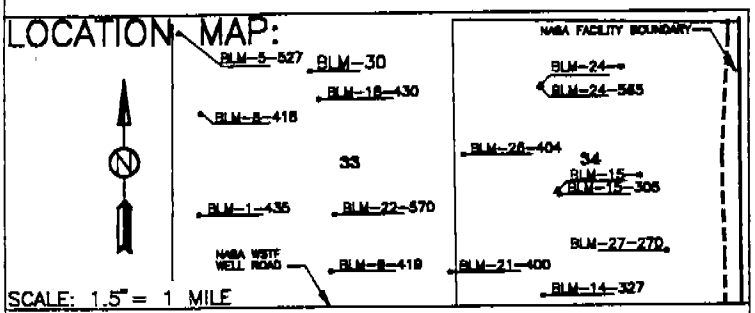
LITHOLOGIC LOG

LOCATION MAP:



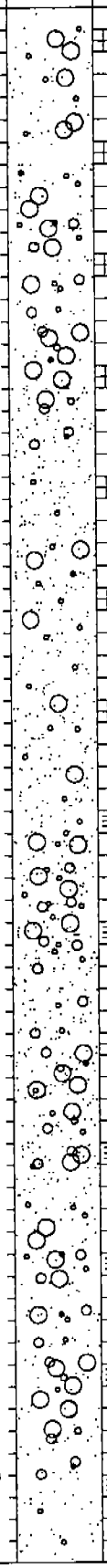
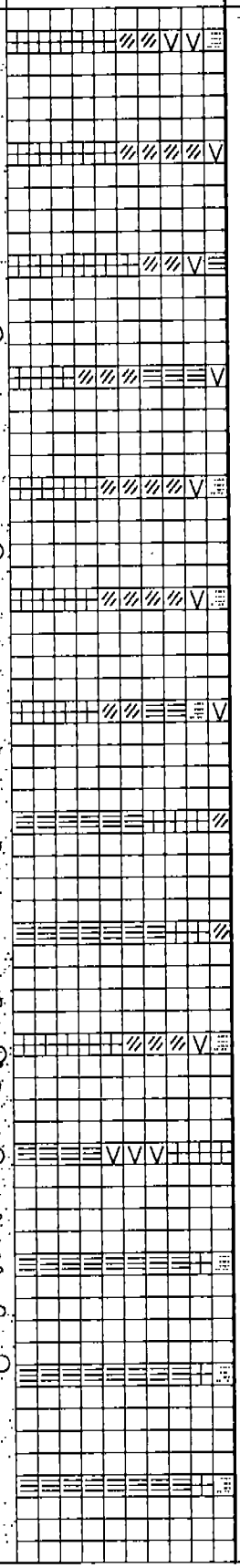
___1/4 ___1/4 NE 1/4 NW 1/4 S 33 T 20S R 3E

SITE ID: NASA-WSTF LOCATION ID: BLM-30
SITE COORDINATES (FT.):
N 232,643.82 E 405275.02
GROUND ELEVATION (FT. MSL): 4595.79
STATE: NEW MEXICO COUNTY: DONA ANA
DRILLING METHOD: MUD ROTARY/AIR FOAM ROTARY
DRILLING CONTR: LARJON DRILLING CO
DATE STARTED: 12-21-94 DATE COMPLETED: 3-10-95
FIELD REP.: M. JACOBS, M. RUSSELL
COMMENTS: 8 1/2" TRICONE W/MUD 0-390', 4 1/2" BUTTON/TRICONE W/FOAM 390-670', 5" STEEL CASING TO 390'. TOTAL DEPTH = 670'. BOREHOLE COLLAPSED TO 620'.

DEPTH	LITH	VISUAL %	DRILLING TIME SCALE: MIN.	SAMPLE TYPE AND INTERVAL	LITHOLOGIC DESCRIPTION (LITH., GRAIN SIZE PROPORTIONS, WET COLOR, RNDG., SRTG., CONSOL., DIST. FEATURES)
5, 10, 15, 20, 25, 30, 35, 40, 45, 50			TIMED BY DRILLER	CUTTINGS GRAB SAMPLE EVERY 5'.	0-375' 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 0.8 INCHES (CLAY AND SILT SIZE) TO 1.3 INCHES, AND AVERAGE 0.1 TO 0.2 INCHES. CUTTINGS ARE SUBANGULAR TO ANGULAR. 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. ● 0-30' GRAVEL: LIGHT BROWN TO DARK BROWN, CLASTS TYPICALLY 0.25 TO 1 INCH, CLASTS SUBANGULAR TO SUBROUNDED, PREDOMINANTLY QUARTZITE, LIMESTONE, SILTSTONE AND MINOR VOLCANICS, WELL SORTED, POORLY GRADED, UP TO 30 PERCENT REDDISH BROWN CLAY IN MATRIX. ● 30-70' CLAYEY SANDY GRAVEL: LIGHT REDDISH BROWN TO REDDISH BROWN, APPROXIMATELY 30 PERCENT CLAY, 30 PERCENT COARSE SAND AND 40 PERCENT FINE TO MEDIUM GRAVEL, GRAVEL CLASTS VARY BETWEEN 0.25 TO 2 INCHES, ANGULAR TO SUBANGULAR, PREDOMINANTLY LIMESTONE AND SILTSTONE WITH MINOR VOLCANICS.

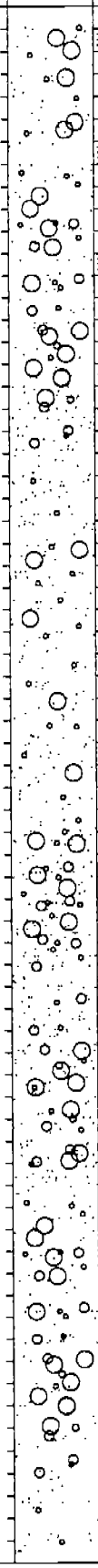
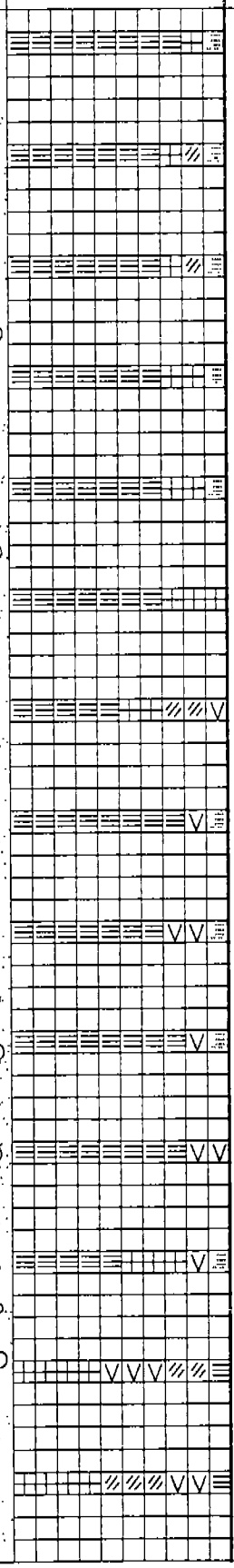
LITHOLOGIC LOG
(CONTINUED)

LOCATION ID: BLM-30

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'.	
60					
65					
70					@ 70–85' SANDY GRAVEL: LIGHT BROWN, APPROXIMATELY 20 TO 30 PERCENT MEDIUM SAND AND 70 TO 80 PERCENT FINE TO MEDIUM GRAVEL, CLASTS SUBANGULAR TO SUBROUNDED, PREDOMINANTLY LIMESTONE AND SILTSTONE WITH INCREASING LIMESTONE TOWARD THE BASE.
75					
80					
85					@ 85–95' GRAVELLY SANDY CLAY: LIGHT REDDISH BROWN, 30 TO 40 PERCENT GRAVEL AND SAND AND 60 TO 70 PERCENT CLAY, CLASTS SUBANGULAR TO SUBROUNDED, 0.1 TO 05 INCHES, PREDOMINANTLY LIMESTONE, MODERATELY GRADED, MODERATELY SORTED.
90					
95					@ 95–105' CLAYEY GRAVEL: LIGHT REDDISH BROWN, 30 PERCENT CLAY AND 70 PERCENT GRAVEL, CLASTS SUBANGULAR, PREDOMINANTLY LIMESTONE WITH SUBORDINATE AMOUNTS OF FELSIC VOLCANICS.
100					
105					@ 105–180' GRAVELLY SANDY CLAY: LIGHT BROWN TO LIGHT REDDISH BROWN, 30 PERCENT FINE GRAVEL AND 70 PERCENT CLAY, GRAVEL CLASTS SUBANGULAR TO SUBROUNDED, COMPRISE LIMESTONE, QUARTZITE AND GRANITE.
110					
115					
120					

LITHOLOGIC LOG
(CONTINUED)

LOCATION ID: BLM-30

DEPTH	LITH	VISUAL %	DRILLING TIME SCALE: MIN.	SAMPLE TYPE AND INTERVAL	LITHOLOGIC DESCRIPTION (LITH., GRAIN SIZE PROPORTIONS, WET COLOR, RNDG., SRTG., CONSOL., DIST. FEATURES)
125			TIMED BY DRILLER	CUTTINGS GRAB SAMPLE EVERY 5'.	@ 180–200' GRAVEL: LIGHT REDDISH BROWN TO REDDISH BROWN, CLASTS FINE TO MEDIUM GRAINED, FROM 0.1 TO 1 INCH IN SIZE, SUBROUNDED TO SUBANGULAR. WELL GRADED, POORLY SORTED, PRIMARILY LIMESTONE SILTSTONE AND RHYOLITE.
130					
135					
140					
145					
150					
155					
160					
165					
170					
175					
180					
185					
190					

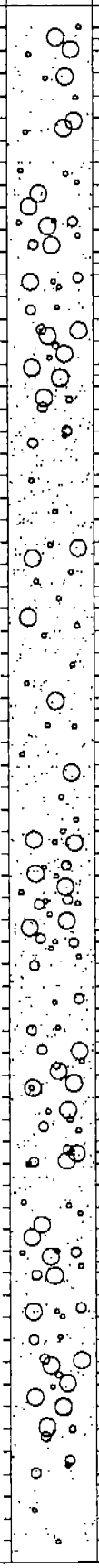
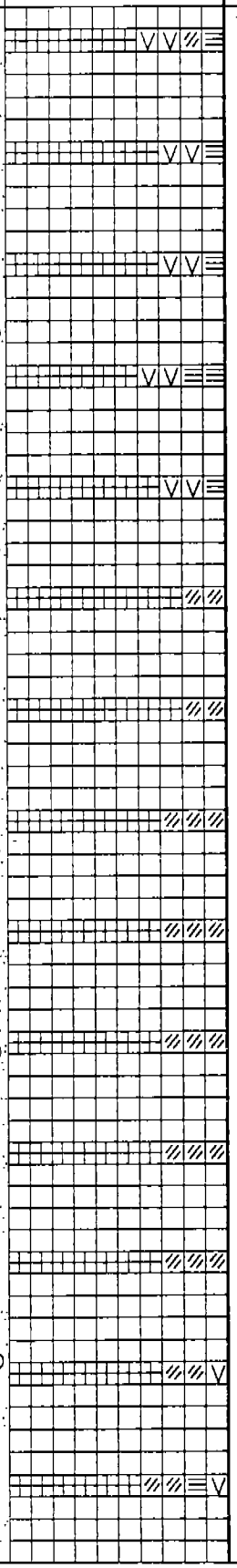
LITHOLOGIC LOG
(CONTINUED)

LOCATION ID: BLM-30

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'.	
200					@ 200–220' CLAY: LIGHT BROWN TO REDDISH BROWN, GRAVEL AND SAND FRACTIONS REDUCED TO BELOW 30 PERCENT.
205					
210					
215					
220					@ 220–240' GRAVEL: BROWN, FINE TO MEDIUM CLASTS FROM 0.5 TO 2 INCHES IN SIZE, RELATIVELY WELL SORTED, PREDOMINANTLY COMPRISE LIMESTONE SILTSTONE AND RHYOLITE.
225					
230					
235					
240					@ 240–260' CLAY: LIGHT BROWN TO BROWN, TRACE GRAVEL TO 10 PERCENT.
245					
250					
255					
260					@ 260–375' GRAVEL: BROWN TO REDDISH BROWN, CLASTS FINE TO MEDIUM GRAINED, SUBANGULAR TO SUBROUNDED, MODERATELY TO WELL GRADED, POORLY SORTED, PREDOMINANTLY LIMESTONE, SILTY LIMESTONE AND RHYOLITIC VOLCANICS, MATRIX IS SLIGHTLY CEMENTED.

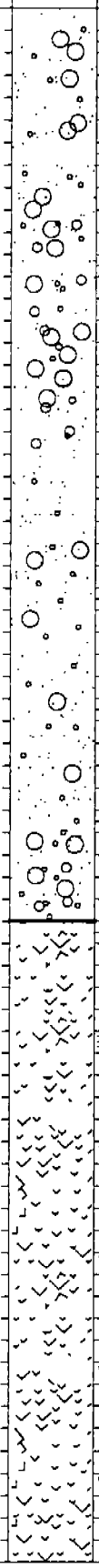
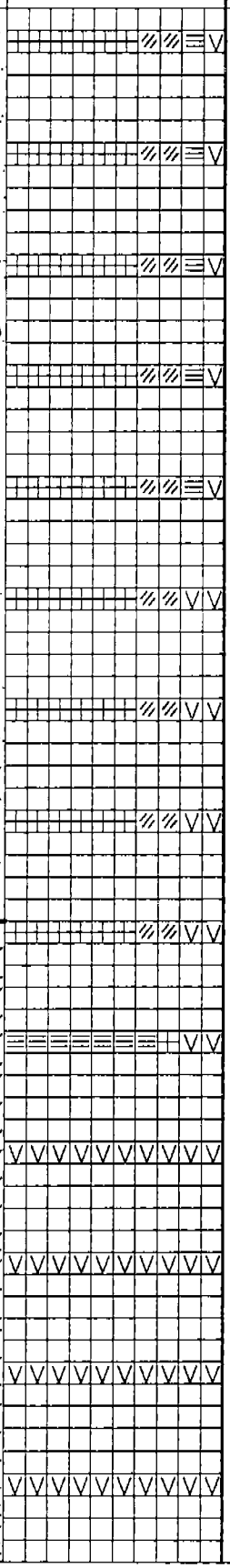
LITHOLOGIC LOG
(CONTINUED)

LOCATION ID: BLM-30

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					
285					
290					
295					
300					
305					
310					
315					
320					
325					
330					

LITHOLOGIC LOG
(CONTINUED)

LOCATION ID: BLM-30

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			TIMED BY DRILLING	CUTTINGS GRAB SAMPLE EVERY 5'.	@ 375–670' RHYOLITE: LIGHT PURPLE TO LIGHT/MEDIUM GREY, APHANITIC, MICROCRYSTALLINE, GENERALLY EQUIGRANULAR, CONTAINS EXTENSIVELY ALTERED AREAS, LOCALLY OXIDIZED TO REDDISH BROWN ALONG HAIRLINE FRACTURES IN CHIPS, FRACTURES DISPLAY NARROW ALTERATION ENVELOPES TO 0.2 INCHES, REPRESENTS A CRYSTAL VITRIC TUFF, LOCALIZED PUMICE FRAGMENTS VISIBLE. @ 375–380' CLAY: LIGHT PURPLE, ROCK CHIPS COMPRISE LESS THAN 20 PERCENT, REPRESENTS UPPER BEDROCK SURFACE WHICH WAS WEATHERED PRIOR TO INFLUX OF ALLUVIAL FAN GRAVELS.
340					
345					
350					
355					
360					
365					
370					
375					
380					
385					
390					
395					
400					

LITHOLOGIC LOG
(CONTINUED)

LOCATION ID: BLM-30

DEPTH	LITH	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					@ 415–435' PUMICE FRAGMENTS BECOMING MORE PREVALENT
420					
425					
430					
435					@ 435–455' CLAY: LIGHT PURPLE TO GREY, CLAY TOTALLY ALTERED FROM A ZONE CHARACTERIZED BY INCREASED PUMICE FRAGMENTS.
440					
445					
450					
455					@ 455–470' CLAY: LIGHT PURPLE TO GREY, HIGHLY ALTERED ZONE WITHIN CRYSTAL VITRIC TUFF.
460					
465					
470					@ 470–485' RHYOLITIC ASH FALL TUFF, APHANITIC, MICROCRYSTALLINE, DISSEMINATED BIOTITE VISIBLE.

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)
475			TIMED BY DRILLER	CUTTINGS GRAB SAMPLE EVERY 5'.	
480					
485					@ 485–500' RHYOLITIC TUFF BECOMING MORE CRYSTAL RICH, NOW REPRESENTS A CRYSTAL VITRIC TUFF WITH RELATIVELY FRESH BIOTITE.
490					
495					
500					@ 500–505' COLOR CHANGE TO MEDIUM GREY.
505					
510					@ 510–535' LIGHT GREY TO OFF WHITE, PORPHYRITIC TEXTURE WITH QUARTZ PHENOCRYSTS SUSPENDED WITHIN AN APHANITIC GROUNDMASS, DISSEMINATED BIOTITE PHENOCRYSTS ALSO RELATIVELY COMMON TO 5 PERCENT, MINIMAL ALTERATION.
515					
520					
525					
530					
535					@ 535–555' VITROPHERE WITH ABUNDANT OBSIDIAN TO 50 PERCENT.
540					

LITHOLOGIC LOG
(CONTINUED)

LOCATION ID: BLM-30

DEPTH	LITH	VISUAL %	DRILLING TIME SCALE: MIN.	SAMPLE TYPE AND INTERVAL	LITHOLOGIC DESCRIPTION (LITH., GRAIN SIZE PROPORTIONS, WET COLOR, RNDG., SRTG., CONSOL., DIST. FEATURES)
545			TIMED BY DRILLER	CUTTINGS GRAB SAMPLE EVERY 5'.	
550					
555					@ 555–560' COLOR CHANGE TO REDDISH ORANGE.
560					@ 560–610' LATITE/TRACHYTE, DUSKY RED TO REDDISH BROWN, MICROCRYSTALLINE, VITREOUS APHANITIC MATRIX, LOCALLY MICROPORPHYRITIC WITH EUHEDRAL FELDSPAR PHENOCRYSTS, AUGITE AND HORNBLENDE PRESENT AT LESS THAN 10 PERCENT.
565					
570					
575					
580					
585					
590					
595					
600					
605					
610					@ 610–620' RHYOLITIC TUFF, LIGHT ORANGE TO WHITE, PORPHYRITIC, QUARTZ PHENOCRYSTS TO 0.1 INCH SUSPENDED IN A APHANITIC MICROCRYSTALLINE MATRIX, TRACES OF OBSIDIAN TO 10 PERCENT.

LITHOLOGIC LOG
(CONTINUED)

LOCATION ID: BLM-30

DEPTH	LITH	VISUAL %	DRILLING TIME SCALE: MIN.	SAMPLE TYPE AND INTERVAL	LITHOLOGIC DESCRIPTION (LITH., GRAIN SIZE PROPORTIONS, WET COLOR, RNDG., SRTG., CONSOL., DIST. FEATURES)
615			TIMED BY DRILLER	CUTTINGS GRAB SAMPLE EVERY 5'.	
620					
625					
630					
635					
640					
645					
650					
655					NOTE: BOREHOLE COLLAPSED TO A FINAL DEPTH OF 620 FEET PRIOR TO INSTALLATION OF WESTBAY WELL.
660					
665					
670					TOTAL DEPTH (TD) 670 FEET.
675					
680					