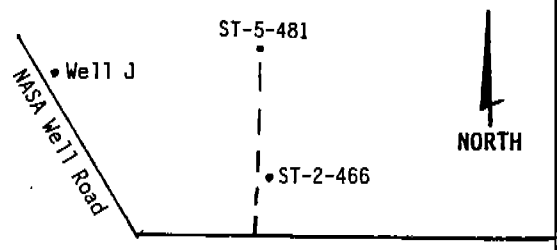
LITHOLOGIC LOG

LOCATION MAP:



*not to scale

SE 1/4 SE 1/4 SE 1/4 NW 1/4 S32 T20S R3E

SITE ID: NASA-WSTF LOCATION ID: ST-5-481

SITE COORDINATES (ft.):

N 230925.44 E 398587.74

GROUND ELEVATION (ft. MSL): 4459.24' (BC)

STATE: NEW MEXICO COUNTY: DOÑA ANA

DRILLING METHOD: Mud Rotary/Air Foam Rotary

DRILLING CONTR.: Larjon Drilling Co

DATE STARTED: 04/22/92 DATE COMPLETED: 05/06/92

FIELD REP.: D. Menzie

COMMENTS: 0'-85' Mud Rotary. 12¼" mill tooth bit. Ream to 16" 0'-85'. Air/foam from 85'-514'. 9 7/8" tricone button bit. Volcanic-rich alluvium at 490'. Total depth by drillograph is 514'.

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
			Timed by driller	Cuttings Grab sample every 5' 0'-514'	0'-490' Alluvium (Santa Fe Group): Unwashed sample color varies from moderate brown (5 YR 3/4) to light gray (N8). Washed samples are dark gray to multicolored. Cuttings range in size from less than 0.1" (clay and silt) to 1.0". Average cutting size is 0.2 inches. Cuttings are subrounded to angular. Subrounded cuttings are formational grains and comprise 20%-60% of samples. Subangular and angular cuttings include blocky formation clasts and chips broken during drilling. The alluvium is an unconsolidated to moderately consolidated, poorly sorted, pebble to boulder, polygenetic conglomerate. Intermittent clay and caliche intervals are noted in the log. Lithologies include light gray (N8) to grayish black (N1) limestone, white (N9) iron-stained rhyolite, brownish black (5 YR 2/1) sandstone, moderate reddish brown (10 R 4/6) siltstone, light brownish gray (5 YR 6/1) andesite, white (N9) to light gray (N7) quartz, and light gray (N7) caliche. Minor amounts of tuff, granite, and quartzite occur. Volcanic andesite increases in abundance with depth until alluvium becomes volcanic-rich (≥ 50% of sample) at 490 ft. below ground surface.
5			14		
10			43		
15			15		
20			27		
25			31		
30			15		
35			18		
40			28		
45			14		
50			21		

0'-85' Mud rotary.

0'-15' Caliche content 10%.

0'-30' Clay-rich interval, clay content 60%-90%.

20'-25' Caliche content 20%.

30'-35' Clay content decreases to 10%.

30'-40' Caliche content 10%.

35'-50' Clay-rich interval, clay content 70%-80%.

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
50			21		50'-65' Caliche content 10%.
55			20		
60			16		
65			9		
70			14		70'-300' Clay-rich interval, clay content 10%-80%.
75			15		
80			20		
85			27 Timed by drillograph		85'-514' Air/foam Rotary.
90			4		90'-190' Caliche content 10%-20%.
95			4		
100			5		
105			4		
110			5		
115			5		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
115			5		
120			4		120'-130' Cuttings are sand sized.
125			13		
130			18		130'-160' Cuttings range from .05" to .5" and average .25".
135			5		
140			5		
145			4		
150			4		
155			5		
160			9		160'-190' Cuttings are very uniform in size (.20").
165			6		
170			4		
175			5		
180			9		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
180			9		
185			4		
190			5		190'-195' Cuttings are fine sand size.
195			3		195'-205' Caliche content 10%.
200			7		200'-225' Cuttings are uniform and average .10"-.25" in size.
205			11		
210			5		210'-280' Caliche content 10%.
215			9		
220			4		
225			5		
230			5		
235			5		
240			10		240'-245' Cuttings range from .10" to .5" in diameter and are angular to rounded.
245			4		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
245			4		
250			5		
255			5		
260			4		
265			11		
270			3		
275			4		
280			3		
285			4		
290			5		
295			4		
300			3		
305			4		
310			4		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
310			4		
315			5		
320			3		
325			3		325'-340' Clay content 10%.
330			6		
335			5		
340			4		340'-345' Caliche content 10%.
345			3		
350			6		350'-360' Clay content 10%.
355			5		355' Starting to see andesite in equal proportion to rhyolite.
360			4		
365			5		365'-380' Caliche content 10%.
370			4		
375			6		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
375			6		
380			5		
385			6		
390			8		
395			4		
400			5		
405			4		
410			7		
415			8		
420			3		
425			5		
430			5		
435			6		
440			4		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
440			4		
445			5		
450			5		
455			4		
460			5		460'-465' Caliche content 10%. 460'-475' Clay content 10%-40%.
465			4		
470			5		
475			5		
480			5		
485			5		
490			5		490'-514' <u>Volcanic-rich Alluvium (Santa Fe Group)</u>: Samples range in color from dark gray to brownish gray. Cuttings range in size from 0.1 inches to 0.4 inches and average 0.2 inches in size. Cuttings are subrounded to angular and poorly sorted. The volcanic-rich alluvium is a moderately consolidated, pebble to boulder, polygenetic conglomerate. Predominant cutting lithologies are dark brownish red (10 R 3/4) to brownish black (5 YR 2/1) andesite and brownish gray (5 YR 4/1) to dark brownish red (10 R 3/4) tuff. Minor amounts of limestone, siltstone, rhyolite, and caliche occur.
495			4		
500			3		
505			5		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
505			5		
510			4		
515			4		TD = 514' by drillograph.
520					
525					
530					
535					
540					
545					
550					
555					
560					
565					
570					