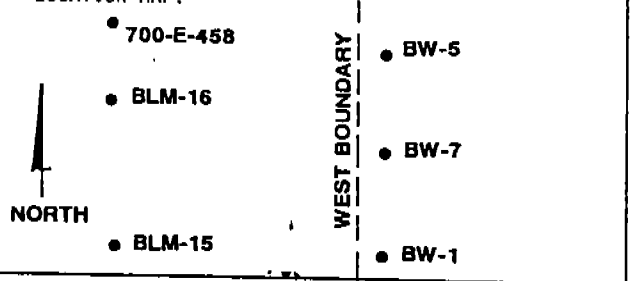
LITHOLOGIC LOG

LOCATION MAP:



NE 1/4 NE 1/4 SW 1/4 SW 1/4 S 27 T 20S R 3E

LOCATION DESCRIPTION:

SITE ID: NASA-WSTF LOCATION ID: 700-E-458

SITE COORDINATES (ft.):

N = 234304.94 E = 409922.66

GROUND ELEVATION (ft. MSL): 4717.77 (BC)

STATE: NEW MEXICO COUNTY: DOÑA ANA

DRILLING METHOD: Mud & Air-Foam Rotary

DRILLING CONTR.: Larjon Drilling Co.

DATE STARTED: 02/16/90 DATE COMPLETED: 03/12/90

FIELD REP.: R. Cooper

COMMENTS: Drill 0'-65' with 12 ¼" bit using mud rotary - reamed to 16" diameter to 69'. Air-foam rotary 69'-515'. (9 7/8" bit). Top of bedrock = 285'. Total Depth = 515'

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings 0'-50'	0'-285' Alluvium (Santa Fe Group): Light brown (5 YR 6/4) to light red (5 R 6/6) colored alluvium from clay and silt content. Cutting samples are multicolored due to different lithologies of alluvial clasts. Cutting size ranges from silt-size to 20 mm (0.8 inches); average size is 5 mm (0.2 inches). Cuttings shapes range from angular to rounded. Subrounded to rounded alluvial grains comprise up to 70% of each sample. Alluvium is an unconsolidated to well-cemented pebble to boulder polygenetic conglomerate. Alluvial clasts include limestone, dolomite, calcite, siltstone rhyolite, andesite, quartzite, quartz, granite and caliche. Comments: The light red coloring in the alluvium is due to the high percentage of Abo siltstone weathering to silt. From the surface to the alluvium/bedrock contact, rhyolite is the predominate clast of the total igneous fraction. Alluvium gets slightly harder approximately 15' above the alluvium/bedrock contact. Cuttings of conglomerate matrix are found in samples from 265' to 280' that resemble caliche. True caliche horizons are found in the upper 15' feet of the alluvium.
5			9		
10			9		
15			22		
20			21		
25			42		
30			9		0'-15' Caliche present.
					0'-25' Clay and silt-rich alluvium.
35			26		25'-45' Gravelly and silty sand.
40			6		
45			13		
50			31		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd) 50'-115'	
50					
55			28		
60			9		
65			19		
70			65'-70 no time recorded		
75			5		
80			4		80'-95' Reddish brown clay & silt.
85			5		
90			4		
95			7		95'-105' Gravelly sand.
100			7		
105			5		105'-110' Silty and sandy gravel.
110			6		110'-115' Gravelly sand.
115			11		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd) 115'-180'	
115					115'-130' Silty and sandy gravel.
120			5		120'-135' Reddish brown silt and clay.
125			6		
130			6		130'-135' Gravelly sand.
135			6		135'-145' Silty and sandy gravel.
140			6		
145			6		145'-155' Gravelly sand.
150			8		
155			5		155'-160' Sandy and silty gravel.
160			4		160'-175' Gravelly sand.
165			5		
170			6		
175			5		175'-180' Silty and sandy gravel.
180			5		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd) 180'-245'	
180					180'-190' Clay-rich sandy gravel.
185			3		
190			6		190'-255' Gravelly sand.
195			6		
200			5		
205			8		205'-285' Samples have less silt and are not the reddish brown color from silt or clay. Samples are fairly clean as compared to those from 0'-205'.
210			6		
215			9		
220			5		220'-285' Quartzite still present, but less than 10%.
225			9		
230			10		
235			10		
240			9		
245			9		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd) 245'-310'	
245					
250			9		
255			9		255'-265' Sandy gravel.
260			7		
265			5		265'-280' Cuttings of conglomerate matrix containing sand grains of limestone, siltstone, and various igneous clasts are found in samples; matrix resembles caliche.
270			14		
275			13		275'-280' Matrix makes up ≈ 30-40% of the cuttings.
280			12		
285			30		285'-500' Orejon Andesite: Grayish red purple (5 RP 4/2) to light gray porphyritic hornblende andesite containing ≤ 1 mm (<0.1 inch) phenocrysts of hornblende, biotite and plagioclase. Phenocrysts comprise approximately 25-40% of the rock. Fractures observed in cuttings are hairline to at least 4 mm in size and are calcite-filled.
290			11		
295			26		
300			24		300'-340' Calcite in cuttings ≈ 5%. Possible fractured zone.
305			12		
310			15		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd) 310'-375'	
310					
315			26		315'-320' Sample contains up-hole slough after setting for 2 days.
320			17		
325			25		
330			17		
335			16		
340			19		
345			21		
350			18		
355			24		
360			21		
365			15		
370			17		
375			10		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd) 375'-440'	
375					
380			10		
385			11		
390			9		
395			13		
400			14		
405			13		
410			17		
415			14		
420			15		
425			13		
430			11		
435			13		
440			10		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd) 440'-505'	
440					
445			8		
450			15		
455			11		
460			13		
465			9		
470			14		
475			4		
480			11		
485			46		
490			17		
495			19		
500			26		500'-515' <u>Orejon Andesite(?)</u>: Dark reddish brown (10 R 3/4) porphyritic andesite (?) containing phenocrysts of hornblende, biotite, phlogopite, plagioclase (?), sanidine (?), and quartz (?).
505			37		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd) 505'-515'	
505					
510			30		
515			16		Total Depth = 515'
520					
525					
530					
535					
540					
545					
550					
555					
560					
565					
570					