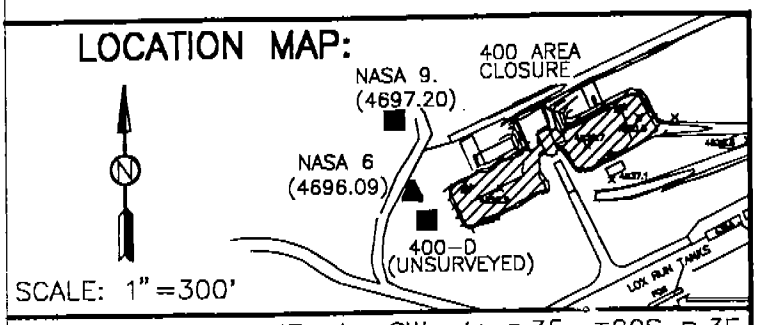
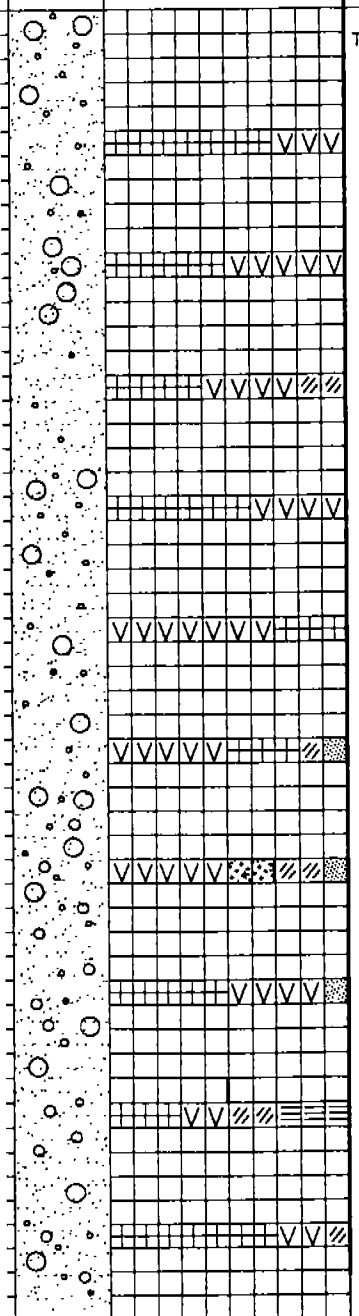
LITHOLOGIC LOG

LOCATION MAP:



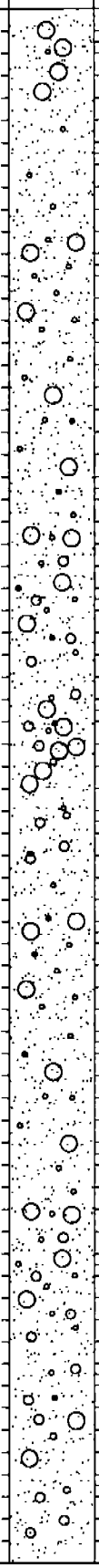
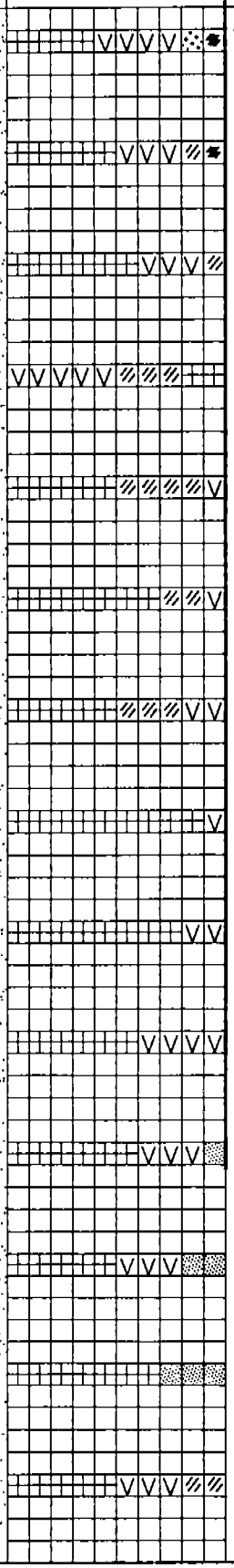
___1/4 ___1/4 NE 1/4 SW 1/4 S 35 T 20S R 3E

SITE ID: NASA-WSTF LOCATION ID: 400-D
SITE COORDINATES (FT.):
N _____ E _____
GROUND ELEVATION (FT. MSL): _____
STATE: NEW MEXICO COUNTY: DONA ANA
DRILLING METHOD: MUD ROTARY/AIR FOAM ROTARY
DRILLING CONTR: LARJON DRILLING CO
DATE STARTED: 11-7-94
FIELD REP.: M JACOBS
COMMENTS: 8 1/2" TRICONE W/MUD 0-161', 4 1/2" BUTTON/TRICONE W/FOAM 161-460', 5" STEEL CASING TO 170', TOTAL DEPTH=460'.

DEPTH	LITH	VISUAL %	DRILLING TIME SCALE: MIN.	SAMPLE TYPE AND INTERVAL	LITHOLOGIC DESCRIPTION
5, 10, 15, 20, 25, 30, 35, 40, 45, 50			TIMED BY DRILLER	CUTTINGS GRAB SAMPLE EVERY 5'.	0-145' ALLUVIUM (SANTA FE GROUP): CUTTING SAMPLES CONSIST OF MULTICOLORED CLASTS WITH CLAY-RICH INTERVALS COLORED LIGHT BROWN (5 YR 6/4) TO MODERATE BROWN (5 YR 4/4). CUTTINGS RANGE IN SIZE FROM MUCH LESS THAN 0.1 INCHES (CLAY AND SILT SIZE) TO 1.3 INCHES, AND AVERAGE 0.1 TO 0.2 INCHES. CUTTINGS ARE SUBROUNDED TO SUBANGULAR. THE ALLUVIUM IS AN UNCONSOLIDATED TO MODERATELY CONSOLIDATED, POORLY SORTED, PEBBLE TO BOULDER, POLYGENETIC CONGLOMERATE. INTERMITTENT CLAY AND CALICHE-RICH INTERVALS ARE NOTED IN THE LOG. CUTTING CLASTS REPRESENTING VARIOUS LITHOLOGIES OCCURRING IN THE ALLUVIUM ARE LIGHT GRAY (N7) TO GRAYISH-BLACK (N2) LIMESTONE, WHITE (N9) IRON-STAINED RHYOLITE, MODERATE REDDISH BROWN (10 R 4/6) TO DUSKY RED (5 R 3/4) AND GREENISH-GRAY (5 GY 6/1) SILTSTONE, WHITE (N9) TO LIGHT GRAY (N7) QUARTZ, GRAYISH PINK (5 R 8/2) TO MODERATE PINK (5 R 7/4) CALICHE, MEDIUM LIGHT GRAY (N6) TO LIGHT BROWNISH GRAY (5 YR 6/1) TUFF, BLACKISH RED (5 R 2/2) ANDESITE, DUSKY BROWN (5 YR 2/2) SANDSTONE AND MINOR AMOUNTS OF CHERT. CLASTS IN THE UPPER 20 FEET ARE PREDOMINANTLY LIMESTONE. INCREASE IN VOLCANIC AND IGNEOUS INTRUSIVE GRANITIC ROCKS, PREDOMINANTLY A POORLY SORTED SANDY GRAVEL. 35'-40' GRAVEL HORIZONS, CLASTS GENERALLY 0.5 TO 1 INCH IN DIAMETER, PREDOMINANTLY LIMESTONE, WITH MINOR VOLCANIC ROCKS AND SANDSTONE. 40'-50' GRAVELLY SAND, MORE CONSOLIDATED, MATRIX SUPPORTED GRAVEL WITHIN A SILTY/SANDY MATRIX.

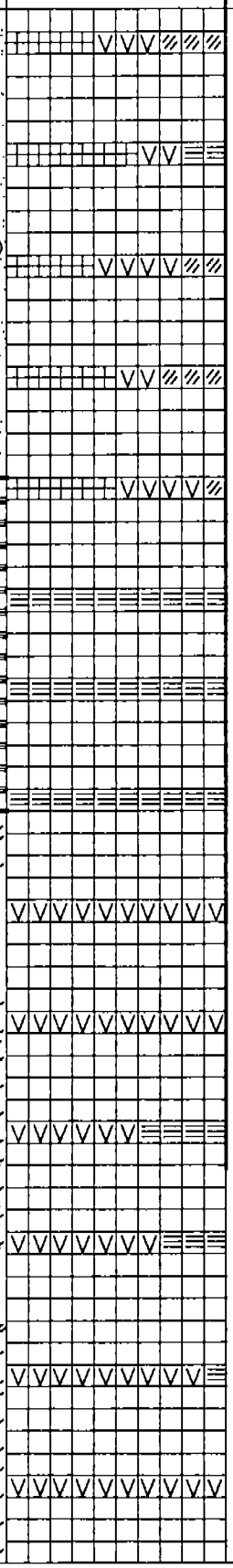
LITHOLOGIC LOG
(CONTINUED)

LOCATION ID: 400-D

DEPTH	LITH	VISUAL %	DRILLING TIME SCALE: MIN.	SAMPLE TYPE AND INTERVAL	LITHOLOGIC DESCRIPTION (LITH., GRAIN SIZE PROPORTIONS, WET COLOR, RNDG., SRTG., CONSOL., DIST. FEATURES)
55			TIMED BY DRILLER	CUTTINGS GRAB SAMPLE EVERY 5'.	50'–95' GRAVEL, SAND, AND CLAY, CLASTS PREDOMINANTLY LIMESTONE, AND GENERALLY SUBROUNDED, POORLY SORTED, GRAVEL IS WELL GRADED, AND UNCONSOLIDATED.
60					
65					
70					
75					
80					
85					
90					
95					95'–100' GRAVEL CLASTS DECREASE IN SIZE TO 1/8 TO 1/4 INCHES, WELL SORTED, VOLCANIC FRACTION INCREASES TO 50 PERCENT, CLASTS ARE GENERALLY RHYOLITIC IN COMPOSITION.
100					
105					105'–145' WELL CONSOLIDATED SANDY GRAVEL, LITHIC FRAGMENTS ARE COARSE SAND SIZE, CLASTS ANGULAR, AND COMPRISE SUBEQUAL AMOUNTS OF LIMESTONE, RHYOLITE AND ANDESITE.
110					
115					
120					

LITHOLOGIC LOG
(CONTINUED)

LOCATION ID: 400-D

DEPTH	LITH	VISUAL %	DRILLING TIME SCALE: MIN.	SAMPLE TYPE AND INTERVAL	LITHOLOGIC DESCRIPTION (LITH., GRAIN SIZE PROPORTIONS, WET COLOR,
125			TIMED BY DRILLER	CUTTINGS GRAB SAMPLE EVERY 5'.	
130					
135					
140					
145					145'–161' MUDSTONE: RELATIVELY PURE MONTMORILLINITE CLAY, BLUISH GRAY, PLASTIC, STICKY.
150					
155					
160					161'–460' ANDESITE: GENERALLY GRAYISH PURPLE (5 P 4/2), MOSTLY APHANITIC FELDSPAR GROUNDMASS WITH 10 – 15 PERCENT MAFIC PHENOCRYSTS PARTIALLY ALTERED TO FE–OXIDES, TRACE EPIDOTE, AND TRACE CHLORITE, INFERRED AS OREJON ANDESITE.
165					165'–170' MICROPORPHYRITIC, ALTERED PHENOCRYSTS OF HORNBLENDE AND PLAGIOCLASE.
170					165'–170' MICROPORPHYRITIC, .05 – 0.25 MM SUBHEDRAL PHENOCRYSTS OF FELDSPARS AND OTHER MAFIC MINERALS, TRACE CHLORITE.
175					
180					
185					185'–205' GRAYISH RED PURPLE (5RP 4/2), MICROPORPHYRITIC, 0.1 – 0.5 MM SUBHEDRAL TO ANHEDRAL PHENOCRYSTS OF FELDSPAR AND MAFICS (HORNBLENDE) IN A VERY FINELY MICROCRYSTALLINE TO APHANITIC MATRIX.
190					

LITHOLOGIC LOG
(CONTINUED)

LOCATION ID: 400-D

DEPTH	LITH	VISUAL %	DRILLING TIME SCALE: MIN.	SAMPLE TYPE AND INTERVAL	LITHOLOGIC DESCRIPTION (LITH., GRAIN SIZE PROPORTIONS, WET COLOR, RNDG., SRTG., CONSOL., DIST. FEATURES)
195			TIMED BY DRILLER	CUTTINGS GRAB SAMPLE EVERY 5'.	190'–200' INTERVAL HAS 5 PERCENT FRACTURE FILL BY EUHEDRAL TO ANHEDRAL CALCITE, FRACTURES 1–2 MM THICK, MODERATE DUSKY RED (5R 4/6 TO 5R 3/4) IRON OXIDE COATS OPEN FRACTURES AND IS ASSOCIATED WITH THE WEATHERING OF MAFIC PHENOCRYSTS AND MATRIX, TRACE QUARTZ FRACTURE FILL WITH 0.25 – 0.5 MM EUHEDRAL CRYSTALS.
200					
205					205'–220' GRAYISH RED (5R 4/2) TO GRAYISH RED PURPLE (5 RP 4/2), 10 – 15 PERCENT 0.1 – 0.5 MM SUBHEDRAL PHENOCRYSTS OF FELDSPAR AND MAFICS IN A VERY FINELY CRYSTALLINE TO APHANITIC MATRIX, DARKER MATRIX APPEARS TO HAVE ABUNDANT IRON OXIDES FROM WEATHERING OF MAFICS, TRACE FRACTURE FILL CALCITE.
210					
215					
220					
225					225'–235' 5 PERCENT FRACTURE FILL CALCITE TO 3 MM, STAINED WITH IRON OXIDES (DARK YELLOW ORANGE TO MODERATE RED,) TRACE CHLORITE.
230					
235					
240					
245					245'–280' GRAYISH PURPLE (5P 4/2) TO GRAYISH RED PURPLE (5RP 4/2) MICROPORPHYRITIC, 0.1 – 0.25 ANHEDRAL TO SUBHEDRAL PHENOCRYSTS OF FELDSPAR AND MAFICS IN A VERY FINELY CRYSTALLINE APHANITIC GROUNDMASS, REDDISH–BROWNISH IRON OXIDE STAINING PRESENT IN GROUNDMASS FROM ALTERATION OF MAFICS, TRACE CHLORITE.
250					
255					
260					

LITHOLOGIC LOG
(CONTINUED)

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DEPTH	LITH	VISUAL %	DRILLING TIME SCALE: MIN.	SAMPLE TYPE AND INTERVAL	LITHOLOGIC DESCRIPTION (LITH., GRAIN SIZE PROPORTIONS, WET COLOR, RNDG., SRTG., CONSOL., DIST. FEATURES)
265			TIMED BY DRILLER	CUTTINGS GRAB SAMPLE EVERY 5'.	
270					
275					
280					280'–290' GRAYISH RED (5R 4/2) TO GRAYISH RED PURPLE (5P 4/2), MICROPORPHYRITIC, (10–50 PERCENT 0.1 – 0.25 MM) ANHEDRAL TO SUBHEDRAL PHENOCRYSTS OF FELDSPAR AND SOME MAFICS IN A VERY FINE GRAINED APHANITIC MATRIX, ABUNDANT IRON OXIDE STAINING IN GROUNDMASS FROM ALTERATION OF MAFICS, 1–2 PERCENT FRACTURE FILL CALCITE, TRACE CHLORITE TO 5 PERCENT.
285					
290					290'–330' DARK GRAY (N3) MICROPORPHYRITIC, 0.1 – 0.5 MM ANHEDRAL TO SUBHEDRAL PHENOCRYSTS OF FELDSPAR AND SOME MAFICS INCLUDING HORNBLENDE, APHANITIC MATRIX, REDUCED IRON OXIDE STAINING, SOME DISSEMINATED IRON OXIDES OCCUR IN THE MATRIX AND COATING OCCASSIONAL PHENOCRYSTS, TRACE FRACTURE FILL CALCITE.
295					
300					
305					
310					
315					
320					
325					
330					

LITHOLOGIC LOG
(CONTINUED)

LOCATION ID: 400-D

DEPTH	LITH	VISUAL %	DRILLING TIME SCALE: MIN.	SAMPLE TYPE AND INTERVAL	LITHOLOGIC DESCRIPTION (LITH., GRAIN SIZE PROPORTIONS, WET COLOR, RNDG., SRTG., CONSOL., DIST. FEATURES)
335		V V V V V V V V V V	TIMED BY DRILLER	CUTTINGS GRAB SAMPLE EVERY 5'.	
340		V V V V V V V V V V			340'–360' 70 PERCENT COMPRISES GRAYISH RED PURPLE (5RP 4/2). MICROPORPHYRITIC, 0.1 – 0.5 MM SUBHEDRAL TO ANHEDRAL PHENOCRYSTS OF WHITE AND PALE GREEN FELDSPAR AND SOME MAFICS, APHANITIC MATRIX, IRON OXIDES FROM ALTERATION OF MATRICS ABUNDANT IN MATRIX, ABUNDANT DISSEMINATED PYRITE. 30 PERCENT COMPRISES GREENISH GRAY (5 6Y 6/1) APHANITIC TO MICROPORPHYRITIC, 0.1 – 0.25 MM ANHEDRAL TO SUBHEDRAL FELDSPAR PHENOCRYSTS WITH TRACE 0.1 MM MAFIC MINERALS INCLUDING BIOTITE AND CHLORITE, 2 PERCENT CALCITE FRACTURE FILL, SOME IRON OXIDE STAINING ON FRACTURES.
345		V V V V V V V V V O			
350		V V V V V V V V V V			
355		V V V V V V V V V V			
360		V V V V V V V V V V			
365		V V V V V V V V V V			
370		V V V V V V V V V V			370'–375' BLACKISH RED (5R 2/2) TO GRAYISH RED PURPLE (5RP 4/2) MICROPORPHYRITIC.
375		V V V V V V V V V V			375'–460' 30 – 40 PERCENT 0.1 – 0.25 MM ANHEDRAL TO SUBHEDRAL PLAGIOCLASE PHENOCRYSTS INCORPORATED IN A FELDSPAR–MAFIC GROUNDMASS.
380		V V V V V V V V V V			
385		V V V V V V V V V V			
390		V V V V V V V V V V			
395		V V V V V V V V V V			
400		V V V V V V V V V V			

LITHOLOGIC LOG
(CONTINUED)

LOCATION ID: 400-D

DEPTH	VISUAL %	DRILLING TIME SCALE: MIN.	SAMPLE TYPE AND INTERVAL	LITHOLOGIC DESCRIPTION (LITH., GRAIN SIZE PROPORTIONS, WET COLOR, RNDG., SRTG., CONSOL., DIST. FEATURES)
405		TIMED BY DRILLER	CUTTINGS GRAB SAMPLE EVERY 5'.	
410				
415				
420				
425				
430				
435				
440				
445				
450				
455				
460				TOTAL DEPTH (TD) AT 460 FEET.
465				
470				