

COMPANY UNION OIL CO. OF CALIF.  
 FIELD BACA  
 WELL # 10  
 COUNTY SANDOVAL  
 STATE NEW MEXICO  
 LOCATION EL. 8734.5'

TOTAL DEPTH 6001'  
 SPUD DATE JULY 5<sup>th</sup>, 1973  
 COMPLETION DATE Sept. 18, 1973  
 DRILLING CONTRACTOR CALVERT #28  
 ENGINEER INMAN  
 GEOLOGIST DONDANVILLE  
 Lat. 35-8863°N, Long. 106-5853°W

CASING RECORD  
20" 0-653' CEM. TO SURF.  
13 3/8" 0-2794' CEM. TO SURF.  
9 5/8" 2480'-4418'; Free  
(Tied back to surface after well completion)  
7" (slotted): 4478'-6000'; hung

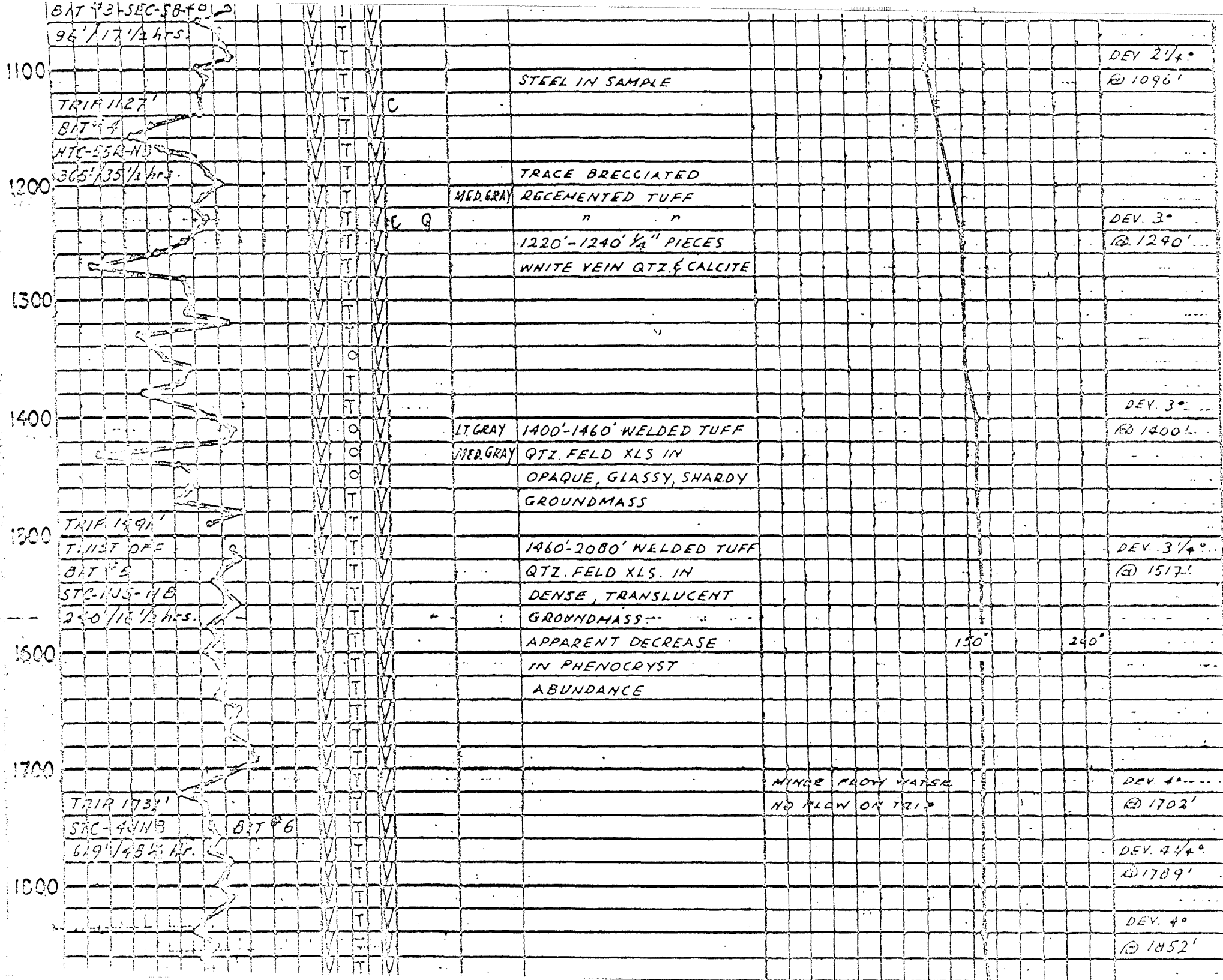
EXPLANATION

DRILLING	ROCK	MINERALS	PHYSICAL - CHEMICAL	
ND - NEW BIT RR0 - RERUN BIT CS - CORE BIT LC - LOST CIRCULATION DEV - DEVIATION DST - DRILL STEM TEST RB - REBUILT BIT	<input type="checkbox"/> SHALE <input type="checkbox"/> SILTSTONE <input type="checkbox"/> SANDSTONE <input type="checkbox"/> CONGLOMERATE <input type="checkbox"/> LIMESTONE <input type="checkbox"/> DOLOMITE <input type="checkbox"/> GYP, ANHYD.	<input type="checkbox"/> CHERT <input type="checkbox"/> VOLCANICS <input type="checkbox"/> INTRUSIVE <input type="checkbox"/> TUFF <input type="checkbox"/> METAMORPHIC	C - CALCITE CHL - CHLORITE CEL - CELADONITE CL - CLAYS D - DOLOMITE E - EPIDOTE F - FELDSPAR K - KAOLINITZ P - PYRITE Q - QUARTZ Z - ZEOLITES V - VENS DIS. DISSEMINATED	D.H. - DOWN HOLE S.H. - BOTTOM HOLE F.L. - FLOW LINE T. - TEMPERATURE R. - PRESSURE T.C. - TIME SINCE CIRCULATION W.H. - WELL HEAD PPM - PARTS PER MILLION

TUFF GROUNDMASS: OPAQUE (O), TRANSLUCENT (T)

DEPTH	PENETRATION DATA					LITHOLOGY				PHYSICAL - CHEMICAL DATA				MISC.	
	MIN. 10 FT.					PRIMARY LITH	SECONDARY MINERALS	BULK COLOR	DESCRIPTION	MUD FLOWLINE TEMPERATURE					
	FL/HR.	90'	70'	50'	30'	10'	100%	0			70°F	100°	150°	200°	
									LT TAN	WEATHERED TUFF					
									GRAY	DEBRIS 0-60'					
									BROWN						
									SPECKS	60'-140' WELDED TUFF					
100									LT. GRAY	ABUNDANT LARGE QTZ					DEV 15' @ 83'
									C	AND FELD. XLS. IN					
									LT. GRAY	ALTERED GROUNDMASS					
									To white	140'-310': TUFFACEOUS	78°				
										SANDSTONE, VERY					
200										IMMATURE, FELD. QTZ.					
									P	LITH GRAINS IN					DEV 15' @ 210'
										HIGHLY ALTERED					
										MATRIX.	88°				
300										310'-360': WELDED TUFF			96°		
									DK. GRAY	LARGE QTZ. & FELD					
										XLS IN FRESH,					
									LT. GRAY	VITROPHYRIC GROUNDMASS					DEV 15' @ 362'
									P	360'-520' MIXED					

TRIP 357'	DR. GRAY	LARGE QTZ. & FELD			
BIT #3-SEC-381-20		XLS IN FRESH,			
699' / 34.5 HRS.	LT. GRAY	VITROPHYRIC GROUNDMASS			DEV 15' @ 362'
	P	360'-520' MIXED			
	LT. GRAY	LITHOLOGY: RED			
		+ SILTSTONE & ARROSE 50%			
	RED GRAY	ALTERED TUFF 40%			
		SANDS, QTZITE 5%			
	P	LIMESTONE 5%			
	LT. GRAY	520'-600' WELDED TUFF,	109°		DEV. 30' @ 530'
		QTZ. FELD XLS IN			
		V. SLI. WELDED, OPAQUE	108° (SUC. 106°)		
		GROUNDMASS, SOME PUMICE			
	MED. GRAY	PATCHY GREEN & BROWN ALTERATION	114° (SUC. 112°)		
TRIP 556'	P	600'-1400' WELDED TUFF	100° (MIXING HUR)		DEV. 30' @ 658
OPEN HOLE TO 20" - 30" - 50" - 60" - 70" - 80" - 90" - 100" - 110" - 120" - 130" - 140" - 150" - 160" - 170" - 180" - 190" - 200" - 210" - 220" - 230" - 240" - 250" - 260" - 270" - 280" - 290" - 300" - 310" - 320" - 330" - 340" - 350" - 360" - 370" - 380" - 390" - 400" - 410" - 420" - 430" - 440" - 450" - 460" - 470" - 480" - 490" - 500" - 510" - 520" - 530" - 540" - 550" - 560" - 570" - 580" - 590" - 600" - 610" - 620" - 630" - 640" - 650" - 660" - 670" - 680" - 690" - 700" - 710" - 720" - 730" - 740" - 750" - 760" - 770" - 780" - 790" - 800" - 810" - 820" - 830" - 840" - 850" - 860" - 870" - 880" - 890" - 900" - 910" - 920" - 930" - 940" - 950" - 960" - 970" - 980" - 990" - 1000" - 1010" - 1020" - 1030" - 1040" - 1050" - 1060" - 1070" - 1080" - 1090" - 1100" - 1110" - 1120" - 1130" - 1140" - 1150" - 1160" - 1170" - 1180" - 1190" - 1200"	QTZ. FELD XLS IN				
DRILLING - 17 1/2" WITH AIR	DR. GRAY	FRESH, DENSE, GLASSY	AIR FLOWLINE TEMPERATURE		
BIT #2		TRANSLUCENT GROUNDMASS	70° 100° 150° 200°		
INC. WT TO 20-25,000					
		TINGE GREEN			
	MED. DK. GRAY				
					DEV. 1 3/4' @ 941'
TRIP 1031'					
BIT #3-SEC-381-B					
96' / 17 1/2 HRS.					
					DEV. 2 1/4' @ 1096'
TRIP 1127'		STEEL IN SAMPLE			
BIT #1	C				



1570-4000 61746

61746 RT.

DEV. 4 1/4°

@ 1789'

DEV. 4°

@ 1852'

DEV. 4 1/4°

@ 2100'

DEV. 4° 45'

@ 2224'

DEV. 6 1/2°

@ 2398'

DEV. 7° @

2491'

2000'-2180' WELDED TUFF  
QTZ. FELD PHENOCRYSTS  
IN OPAQUE, GLASSY SHARDY  
GROUNDMASS

2300'-2340' - W.T.  
QTZ. FELD PHENOS  
IN OPAQUE, GLASSY  
SHARDY GROUNDMASS

2340'-2620' W.T.  
MOSTLY TRANSLUCENT  
GROUNDMASS, SOME  
OPAQUE.

150°

240°

TRIP 2350'

RR #5

TOTAL

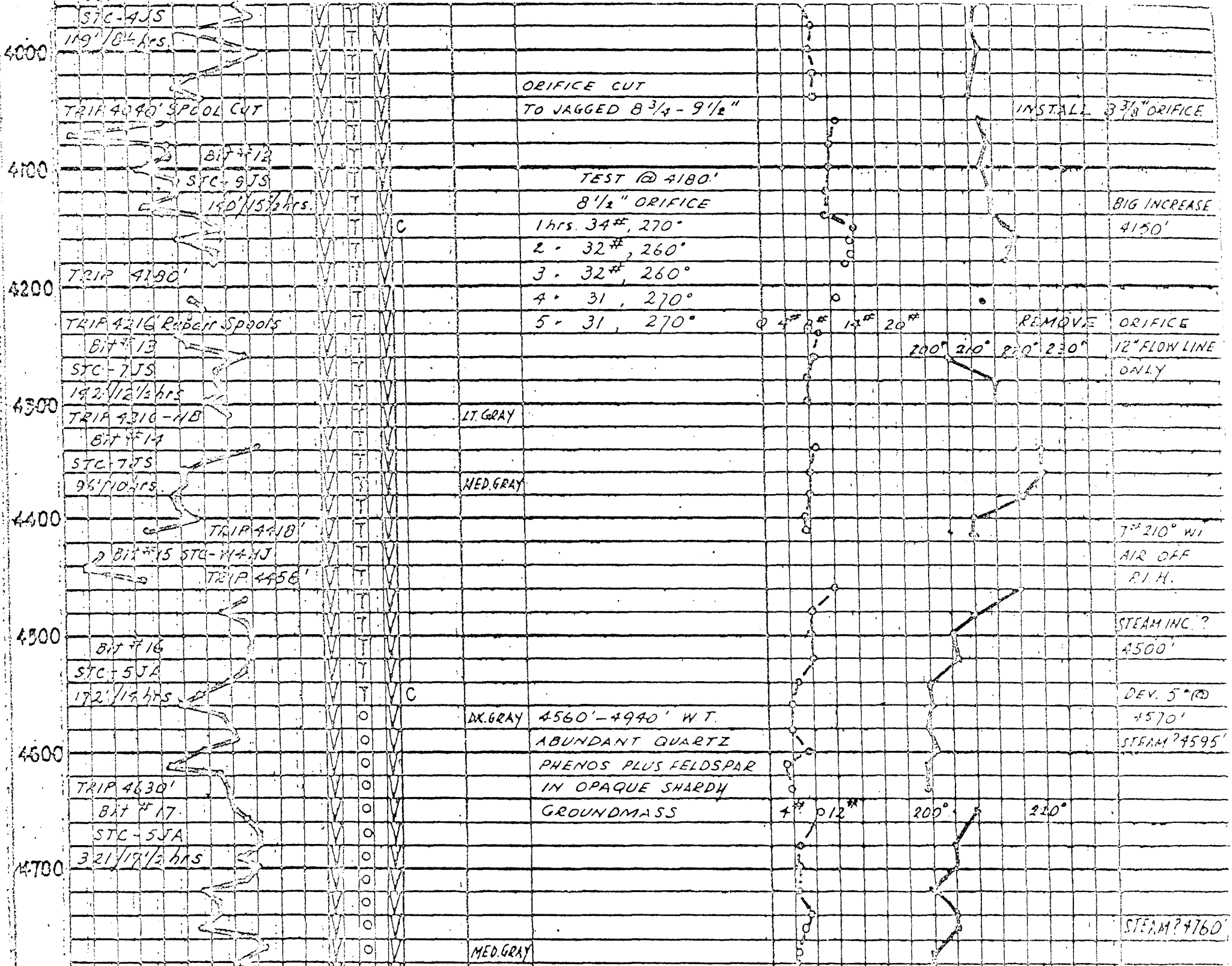
206' / 28 hrs.

T212 2558'

110  
-120

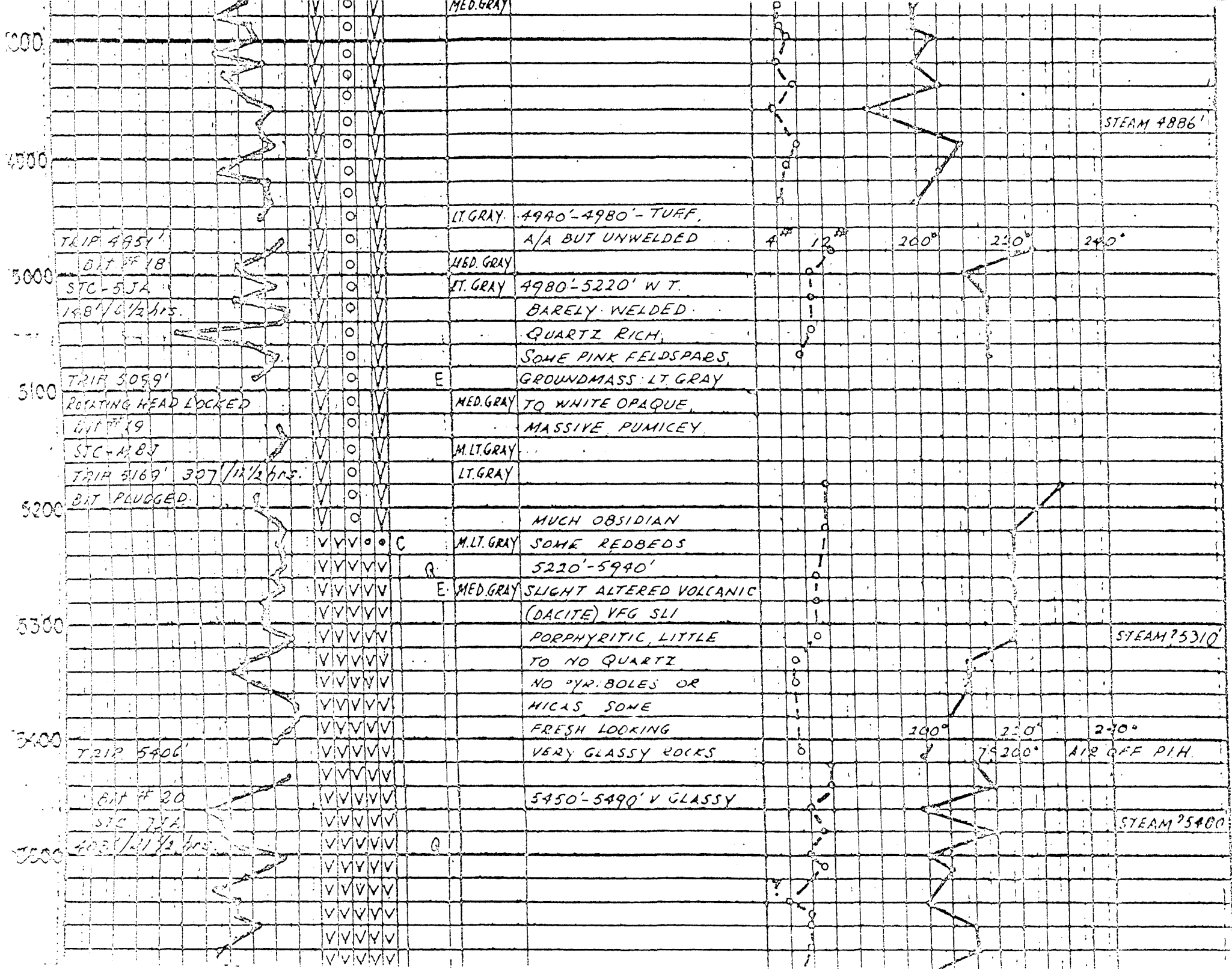
DEPTH (ft)	LOG	DESCRIPTION	GROUNDMASS	FLOW	TEMPERATURE	OTHER
2500			GROUNDMASS SOME OPAQUE.			DEV. 7° @ 2991'
2500	TRIP 2550'					
2620-2720'	BIT #7 STC-4J-NB 256' / 18 hrs.		OPAQUE, SHARDY.	FLOW APPROX. EQUAL TO AREA # 6 AT 2700'		DEV. 6 1/2° @ 2622' INC. STEAM WATER.
2720-3160'	4000' To CLEAN HOLE		TRANSLUCENT, MED. LT. DENSE, SUCROSIC GRAY. GROUNDMASS.			
2790'	TRIP 2800' 12 3/8" CSG. 2790' TO SURF.		MED. GRAY LOW ABUNDANCE OF PHENOCRYSTS	FLOWLINE PRESSURE @ 2710' 20" 30"	FLOWLINE TEMPERATURE 200° 220° 240° 260° 280°	
2900	DRILLING 12 1/4" WITH AIR			NO ORIFICE		DEV. 8° S, 2° N @ 2925'
3000	BIT #8 HTC-RGTJ-NB 521' / 32 hrs. STUCK PLUGGED BIT TRIP 3030'			VERY LOW FLOW HOT WATER		
3100			MED. LT. GRAY	SLIGHT FLOW INCREASE 3100'		
3160-3760'			MED. DK. GRAY ABUNDANT QUARTZ PHENOS PLUS FELDSPAR PHENOS IN BANDED SHARDY, OPAQUE, GROUNDMASS OF	FLOW 50-75 gpm. - R.F.D.		REPORTED INCREASE @ 3200' DEV. 0° S, 5° N @ 3200'



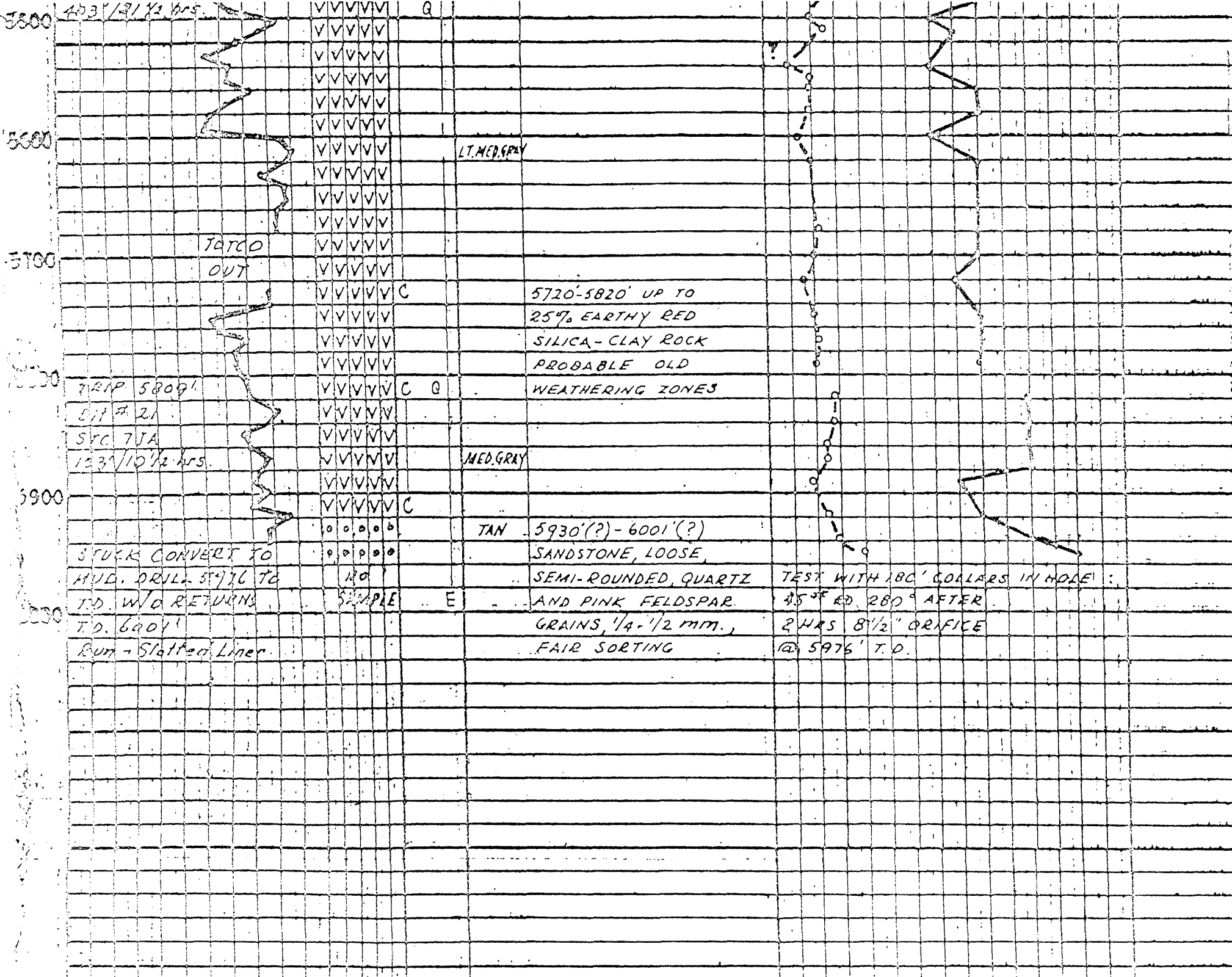


4000 STC-AJS  
 119' / 8 1/2 hrs.  
 TRIP 4090' SPOOL CUT  
 BIT #12  
 STC-9JS  
 140' / 15 1/2 hrs.  
 TRIP 4190'  
 TRIP 4216 Rebar Spools  
 BIT #13  
 STC-7JS  
 192' / 12 1/2 hrs.  
 TRIP 4310-HB  
 BIT #14  
 STC-7JS  
 96' / 10 hrs.  
 TRIP 4410'  
 2 BIT #15 STC-4410J  
 TRIP 4456'  
 BIT #16  
 STC-5JA  
 172' / 15 hrs.  
 TRIP 4630'  
 BIT #17  
 STC-5JA  
 321' / 17 1/2 hrs.

ORIFICE CUT  
 TO JAGGED 8 3/4 - 9 1/2"  
 INSTALL 3 3/8" ORIFICE  
 TEST @ 4180'  
 8 1/2" ORIFICE  
 1 hrs. 34#, 270°  
 2 - 32#, 260°  
 3 - 32#, 260°  
 4 - 31, 270°  
 5 - 31, 270°  
 REMOVE ORIFICE  
 12" FLOW LINE ONLY  
 200° 210° 220° 230°  
 LT. GRAY  
 MED. GRAY  
 7" 210° WI  
 AIR OFF  
 P.H.  
 STEAMING?  
 4500'  
 DEV. 5" (D)  
 4570'  
 STEAM? 4595'  
 DK. GRAY 4560' - 4940' W.T.  
 ABUNDANT QUARTZ  
 PHENOS PLUS FELDSPAR  
 IN OPAQUE SHARDY  
 GROUNDMASS  
 4" 012" 200° 210°  
 MED. GRAY  
 STEAM? 4760'







4531/2/1/2 hrs

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5800

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LT. MED. GRAY

MED. GRAY

TAN 5930(?) - 6001(?)

5720'-5820' UP TO  
25% EARTHY RED  
SILICA-CLAY ROCK  
PROBABLE OLD  
WEATHERING ZONES

SANDSTONE, LOOSE,  
SEMI-ROUNDED, QUARTZ  
AND PINK FELDSPAR.  
GRAINS, 1/4 - 1/2 MM.,  
FAIR SORTING

TEST WITH 100' COLLARS IN HOLE  
45° ED. 280° AFTER  
2 HRS 8 1/2" ORIFICE  
@ 5975' T.D.

TATCO  
OUT

TRIP 5809'  
BIT # 21  
STC 7JA  
123/10 1/2 hrs.

STUCK CONVERT TO  
HYD. DRILL 5976 TO  
T.D. W/O RETURNS  
T.D. 6001'  
Run - Slotted Liner