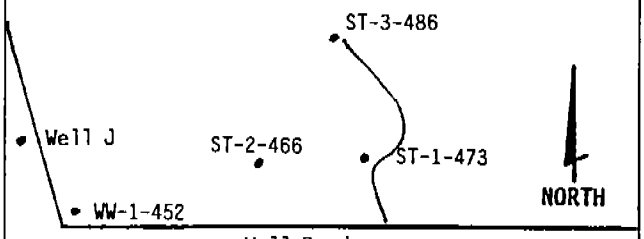
LITHOLOGIC LOG

LOCATION MAP:



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

SITE ID: NASA-WSTF LOCATION ID: ST-3-486

SITE COORDINATES (ft.):

N 230899.085 E 400668.007

GROUND ELEVATION (ft. MSL): 4495.98

STATE: NEW MEXICO COUNTY: DOÑA ANA

DRILLING METHOD: Mud Rotary/Air Foam Rotary

DRILLING CONTR.: Larjon Drilling Co.

DATE STARTED: 07/18/91 DATE COMPLETED: 08/08/91

FIELD REP.: D. Menzie, J. Chapman-Fahey, M. Canavan

COMMENTS: Mud-rotary 0'-60' (12¼" mill tooth), ream to 16"; set 10" x 58' steel surface casing. Air-foam rotary 60'-510' (9 7/8" mill tooth). Total Depth = 510'. Bedrock not encountered.

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
			Timed by driller	Cuttings	0'-58' Mud rotary drilling.
5			20		0'-510' Alluvium (Santa Fe Group): Color varies from light gray (N8) to grayish black (N1) and from pinkish gray (5 YR 8/1) to moderate reddish orange (10 R 6/6). Cuttings range in size from less than 0.1" to greater than 0.9", average 0.1" to 0.2", and are subrounded to angular. The unit is a poorly to moderately sorted polygenetic sandy, pebble to boulder conglomerate. Lithologies include light gray (N8) to grayish black (N1) limestone, moderate yellowish-brown (10 YR 5/4) to grayish red (10 R 4/2) siltstone, pinkish gray (5 YR 8/1) rhyolite, moderate reddish orange (10 R 6/6) caliche, and clay. Clay-rich zones occur between 5' and 10' and between 30' and 35', where clay constitutes 50% to 60% of the sample. Minor constituents include quartzite, granite and porphyritic hornblende andesite. The andesite increases with depth.
10			20		
15			15		
20			21		
25			45		0'-10' Clay-rich interval; clay content 50% - 60%.
30			17		0'-10' Cuttings predominantly subrounded to angular. Size ranges from much less than 0.1" to 0.3". Average size is less than 0.1".
35			16		10'-30' Increase in cutting size to an average of 0.3" to 0.4".
40			29		30'-45' Decrease in cutting size to 0.1" to 0.2".
45			25		35'-45' Clay-rich interval; clay content 50%-60%.
50			17		45'-50' Increase in cutting size from 0.1" to 0.9". Averaging 0.5".

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings cont'd	
50					50'-290' Cutting size ranges from 0.1" to 0.3". Averaging 0.25". Grains are predominantly subrounded to subangular.
55			42		
60			Timed by drillograph		58'-510' Switch to air-foam rotary drilling. 60'-85' Clay content ≈ 10%.
65			3		
70			5		
75			3		
80			5		
85			4		
90			4		90'-110' Clay content ≈ 20%.
95			3		
100			4		
105			3		
110			3		
115			4		115' Clay content ≈ 10%.

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings cont'd	
115			4		
120			6		
125			4		
130			6		
135			3		
140			5		
145			4		
150			5		
155			5		
160			5		
165			4		
170			3		
175			3		
180			3.5		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings cont'd	
180			3.5		
185			3.5		
190			6		
195			3		
200			3		200' Clay content ≈ 10%.
205			2		
210			3		
215			5		
220			4		
225			4		
230			4		
235			2		
240			4		
245			5		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings cont'd	
245			5		
250			3		
255			9		
260			4		
265			6		
270			3		
275			3		
280			7		
285			3		
290			5		
295			4		295'-360' Cutting size decreases to an average of 0.1". Cuttings are predominantly subangular to subrounded.
300			11		
305			6		
310			9		

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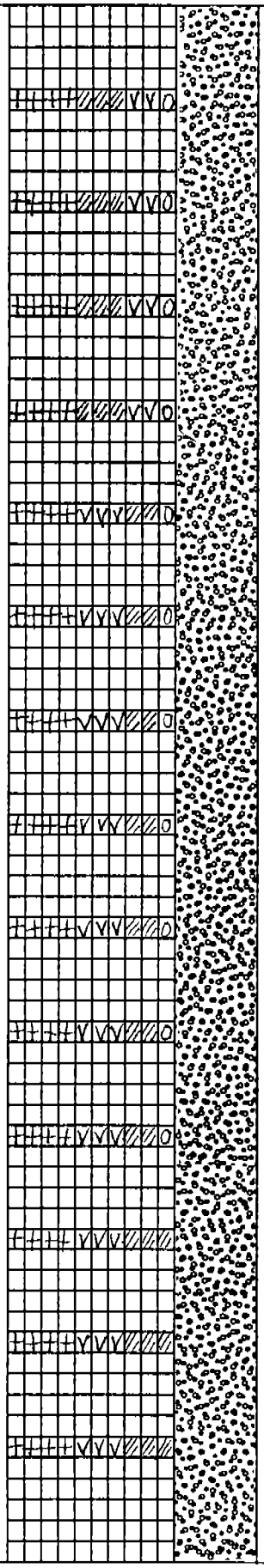
Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings cont'd	
310			9		
315			5		
320			5		
325			8		
330			12		
335			8		
340			4		
345			3		
350			5		
355			5		
360			9		360'-385' Cuttings range in size from 0.1" to 0.3"; average 0.2" and are predominantly subrounded to subangular.
365			5		
370			6		
375			5		

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings cont'd	
375			5		
380			4		
385			4		385'-390' Decrease in cutting size to an average of 0.1".
390			6		390'-430' Increase in cutting size to an average of 0.2". Cuttings are predominantly subangular to angular.
395			5		
400			6		
405			4		
410			5		
415			9		
420			4		
425			9		
430			5		430'-510' Decrease in cutting size. Size ranges from much less than 0.1" to 0.3", averaging 0.1". Cuttings are predominantly subangular to angular.
435			4		
440			6		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
				Cuttings cont'd	
440			6		
445			4		
450			5		
455			4		
460			22		460'-465' Increase in drill time.
465			5		
470			6		
475			3		
480			4		
485			4		
490			3		
495			4		
500			3		
505			2		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
505			2	Cuttings cont'd	505'-510' Increase in andesite in cuttings.
510			4		TD = 510' - (drillograph) TD = 509' - (geophysical logs) TD = 506.75' - (sounder)
515					
520					
525					
530					
535					
540					
545					
550					
555					
560					
565					
570					