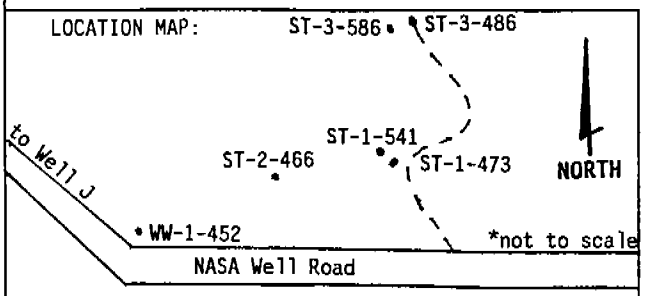
LITHOLOGIC LOG

LOCATION MAP:



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

SITE ID: NASA-WSTF LOCATION ID: ST-3-586

SITE COORDINATES (ft.):

N 230882.58 E 400613.87

GROUND ELEVATION (ft. MSL): 4494.59' (BC)

STATE: NEW MEXICO COUNTY: DOÑA ANA

DRILLING METHOD: Mud Rotary/Air Foam Rotary

DRILLING CONTR.: Larjon Drilling Co

DATE STARTED: 03/24/92 DATE COMPLETED: 04/10/92

FIELD REP.: D. Menzie

COMMENTS: 0'-80' mud rotary with 12¼" mill tooth bit. 0'-80' ream to 16" and set 79.5' surface casing (10"ID). Drill air/foam rotary with 9 7/8" button bit from 80'-615'. Total Depth = 615' by drillograph.

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
5			Timed by driller 0'-80' 7	Cuttings grab sample, every 5' 0'-615'	0'-~~615'~~ 600' Alluvium (Santa Fe Group): Unwashed samples range in color from moderate brown (5 YR 3/4) to light gray (N8). Washed samples are dark gray to multicolored. Samples are comprised of cuttings which range in size from 1.0 inch to much less than 0.1 inches (clay and silt size). Average cutting size is 0.1 to 0.2 inches in size. Cuttings are subrounded to angular. Subrounded cuttings are formational grains and comprise 20%-60% of individual 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. Cuttings representing lithologies within the alluvium are dark gray (N3) to light olive gray (5 Y 5/2) micritic 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. Andesite increases in abundance with depth until alluvium becomes volcanic-rich (≥ 50% of sample) at 500 ft. below ground surface.
10			16		
15			12		
20			14		
25			21		
30			17		
35			17		
40			20		
45			9		
50			15		

0'-80' Mud rotary.

0'-5' Clay-rich interval, clay content 50%. Caliche content 10%.

5'-35' Cuttings are subrounded to subangular. They range in size from 0.1 inches to 1.0 inches and average 0.3 inches in diameter.

10'-35' Clay-rich interval, clay content 10%-70%.

35'-50' Cuttings size decreases to average of 0.2 inches. Range in size from less than 0.1 to 0.5 inches.

40'-50' Caliche content 10%-20%.

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description	
				Cuttings (cont'd)		
50			15		50'-75'	Cuttings size increases to 0.5 inches average, range 0.1 to 0.9 subangular to subrounded.
55			20		55'-75'	Clay-rich interval, clay content 20%-60%.
60			21		60'-80'	Caliche content 10%-20%.
65			20			
70			31		70'-75'	Decrease in drill times.
75			16		75'-80'	Cuttings size decreases to 0.1 inches average. Size ranges from less than 0.1 to 0.4 inches.
80			40 Timed by drillograph		80'-95'	Partly to mostly grout, visual % lithology is for non-grout cuttings.
					80'-115'	Cutting size increases to average of 0.3 inches.
85			11		80'-260'	Decrease in drill times.
90			9		90'-160'	Clay-rich interval, clay content 10%-30%.
95			6		95'-100'	Caliche content 10%.
100			8			
105			8			
110			10			
115			8			

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
115			8		115'-260' Cuttings size decrease to average 0.1 inches.
120			5		
125			9		125'-145' Caliche content 10%-20%.
130			7		
135			7		
140			8		
145			5		
150			6		
155			7		155'-180' Caliche content 10%-20%.
160			7		
165			8		165'-180' Clay-rich interval, clay content 10%.
170			5		
175			6		
180			5		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
180			5		
185			6		185'-235' Clay content 10%. 185'-270' Caliche content 10%-20%.
190			5		
195			4		
200			6		
205			6		
210			6		
215			6		
220			4		
225			6		
230			7		
235			7		
240			5		
245			6		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
245			6		
250			8		250'-260' Clay content 10%.
255			5		
260			6		260'-300' Cuttings size increases to average of 0.2 inches. 260'-265' Increase in drill times.
265			14		
270			4		
275			6		
280			5		
285			7		
290			4		290'-330' Caliche content 10%-20%.
295			3		295'-300' Clay content 10%.
300			5		300'-305' Increase in drill times. 300'-505' Cuttings size decreases to average of 0.1 inches.
305			12		
310			8		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
310			8		310'-315' Clay content 10%.
315			9		
320			9		320'-325' Clay content 10%.
325			6		
330			8		
335			6		
340			4		
345			6		345'-355' Caliche content 10%.
350			8		
355			8		
360			6		360'-380' Caliche content 10%.
365			8		
370			7		
375			7		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
375			7		
380			6		
385			9		
390			6		
395			5		
400			7		
405			8		
410			9		
415			7		415'-420' Caliche content 10%.
420			8		
425			7		
430			7		
435			7		
440			8		

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
440			8		
445			5		
450			4		450'-465' Caliche content 10%.
455			5		
460			7		
465			4		
470			4		
475			5		
480			6		
485			5		
490			5		
495			5		
500			5		500'-~~615'~~ 600' Volcanic-rich Alluvium (Santa Fe Group): Samples range in color from brownish-gray (5 YR 4/1) to moderate reddish brown (10 R 4/6). Cuttings range in size from 0.1 inches to 0.4 inches and average 0.2 inches in size. Cuttings are sub-
505			4		

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	rounded to angular and poorly sorted. The volcanic-rich alluvium is a moderately consolidated, pebble to boulder, polygenetic conglomerate. Predominant cutting clast 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. Additional lithologies include limestone, siltstone, rhyolite and caliche.
505			4		
510			4		
515			3		505'-615' Cuttings size increases to 0.2 inches.
520			5		
525			4		525'-530' Caliche content 10%.
530			5		
535			5		
540			3		
545			4		
550			3		
555			6		
560			8		
565			4		
570			6		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings (cont'd)	
570			6		
575			7		
580			7		
585			6		
590			11		
595			5		
600			6		600'-615' TUFF (CUEVA TUFF?) see addendum to file
605			6		
610			9		610'-615' Increase in drill time.
615			20		Total Depth = 615' by drillograph.
620					
625					
630					
635					