



# YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT

## PRELIMINARY FIELD COMPOSITE BOREHOLE LOG

WAIVER NO. W-352

ORE HOLE ID: JF-3

LOG VERSION DATE  
1/27/92

CORE SIZE: N/A

DRILL DATES: 11/26/91 - 1/22/92

GROUND ELEVATION: 3093 ft MSL (surveyed)

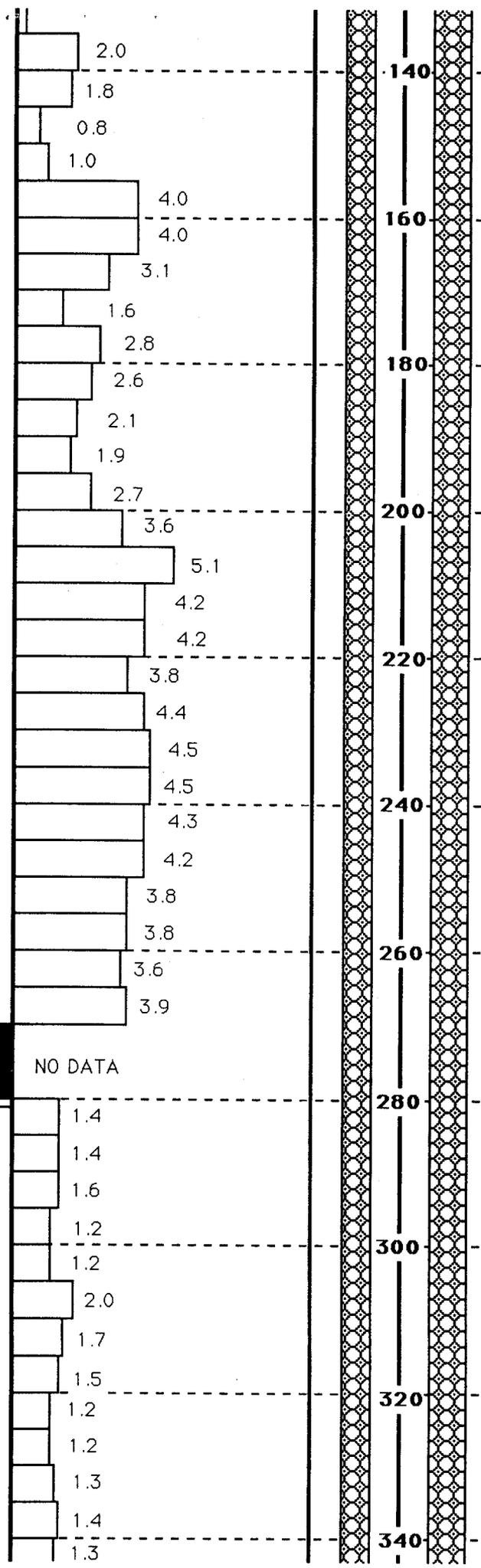
TOTAL DEPTH: 1298 ft

Geology by Drilling Support Division,  
Drilling Support and Sample Management Dept., T&MSS

- ALLUVIUM
- NON-WELDED
- MODERATELY WELDED
- DENSELY WELDED
- BEDDED TUFF
- VITROPHYRE

RECEIVED  
MAY 20 1992  
Div. of Water Resources  
Branch Office - Las Vegas, NV

DRILL PROFILE/ DATES	DRILLING RATE (min/ft) BIT RECORD		STRAT. COL.		LITHOLOGY/REMARKS
	0	5	Prognosis	Actual	
	10	60			
	10	110			
11/27/91	22.2	5.5			0-15 Alluvium; soil, sand, gravel, and cobbles; light red-brown to medium brown; trace organic material; interval clayey and slightly moist, possibly from injected water; soil consists of very fine grained silty material; sand and gravel is mostly poorly sorted subrounded grains of quartz and volcanics, most showing even, light iron stain, caliche coating on most grains; cobbles mostly unknown volcanics to 80 mm diam, approx 30% of interval by volume
26" x 3/8" @14.8			-20		large cobbles to 12" diam fm approx. 4-14
	1.8		-40		from 10-15 mostly moderately sorted, fine to medium grained quartz with larger black and red volcanics; interval is dark brown, less clayey, and fairly clean
12/12/91		5.8	-60		15-90 Alluvium; black, brown, and red, very fine to medium grained, subangular to subrounded volcanic fragments; difficult to determine fines content, most is washed away with drilling foam
	3.2		-80		NOTE: Drill Rate from 30-63.4 is an average. Geologist stopped working at 1400 hrs
	3.0				from 65-90, trace black glassy vitrophyric material; 5-10% red rhyolite; 5-10% black basalt; scattered to 10% slightly translucent orange-yellow glassy grains
	3.0				NOTE: Casing point at 90.5 based on fairly stable drilling rates
12/13/91	3.0				
	3.2		-100		90-160 Alluvium; clasts become larger and more angular, same composition as above
16" x 1/2" csg @ 87.2		16.6			
			-120		
	0.7				
	1.3				
	0.4				



160-250 Alluvium; lithic fragments including quartz with hematite staining, vitric tuff some with lithophysae containing vapor phase mineralization; minor biotite and epidote; fragments subrounded to angular

250-270 Alluvium; as above but with vitric tuff lithic fragments with minor lithophysae containing vapor phase mineralization; fragments subrounded to angular

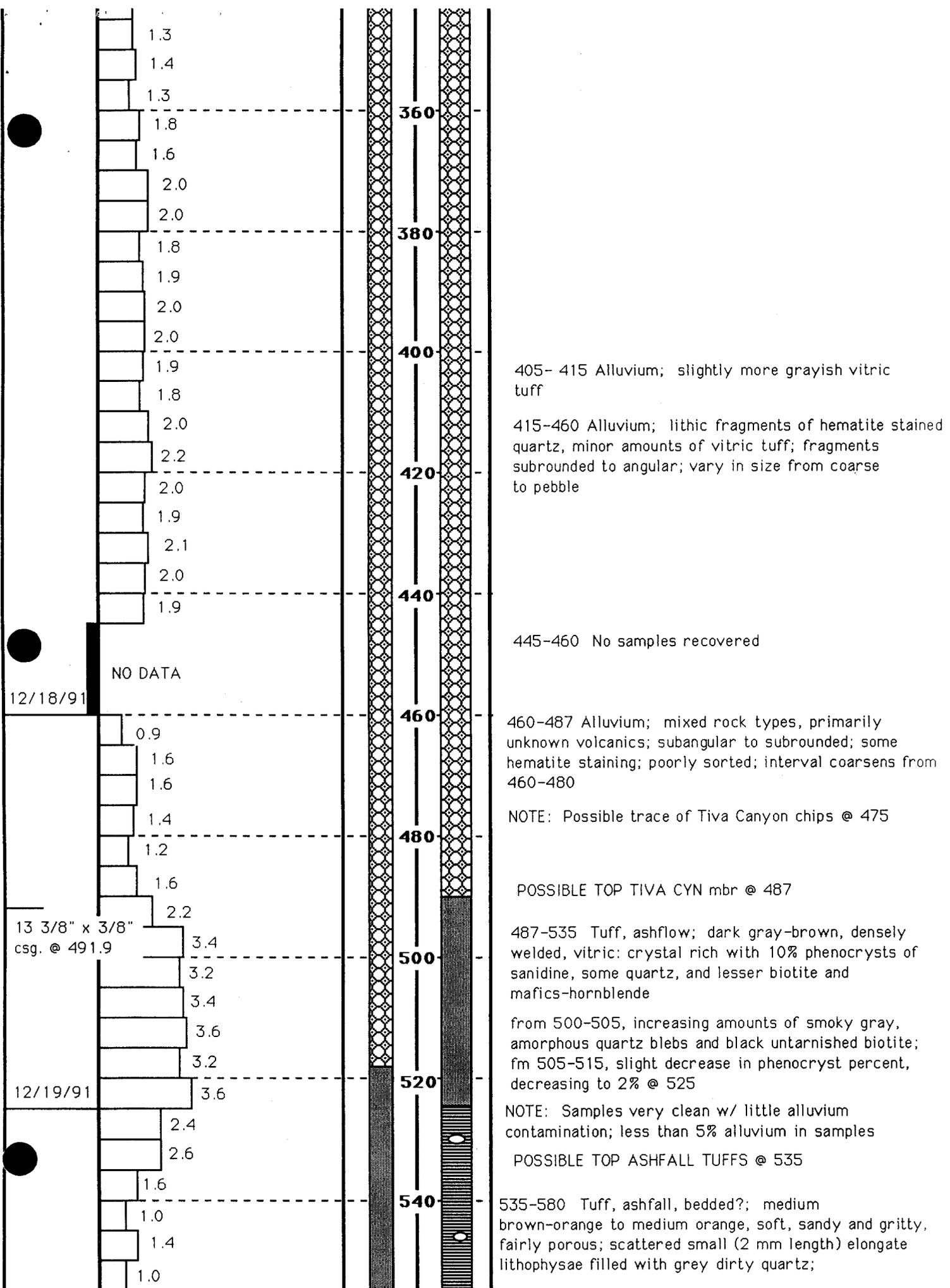
270-280 No samples recovered

NOTE: Hole sloughing @ 280.2. Approx. 15' fill beginning day shift 12/18/91

280-320 Alluvium; contains unconsolidated lithic fragments of hematite stained quartz, minor amounts of vitric tuff and black vitrophyric material; subrounded to angular; size of fragments ranges from coarse sand to pebble; minor amounts of epidote and biotite

320-405 Alluvium; contains lithic fragments of hematite stained quartz, minor amounts of vitric tuff, epidote and minor clay; fragments subrounded to angular; vary in size from coarse to pebble

12/17/91



1.3  
1.4  
1.3  
1.8  
1.6  
2.0  
2.0  
1.8  
1.9  
2.0  
2.0  
1.9  
1.8  
2.0  
2.2  
2.0  
1.9  
2.1  
2.0  
1.9

NO DATA

12/18/91

0.9  
1.6  
1.6  
1.4  
1.2  
1.6  
2.2  
3.4  
3.2  
3.4  
3.6  
3.2  
3.6

13 3/8" x 3/8"  
csg. @ 491.9

12/19/91

2.4  
2.6  
1.6  
1.0  
1.4  
1.0

360  
380  
400  
420  
440  
460  
480  
500  
520  
540

405- 415 Alluvium; slightly more grayish vitric tuff

415-460 Alluvium; lithic fragments of hematite stained quartz, minor amounts of vitric tuff; fragments subrounded to angular; vary in size from coarse to pebble

445-460 No samples recovered

460-487 Alluvium; mixed rock types, primarily unknown volcanics; subangular to subrounded; some hematite staining; poorly sorted; interval coarsens from 460-480

NOTE: Possible trace of Tiva Canyon chips @ 475

POSSIBLE TOP TIVA CYN mbr @ 487

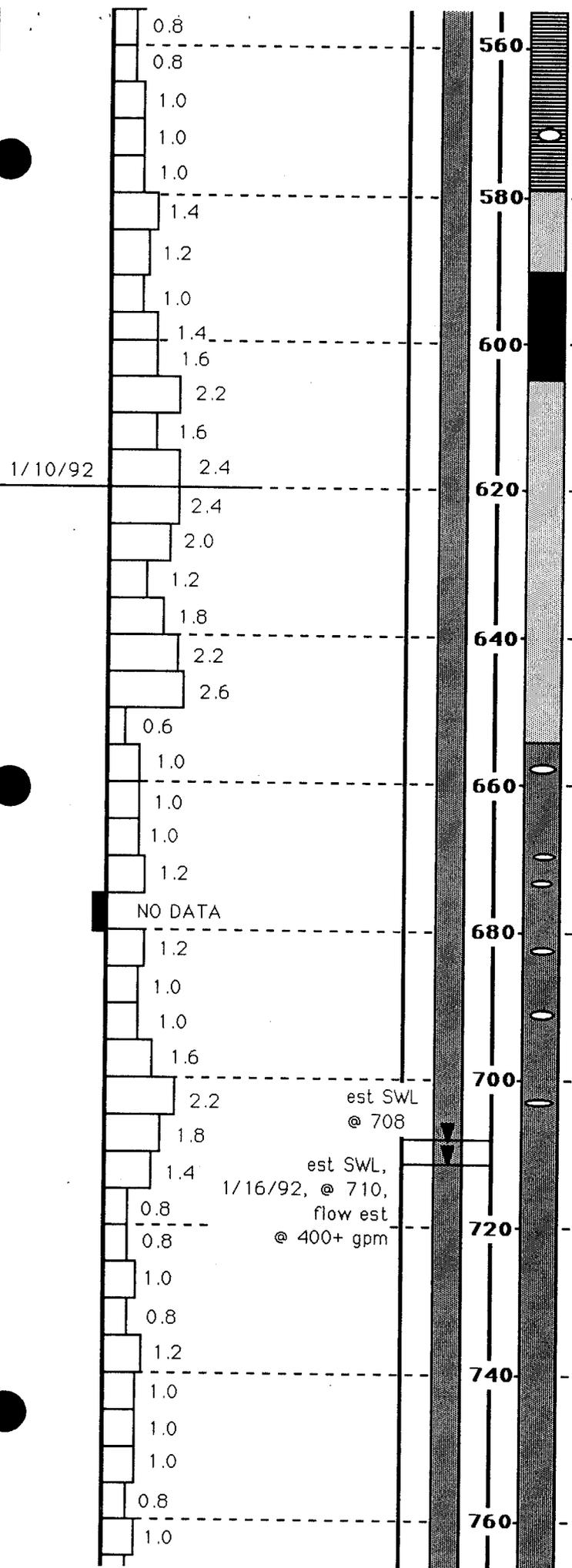
487-535 Tuff, ashflow; dark gray-brown, densely welded, vitric; crystal rich with 10% phenocrysts of sanidine, some quartz, and lesser biotite and mafics-hornblende

from 500-505, increasing amounts of smoky gray, amorphous quartz blebs and black untarnished biotite; fm 505-515, slight decrease in phenocryst percent, decreasing to 2% @ 525

NOTE: Samples very clean w/ little alluvium contamination; less than 5% alluvium in samples

POSSIBLE TOP ASHFALL TUFFS @ 535

535-580 Tuff, ashfall, bedded?; medium brown-orange to medium orange, soft, sandy and gritty, fairly porous; scattered small (2 mm length) elongate lithophysae filled with grey dirty quartz;



from 540-580, clay content of samples increases - samples from 570-580 composed almost completely of gray, gritty clay material; trace black vitric shards @ 540

from 540-550, poorly consolidated - some chips in samples; from 550-570 very poorly consolidated - sample composed of subrounded silty to very fine grained, poorly sorted material, abundant white and slightly transparent quartz grains, most iron-stained

@ 545, possible crude indistinct foliation

@ 565, scattered grains and clumps of dark, dirty, gray waxy, clayey material

TOP TOPOPAH SPRING mbr @ 580

580-590 Tuff, ashflow; medium gray-brown, vitric, moderately welded; fairly gritty; very crystal rich (15%) with tarnished biotite plates, abundant plagioclase, abundant sanidine, abundant black, very angular glassy vitric fragments (vitrophyre?); fairly porous

590-605 Vitrophyre; dark brown to black, vitric, hard; crystal rich with abundant sanidine, plagioclase

605-655 Tuff, ashflow; dark brown to purple-brown, moderately welded, partially vitric; crystal rich (10% with sanidine, quartz, plagioclase? and trace green mica; scattered vugs partially filled with quartz

from 635-650, fragments appear more altered (devitrified?), sugary texture, dark smoky crystals, glass shards (?), devitrified pumice, scattered vugs partially filled with quartz

POSSIBLE TOP UPPER LITHOPHYSAL ZONE @ 655

655-705 Tuff, ashflow; purple-brown, moderately vitric, densely? welded; numerous chips and fragments of well developed, white quartz crystals - possibly lithophysae lining

705-810 Tuff, ashflow; dark gray-brown, partially vitric, densely? welded; 5% phenocrysts of sanidine, sparse smoky plagioclase, scattered mafics; scattered white crystalline quartz; matrix appears sugary

from 710-810, most chips have discontinuous irregular, medium orange-brown splotches, very slightly clayey, fabric same as matrix

from 720-810, several chips have very small bright green crystals - zeolites?, especially @ 750; many chips partially coated with soft, greasy, medium gray clay

SWL, 1/14/92, est @ 770-780

780

NOTE: @ 780, increase in water volume from discharge line

800

810-835 Tuff, ashflow; dark gray-brown and medium orange-brown mottled, devitrified, densely? welded; sparse phenocrysts of sanidine and plagioclase?; scattered to moderate medium gray, greasy, slightly silty clay as chips or coatings on chips

820

@ 820, several large dark green chips, very soft and altered, grain supported - subrounded quartz, crystal-rich, clayey, hematite stained - possibly slough from above

840

835-855 Tuff, ashflow; predominately medium orange brown with medium gray, devitrified, densely? welded; very sparse phenocrysts of sanidine; scattered chips of crystalline white quartz, possibly vein filling or lithophysae lining

860

0.8

1.6

1.6

1.2

2.6

1.6

1.0

1.4

1.8

1.2

1.2

1.6

2.4

2.0

2.0

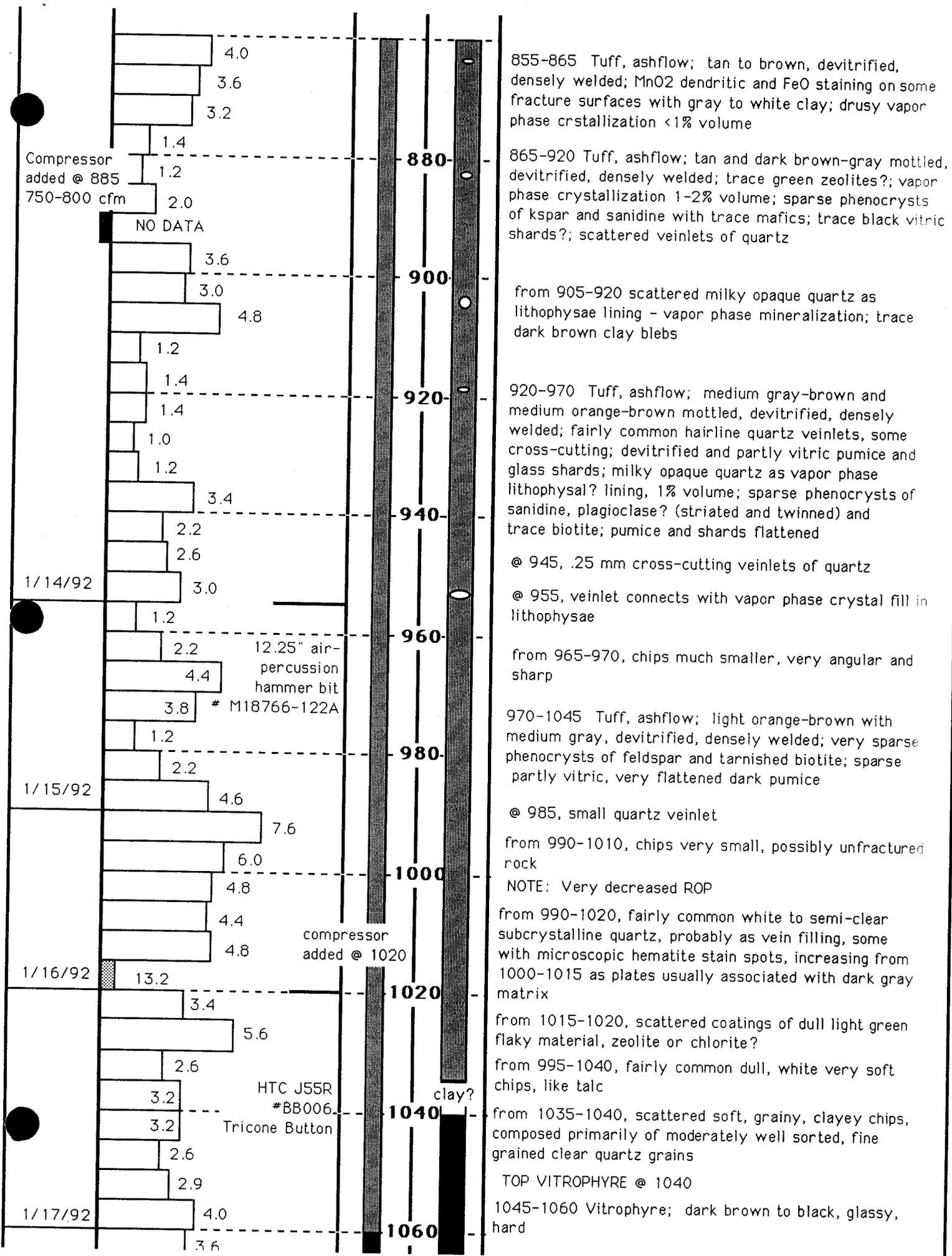
1/13/92

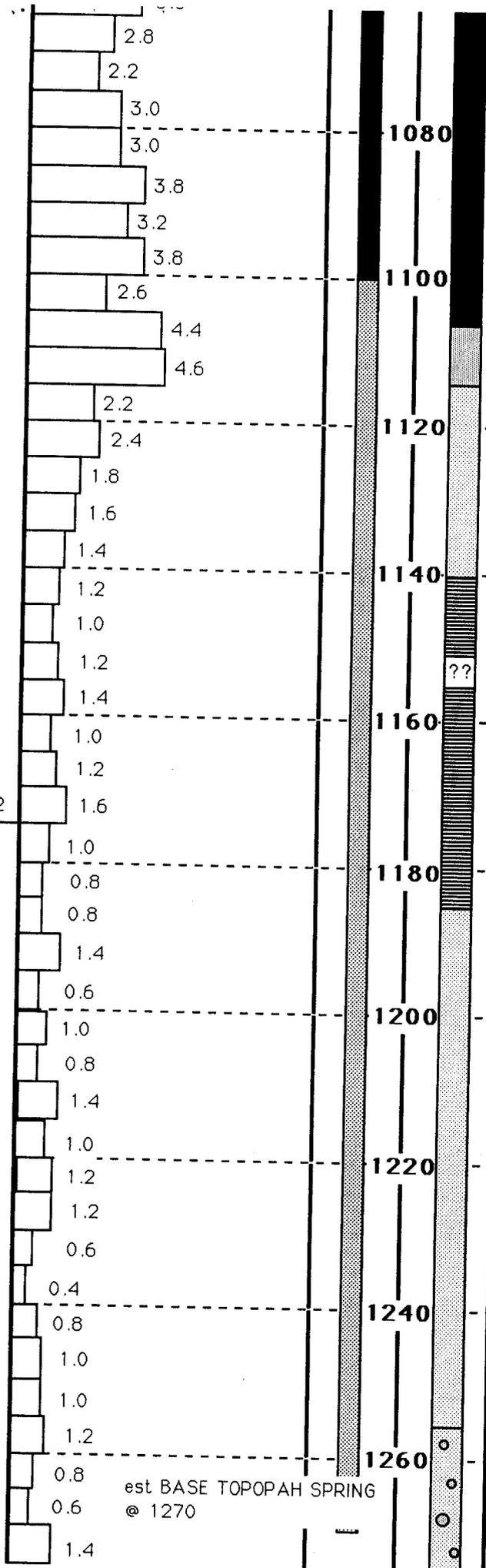
2.8

4.0

3.0

5.0





1060-1105, Tuff, ashflow; very vitric (vitrophyre?), dark yellow-brown, densely welded; eutaxitic, very shardy

from 1080-1090, some dark gray patches and streaks from 1090-1105, dark gray brown to light brown, vitric  
 POSSIBLE SHARDY BASE 1105-1115

1105-1115 Tuff, ashflow; dark gray brown to light brown, vitric, moderately? welded; black glassy shards very common, some preserved as vesicle walls, overall rock is glassy; eutaxitic; chips show conchoidal fracturing @ 1105 tan to brown matrix w/much shardy glassy inclusions

from 1110-1115, scattered very soft, medium red, clayey chips, mostly subrounded, moderately sorted, quartz grains

1115-1140 Tuff, ashflow; light brown-orange, vitric, nonwelded; soft (breaks easily); matrix appears sugary or grainy; scattered dark, angular volcanic lithics; phenocrysts of scattered poorly formed biotite and scattered clear feldspar

POSSIBLE BASE TOPOPAH SPRING mbr @ 1140

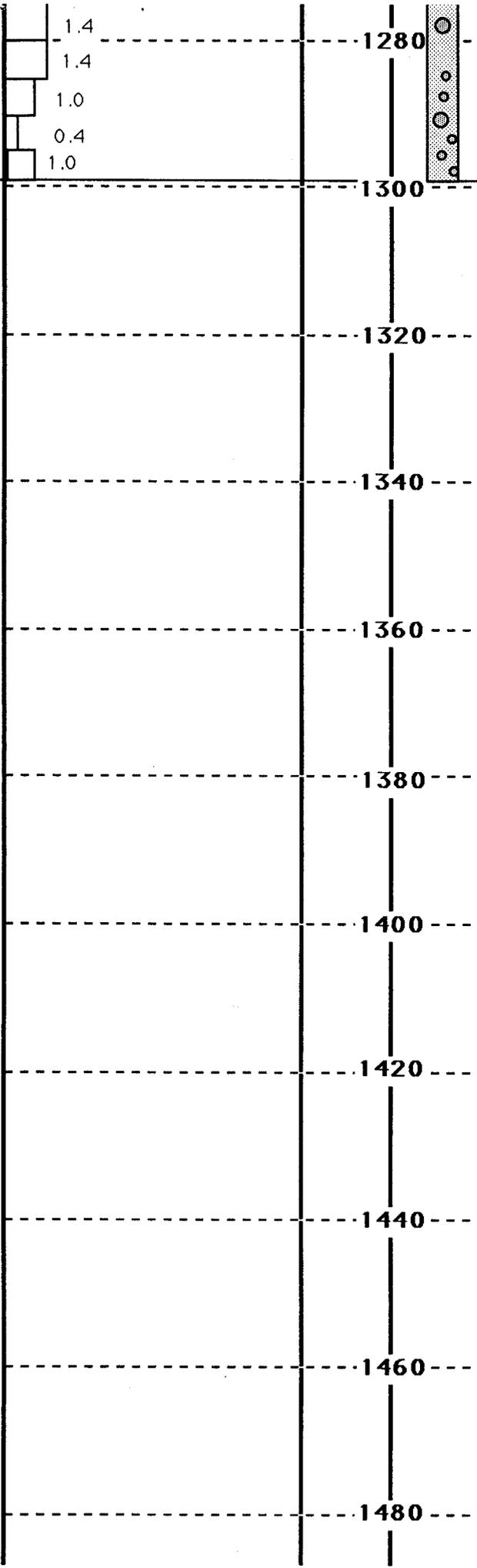
1140-1175 Tuff, ashfall bedded?; light brown-orange to buff, partly vitric; soft; slightly clayey; common to abundant well formed biotite and other long tabular crystals possibly hornblende or glassy shards; abundant and altered? irregular feldspar phenocrysts; scattered bright green crystals - zeolites?; matrix appears grain supported composed of milky white to red stained quartz and feldspar like reworked bedded material; scattered weathered dark red and brown volcanic lithics

1175-1185 Tuff, ashfall? (50%) and ashflow (50%); ashfall is buff to white, vitric, nonwelded; phenocrysts of abundant large white feldspar phenocrysts and abundant tarnished biotite; common vitric, woody, well preserved pumice; ashflow is medium orange-red, vitric, nonwelded with fairly common clear vitric shards as remnant vesicle walls

1185-1255 Tuff, ashflow; It gray to white, non welded, vitric; common black glassy shards; soft; granular; abundant biotite and common white to clear plagioclase, quartz and/or sanidine crystals; interval consists nearly entirely of clear, subround to round quartz grains and feldspar - no competent chips

from 1230-1235, some chips in samples

1255-1298 TD Tuff, light gray to buff, vitric?, nonwelded; crystal rich with abundant tarnished and untarnished biotite; common gray and brick red, small lithic fragments of moderately welded, moderately vitric ashflow with fairly common glass shards, increasing down-hole

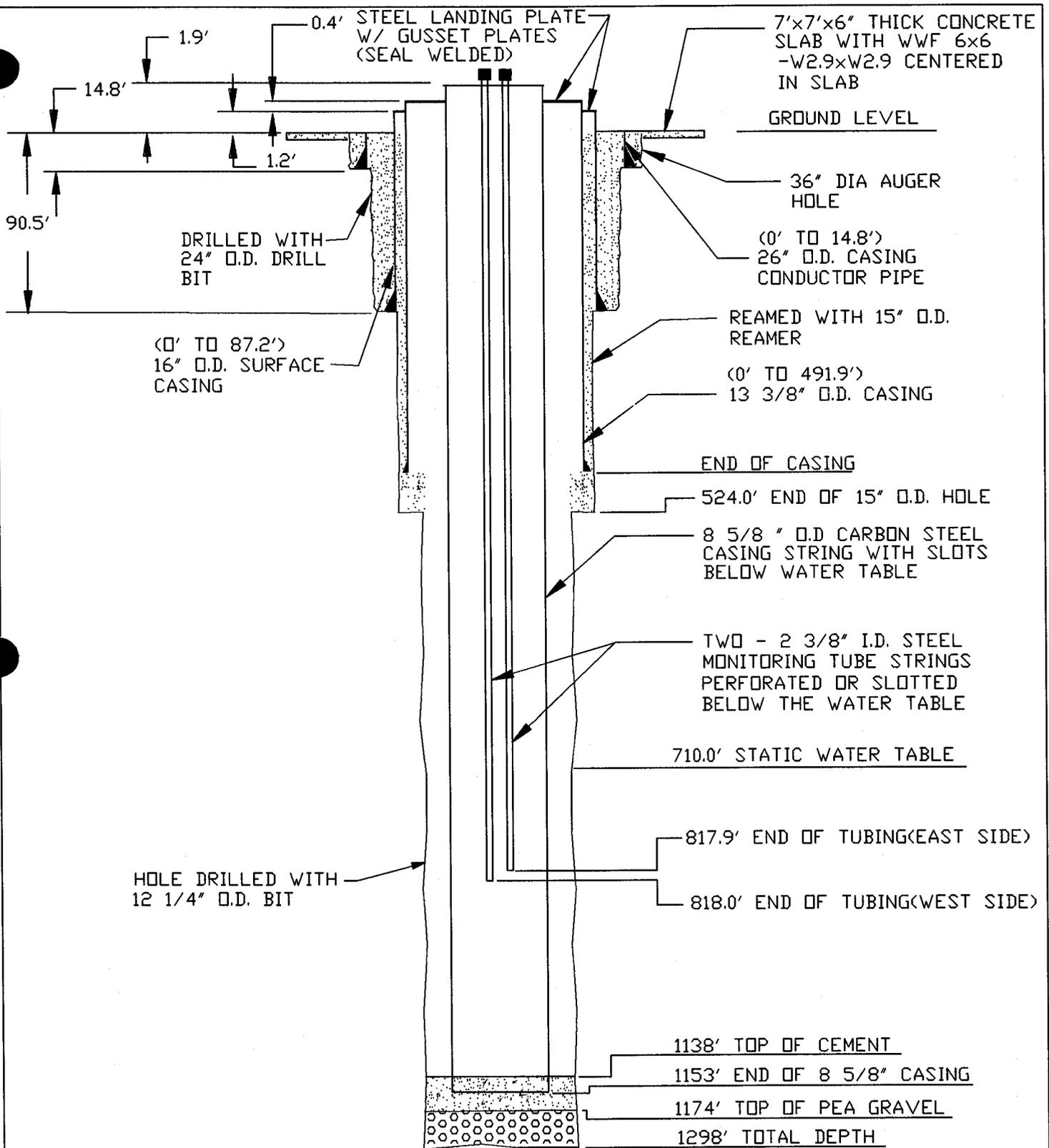


22/92

1298' TD

TOTAL DEPTH • 1298 FT

from 1285-1298 TD, samples 75% lithic fragments



# JF-3 WATER TABLE MONITORING WELL LONG-TERM WATER-LEVEL MONITORING

NOTE: NOT TO SCALE

5-1-92

SURFACE COORDINATES  
N 730,875.78  
E 581,178.55

