder polygenetic conglomerate. Alluvial clasts include limestone, dolomite, calcite, sandstone, siltstone, quartz, quartzite, granite, rhyolite and andesite. Alluvium contains sporadic caliche zones and clay-rich zones. Andesite fraction increases with depth while rhyolite fraction decreases. Alluvium is very well-cemented from 325' to alluvium/bedrock contact at 350'.
5			7		
10			10		
15			11		
20			17		
25			18		25'-40' Clay-rich 25'-30' Increased drilling rates due to bit problems.
30			75		
35			6		
40			7		40'-45' Increase in average cutting size to 0.6 inches.
45			11		45'-50' Average cutting size to 0.6 inches.
50			9		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
50					
55			4.5		
60			5		
65			11		65'-70' Increase in average cutting size to 0.6 inches.
70			12		70'-TD Drilling method change from mud rotary to air-foam rotary.
75			5		70'-150' Average cutting size 2-3mm (0.08 - 0.12 inches).
					70'-90' Very clay-rich alluvium.
					90'-135' Some clay present; varying percentage from 10% to 30%.
80			7.5		
85			3		
90			6		
95			3		
100			14		
105			9		
110			5		
115			10		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
115					
120			3		
125			10		
130			12		
135			7		135'-145' Less than 10% clay in cuttings.
140			12		
145			13		
150			16		150'-155' Average cutting size increases slightly to an average of 3-4mm (0.12-0.16 inches).
155			3		155'-235' Average cutting size 2-3mm (0.08-0.12 inches).
160			14		
165			16		165'-170' First noticeable occupance of greenish gray and light purple gray andesite.
170			16		
175			13		
180			10		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
180					
185			7		
190			7		
195			5		
200			5		
205			8		
210			9		
215			11		
220			8		
225			10		
230			8		
235			10		235'-315' Average cutting size increases to 3-4mm (0.12-0.16 inches).
240			6		235' Andesite fraction is increasing with depth while rhyolite fraction decreases. Increases are small at each sample interval and vary with each sample.
245			7		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
245					
250			9		
255			10		255'-300' Some conglomerate matrix in sample but less than 10%.
260			5		
265			10		
270			12		
275			7		
280			5		
285			9		
290			12		
295			16		
300			9		300'-350' 10% to 15% of each sample is conglomerate matrix which is added to carbonate fraction.
305			9		
310			11		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
310					
315			9		315'-350' Average cutting size decreased to 2-3mm (0.08-0.12 inches)
320			9		
325			8		
330			23		
335			37		
340			28		
345			25		
350			12		350'-506' Orejon Andesite: Pale red purple (5 RP 66/2) to grayish red purple and dark gray (N3) porphyritic andesite containing phenocrysts up to 7mm (0.27 inches) in size of plagioclase and up to 4mm (0.16 inches) of epidote. Epidote phenocrysts are found only in the darker gray andesite. From 350'-385' the andesite is only pale red purple in color. Below 385' this andesite becomes mottled with the grayish red purple to dark gray colored andesite.
355			16		350'-355' Andesite makes up approximately 70% of the sample. Andesite is light purplish gray with plagioclase phenocrysts up to 7mm (0.28 inches). Andesite cuttings are angular; some contain conglomerate matrix that is attached to cuttings.
360			34		
365			44		
370			38		354' Change in drilling foam color from orangish pink to pinkish purple.
375			16		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
375					375'-506' Change to a 9" air-hammer bit.
380			6		
385			8		385'-506' Gradual increase in medium to dark gray andesite mottled with purplish gray. Dark gray andesite contains plagioclase and epidote (emerald green when wet) phenocrysts. Dark grayish purple to dark gray andesite becomes predominate color towards the bottom of the borehole.
390			11		
395			8		
400			9		
405			12		
410			9		
415			14		
420			12		
425			10		
430			15		
435			14		
440			11		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
440					
445			14		
450			9		
455			10		
460			11		
465			10		
470			13		
475			12		
480			12		
485			12		
490			10		
495			7		
500			13		
505			14		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
505					Total Depth = 506"
510					
515					
520					
525					
530					
535					
540					
545					
550					
555					
560					
565					
570					