



STATE DEPARTMENT OF  
GEOLOGY AND MINERAL INDUSTRIES

1069 STATE O. BLDG  
PORTLAND, OREGON 97201

BORING NO. 16/14/16 Aba

PROJECT		JOB NO.		SHEET OF					
HOLE NAME		LOCATION		ELEVATION					
DRILLING COMPANY		MFR. DESIGNATION OF DRILL							
SIZE AND TYPE OF BIT		DIRECTION AND INCLINATION OF HOLE							
GEOLOGIST		CORE FOOTAGE		TOTAL DEPTH					
DATE STARTED		DATE COMPLETED		TOTAL CORE RECOVERY, %					
				NO. SAMPLES					
DEPTH IN FEET	GEOLOG UNIT	CLASSIFICATION OF MATERIAL (DESCRIPTION)	CASING DEPTH DIA.	SAMPLE OR RUN NUMBER	WATER LEVEL (DATE)	FLOW-LINE TIME IN OUT	DRILL ACTN	TIME OF DAY	REMARKS
160		Baked zone Brown Red to Brown clayey some fragmental character probably a sandstone before or soil horizon	10"					10:20	
170		Sediments + pumice						10:30	
180		Fine to coarse pbbly, Fine to coarse unconsolidated sandst, med to DIS Brown to Black occasional pumice						10:38	
190								10:43	
200		Talus deposit - layer of very siliceous frag (vhyg. chyd. clay, clay) also some seds and basaltic frag matrix of fine sands						10:50	
210								10:59	
220		Sediment med brown consist somewhat lith. frag						11:05	
230		Talus deposit - layer of more siliceous type fragments.						11:15	



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PORTLAND, OREGON 97201

BORING NO. 16/17/86 166

PROJECT <i>Roseville Butte Geothermal Evaluation</i>		JOB NO. <i>61-450</i>	SHEET <i>5</i> OF
HOLE NAME <i>Land grant #1</i>		LOCATION <i>TLES, RME ss</i>	ELEVATION <i>3260</i>
DRILLING COMPANY <i>A M Jansen Drilling Co</i>		MFR. DESIGNATION OF DRILL <i>Porta Drill TLS</i>	
SIZE AND TYPE OF BIT <i>7 3/8 diam TB</i>		DIRECTION AND INCLINATION OF HOLE <i>Vertical</i>	
GEOLOGIST <i>GML</i>	CORE FOOTAGE	TOTAL DEPTH	DEPTH TO WATER
DATE STARTED		DATE COMPLETED	
		TOTAL CORE RECOVERY, %	NO. SAMPLES

DEPTH IN FEET	GEOLOG UNIT	CLASSIFICATION OF MATERIAL (DESCRIPTION)	CASING DEPTH DIA.	SAMPLE OR RUN NUMBER	WATER LEVEL (DATE)	FLOW-LINE TIME		DRILL ACTN	TIME OF DAY	REMARKS
						IN	OUT			
320		Talus and Boulders of siliceous rocks with sand as matrix	10"						12:35	Fast fairly smooth
330		more Talus							12:42	
340		Siliceous large angular frag of Talus							12:49	
350		Sediments med dk brown fine to coarse pebbly fine to med sandstone.							12:59	
360		more silty							1:10	
370		more sediments getting harder more lithified							1:20	
380									1:30	
390		Talus again							1:34	Fast rough

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1089 STATE ICE BUILDING  
PORTLAND, OREGON 97201

B. ING NO. 16/14/16 A

PROJECT <i>Powell Butte Geothermal Evaluation</i>		JOB NO. <i>61-450</i>		SHEET OF <i>6</i>					
HOLE NAME <i>Londonist #1</i>		LOCATION <i>7165/R145/16A</i>		ELEVATION <i>3260</i>					
DRILLING COMPANY <i>A.M. Jannsen Drilling Co</i>		MFR. DESIGNATION OF DRILL <i>Powell #1 T.S.</i>							
SIZE AND TYPE OF BIT <i>7 7/8 diameter</i>		DIRECTION AND INCLINATION OF HOLE <i>Vertical</i>							
GEOLOGIST <i>G. M. L. Tan</i>		CORE FOOTAGE		TOTAL DEPTH					
DATE STARTED		DATE COMPLETED		TOTAL CORE RECOVERY, %					
				<i>No. SAMPLES</i>					
DEPTH IN FEET	GEOLOG UNIT	CLASSIFICATION OF MATERIAL (DESCRIPTION)	CASING DEPTH DIA.	SAMPLE OR RUN NUMBER	WATER LEVEL (DATE)	FLOW-LINE TEMPERATURE IN OUT	DRILL ACTN	TIME OF DAY	REMARKS
400		<i>sediments and boulders some vesic. Frag starting to show up in sample</i>						<i>145</i>	
410		<i>Tuff: reddish-brown in color light brown and clays w/ fragments in a glass matrix - possibly some flattened pumice and some fresh glass seems to be fairly fresh</i>						<i>1:52</i>	
420									
430									
440		<i>Basalt: somewhat altered along flow top. Red to stain in fractures some alteration of mafic minerals chlorite and epidote to epidote</i>						<i>2:30</i>	
450									
460		<i>Bas. 17 fairly fresh no alteration along fractures</i>							<i>BHT-29017 case to 258 10' drill out with 7 7/8" mill tooth hard formation bit</i>
470		<i>Basic zone red to red brown some clayey material</i>							
		<i>mud flow? see next page</i>							

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1069 STATE OFFICE BUILDING  
PORTLAND, OREGON 97201

BORING NO. 16/14/16 Aab

PROJECT		JOB NO.		SHEET		OF			
HOLE NAME		LOCATION		ELEVATION					
DRILLING COMPANY		MFR. DESIGNATION OF DRILL							
SIZE AND TYPE OF BIT		DIRECTION AND INCLINATION OF HOLE							
GEOLOGIST		CORE FOOTAGE		TOTAL DEPTH		DEPTH TO WATER			
DATE STARTED		DATE COMPLETED		TOTAL CORE RECOVERY, %		NO. SAMPLES			
DEPTH IN FEET	GEOLOG UNIT	CLASSIFICATION OF MATERIAL (DESCRIPTION)	CASING DEPTH DIA.	SAMPLE OR RUN NUMBER	WATER LEVEL (DATE)	FLOW-LINE TEMPS IN OUT	DRILL ACTN	TIME OF DAY	REMARKS
480		Mud flow? brown to reddish brown clastic type material. Occasional rounding of particles - many exotics rhyolite or chert, basaltic + other unknowns - crystals of sanidine Qtz(?) and other sparse			← 8-48			7:25	Soft zones with inter spaced hard zones help explain rock type
490		Same slightly darker color possible, due to being further from bake zone			← 8-49			7:45	
500		Same again some alteration - possibly due to hot water some SiO <sub>2</sub> in veins and veins some clay type alteration			← 8-50			8:00	BHT - 31.765°C 8:15 end of day  out flow life to med brown
510		Same formation possibly near bottom much more exotics less small fragmental Full signs of alteration due to H <sub>2</sub> O movement at high temp.						10:30	
520		May have series of mudflows that have some graded bedding now back to darker brown fine grained material almost to point of being sedimentary clastic rock - maybe cement sandst matrix.						10:50	
530		Sandstone - med to dark brown fairly even size range (well sorted). Black frag either basalt or dark oxide rhyolite clay and chert matrix LT colored frags						10:58	
540		Same as before many Qtz of sanidine and/or Uls - some CaCO <sub>3</sub> in cementing agent fairly well lithified						11:10	
550		Small sample NOT well cemented fine grained sandstone						11:17	much fine sand in return liquid







50°F 68°F 86°F 104°F 122°F 140°F

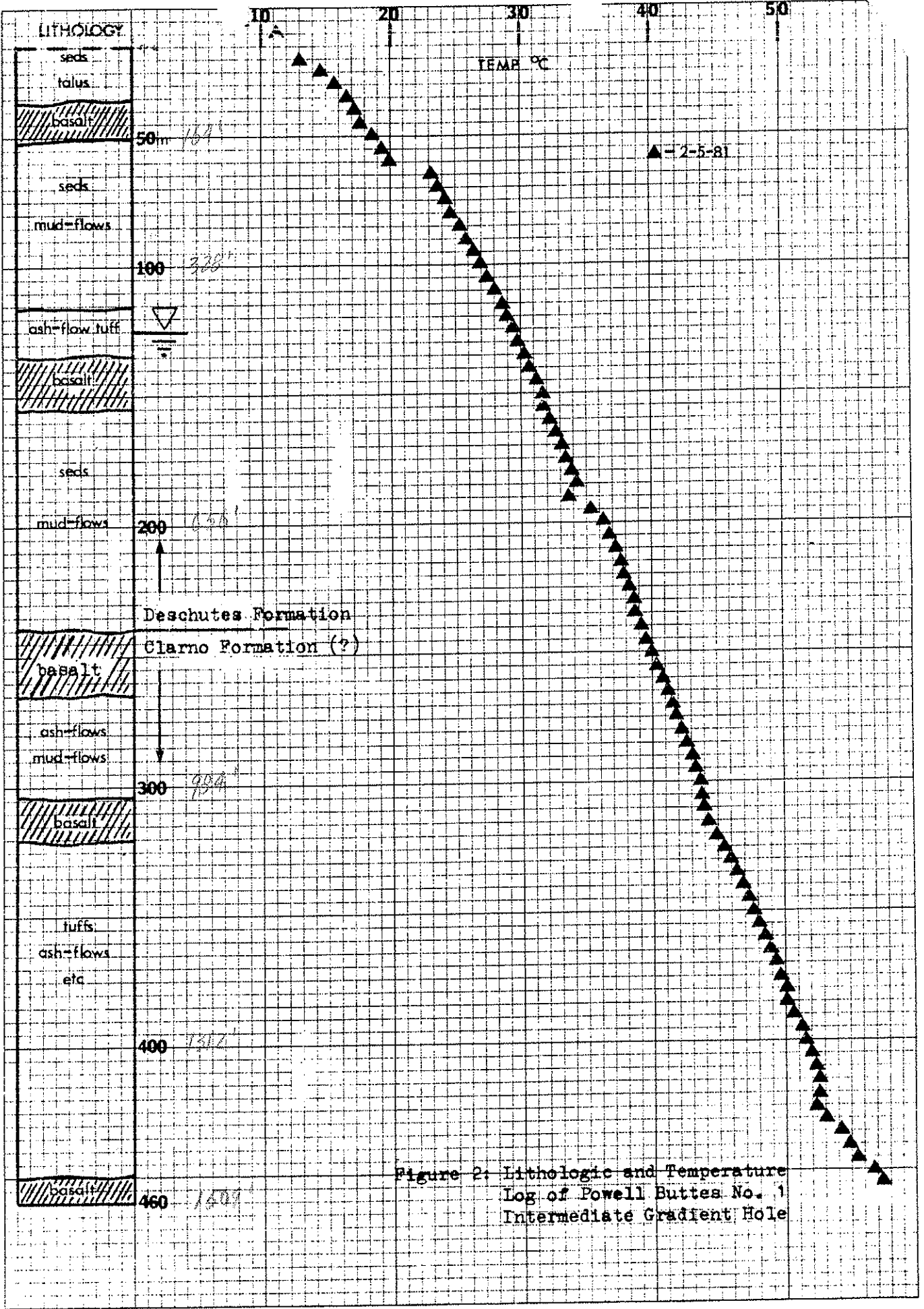
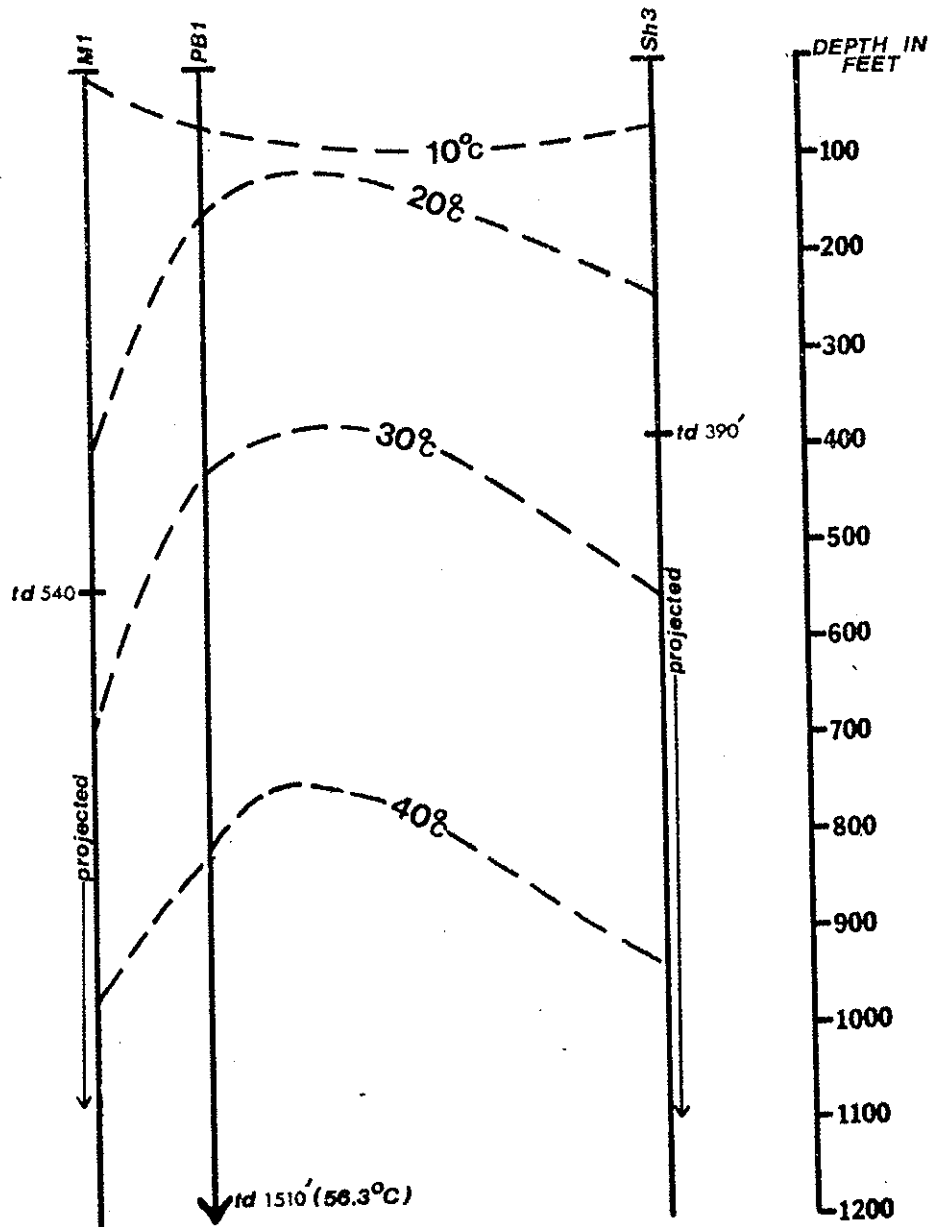
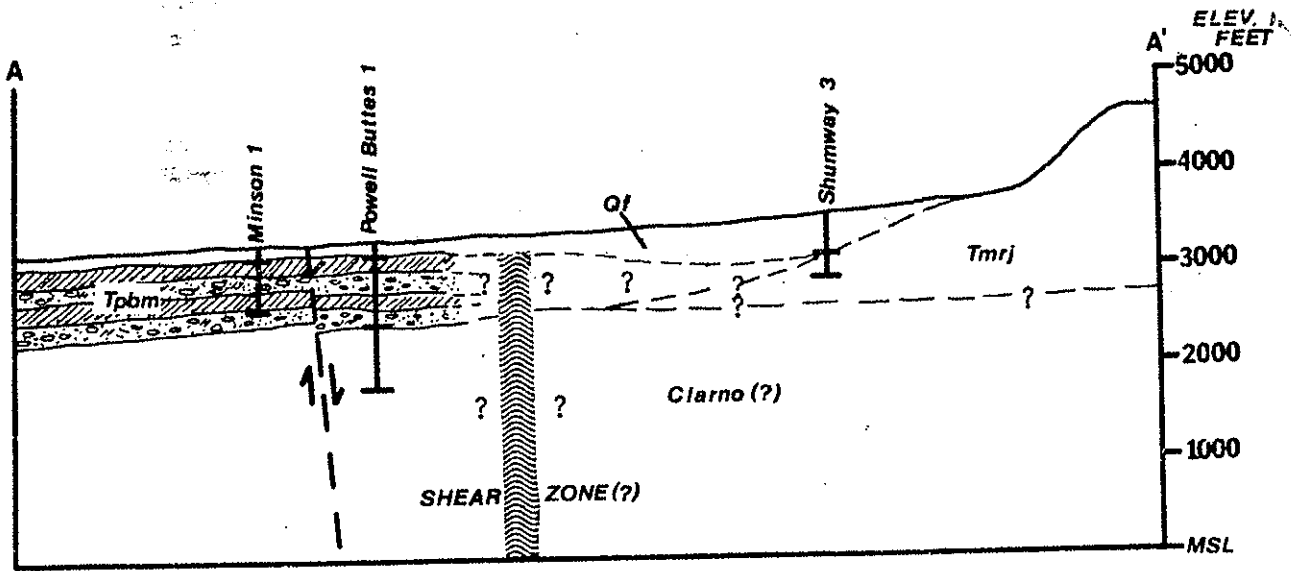


Figure 2: Lithologic and Temperature Log of Powell Buttes No. 1 Intermediate Gradient Hole

46 0700

10 X 10 TO THE INCH • 7 X 10 INCHES  
KEUFFEL & ESSER CO. MADE IN U.S.A.



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Figure 5: Geologic cross-section and isothermal plot through drill holes