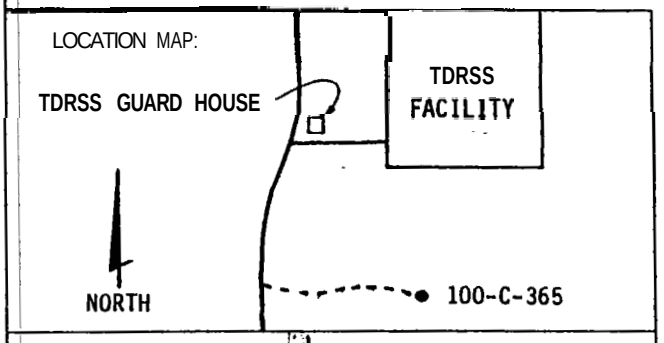
LITHOLOGIC LOG

LOCATION MAP:



NW 1/4 SW 1/4 SE 1/4 NW 1/4 S 11 T 21S R 3E

SITE ID: NASA-WSTF LOCATION ID: 100-C-365

SITE COORDINATES (ft.):

N 220524.21 E 414724.78

GROUND ELEVATION (ft. MSL): 4816.82 (B.C.)

STATE: NEW MEXICO COUNTY: DOÑA ANA

DRILLING METHOD: Mud Rotary (0'-75'); air-foam rotary (75'-TD)

DRILLING CONTR.: Larion Drilling Co.

DATE STARTED: 07/17/89 DATE COMPLETED: 09/18/89

FIELD REP.: Jack Kirby

COMMENTS: 12 1/4" pilot hole reamed to 16". 0'-75'. 9 7/8" borehole 75'-241'. 9" borehole 241'-240'. Volcanic bedrock at 233'. Total depth = 400'

LOCATION DESCRIPTION:

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
			0'-75' times recorded manually sample	Cuttings 0'-400 grab every 5'	0'-230' Alluvium (Santa Fe Group): White (N9) to light brown (5 YR 5/6) to black (N1), cuttings range in size from <0.1 inch to 0.4 inch, are rounded to angular, and poorly sorted. Unconsolidated to semi consolidated, polygenetic conglomerate, Caliche grains and coatings common. Cuttings lithologies: grayish (N7 to N3) limestones, yellowish-gray (5 Y 8/1) caliche, pale brown (10 YR 6/21 clay, transparent to very light gray (N8) quartz, white (N9) to moderate reddish orange (10 R 6/6) rhyolite (iron stains common), moderate brown (5 YR 4/4) sandstone, and grayish-red (10 R 4/2) andesite.
5			20		
10			15		
15			15		15'-25' Cutting size ranges from <0.1 inch to 1.0 inch. Average size = 0.3 inch.
20			18		
25			25		25'-70' Maximum cutting size = 0.5 inch.
30			18		
35			12		
40			16		
45			13		
50			11		

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Depth	Visual X	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings 0'-400 (cont'd)	
50			11		
55			14		
60			23		
65			13		
70			22		
75			25		75'-229' Maximum cutting size is 0.3 inch. Average cutting size is 0.1 inch.
80			Begin Drillograph 4		78' Switch from 16" mud rotary drilling to 9 7/8" air-foam rotary drill
85			4		
90			4		
95			3		
100			5		100'-105' Caliche coatings common.
105			6		
110			5		
115			6		

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Depth	Visual X	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings 0'-400 (cont'd)	
115			6		
120			6		
125			6		
130			6		
135			7		
140			8		140'-150' Clay zone. Weathered grains common. Slight increase in drilling times.
145			7		
150			6		
155			4		
160			7		
165			5		
170			4		
175			4		
180			5		

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings 0'-400' (cont'd)	
180			5		
185			9		
190			10		
195			12		
200			13		
205			18		
210			17		
215			12		
220			13		
225			19		
230			26		
235			56		
240			72		
245			41		

230' Small (approx. 0.3 inch) conglomerate cuttings. Limestone and siltstone fragments cemented in a caliche matrix.

232' Cuttings consist of approx. 40% andesite.

233'-400' Orejon Andesite: Dusky red purple (5 RP 2/21 to dusky blue green (5 BG 3/2); drill cuttings are angular to subangular, <0.1 inch to 0.25 inch (air-hamner bit results in much smaller cutting size relative to tri-cone drilling). The lithology is a porphyritic andesite exhibiting some propylitic alteration. Subhedral plagioclase phenocrysts <0.1 inch are common. Some sample intervals exhibit hydrothermal alteration resulting in a purple to moderate red (5 R 5/4) color change.

240.5' Switch from tri-cone bit to air-hamner bit (reduction in cutting size due to hammer bit).

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings 0'-400' (cont'd)	
245			41		
250			25		
255			22		
260			2		
265			27		
270			23		
275			27		
280			30		
285			34		
290			25		289 -290 Drilling fluids thin.
295			30		
300			29		
305			22		
310			22		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings 0'-400' (cont'd)	
310			22		
315			23		
320			23		
325			24		
330			22		
335			26		
340			24		
345			24		
350			33		349'-350' Drilling fluids thin.
355			31		
360			28		
365			26		
370			26		
375			26		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings 0'-400' (cont'd)	
375			26		
380			26		380'-381' Hydrothermally altered zone. Cutting color change to moderate red (5 R 5/4).
					382 Bit chatter
385			23		
390			26		392 -400 Significant increase in drilling times due to an altered andesite zone.
395			15		
400			10		TD = 400
405					
410					
415					
420					
425					
430					
435					
440					