

B.1.b. (Strat 68-16).2
Boyles Bros

Hole No. 68-16

Coordinates _____

Sheet No. 1

PHILLIPS PETROLEUM CO.

Date Started _____

Strat 68-16

Collar Elevation _____

Total Footage _____

Type Drill COR

Date Completed _____

Overall Core Recovery _____

Bit Size HQ

Logged By SMITH

BOX #

GEOLOGIC LOG

FROM	TO	FT. OF CORE		ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION	SECTION DEPTH
471	480	9	1	BASALT - M. Gray w/red oxidized flow surfaces; fn. xtl'n; Vesicular; thick parting surfaces.		
480	489	9	2	BASALT - AA; sl. porph, thin - thick parting		BASALT
489	498	9	3	BASALT - AA; parting surfaces have ash/pinda zones w/occ squashed pumice		(Sample here)
498	507	9	4	BASALT - AA		
507	520		5	BASALT - AA; becoming darker in color towards bottom; occ string of cinder with red ash at bottom.		
520	531		5	GLASS - Black; sl. porph. w/felds. phenos; vitreous to stony.		GLASS
531	532		6	GLASS - AA - becoming more stony at bottom; more vesicular too; could be just glass margin of upper basalt flow.		(sideromelane?)
532	547		6	BASALT - DK. Gray; vesicular, porph. w/felds. phenos < 1mm; broken w/ash on top 3 feet.		
547	560		7	BASALT - AA w/no ash.		
560	588		8	BASALT - AA; broken and rubble at 564 represents inter flow rubble/breccia. top of new flow at 570		
588	596		9	BASALT - AA; solid flow at 591-597 then back to rubble		
596	613		10	BASALT - AA; sl. more porph. (<10%)		
613	623		11	BASALT - medium; porph (<10%); vesicular - massive; massive w/few parting surfaces.		

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Sheet No. 2

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GEOLOGIC LOG

FROM	TO	FT. OF CORE	TYPE	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION			SECTION DEPTH
623	626		12	BASALT RUBBLE - broken w/red ash among basalt				
626	634		12	BASALT - dk gray; sl. porph; stoney; massive / no vesicles				
634	645		13	BASALT - AA; rubble/breccia zone at 640				
645	657		14	BASALT - AA; rubble 657-660; then thin parting for 2' then massive basalt; occ. vesicles				Sample here
657	666		15	BASALT - AA				
666	679		16	BASALT - AA; broken at 668-675				
679	688		17	BASALT? - M. gray; sl. porph; massive w/no parting				
688	698		18	BASALT? - lt.-m. gray, v. to xtltn, massive				Sample here
698	702		19	BASALT - AA				
702	712		19	Ash - red to orange; occ. black & red cinder frag.				ASH
712	740		20	Ash - AA occ. lg block of basalt				
740	751		20	DACITE? - dk gray; vesicular; xtltn to stoney (basaltic glass)				Glass/DACITE
751	760		21	DACITE - glass - black to dk gray; sl. porph; vitreous to stoney.				Sample here
760	775		21	BASALT? - dk gray; v. vesicular; broken to masses				ASH
775	780		21	v. Ash - red to orange; little recovery v. friable				ASH
780	823		22	DACITE? - dk gray; vitreous to stoney; vesicular to rd; massive to v. broken; sl. porph.				DACITE?
823	833		23	DACITE? - AA				
833	835		24	DACITE? - AA				
835	835.5		24	ANDESITE - lt.-m. gray; m. parting; red streaks m. surface red mottling. No noticeable contact w/				ANDESITE

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Well No. _____
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Sheet No. 3
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PHILLIPS PETROLEUM CO.

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 Bit Size _____

GEOLOGIC LOG

FROM	TO	FT. OF CORE	TYPE	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION	SECTION DEPTH
839.5	848		25	ANDESITE - m. lt gray; thin - med parting		
848	865		26	ANDESITE - ^{med} AA v. reminiscent of welded tuffs		Sample ←
865	873		27	ANDESITE - AA		
873	882		28	ANDESITE - AA		
882	890		29	ANDESITE - AA		
890	897		30	ANDESITE - med parting surfaces vert. w/ Ash or pumice in them		
897	905		31	ANDESITE (or tuff?)		
905	914		32	ANDESITE - tuff? + red surfaces and migration of glasses AA		
914	922		33	ANDESITE? TUFF? AA vert. planes over vent area		
922	1046	(48)	34	ANDESITE TUFF AA extensive + flow		
1046	1057		49	ANDESITE TUFF AA bonding (vent?)		
1057	1065		50	ANDESITE? Tuff? AA		
1065	1139	Q	51-59	ANDESITE? Tuff? AA		
1139	1141		60	ANDESITE? Tuff - banding lead prominent,		
1141	1144.5	*	60	ANDESITE? no banding probable		
1144.5	1146		60	ANDESITE? - red of black streaks; flow banded		
1146	1149		61	ANDESITE? - AA		
1149	1155		61	GLASS - dk gray to black banding with red xtl in material		
				is common; xenoliths and phenocryst common		
				v. thinly partied in place; xtl in to stony to stream		
				Possible chamber or debris??		
1155	1170		62	GLASS - dk gray to black banding with red xtl in material		
1170	1180		63	GLASS - AA		

Well No. 68-16

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Sheet No. 4

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GEOLOGIC LOG

FROM	TO	FT. OF CORE	TYPE	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION		SECTION DEPTH
1180	1181		64	GLASS-AA			
1181	1190		64	Welded Tuff or Rhyodacite flow - H. Red w/dk green banding; fr. x+1/4 to crypto; porphyritic; flow banding			
1190	1198		65	Rhyodacite? AA - broken to pieces v. similar to above Ancestral Tuff? See			
1198	1208		66	Rhyodacite-AA			Rhyodacite
1208	1215		67	Rhyodacite-AA			Flow 1198
1215	1224		68	Rhyodacite AA			
1224	1233		69	Rhyodacite AA	pending become thicker and more consolidated		
1233	1242		70	Rhyodacite AA			
1242	1250		71	Rhyodacite/tuff-AA			
1250	1258		72	Rhyodacite/tuff - becoming more broken			
1258	1260		73	Rhyodacite AA-AA			
1260	1268		73	GLASS - dk gray to black; rubble to v. small plates; fragments forming margin of flow tuff above			5 7 8 8 7 2 ?
1268	1278		74	GLASS-AA			GLASS
1278	1289		75	GLASS-AA			
1289	1291		75	Tuff - H. red to pink; v. lithic w/ sm. frags;			
1291	1299		76	Tuff - Reddish orange to H. gray; lithic to not lithic - more vitric towards 1299			TUFF
1299	1309		77	Tuff - AA H. gray - soft w/ hard welded spots			
1309	1321		78	Tuff - AA			
1321	1333		79	Tuff - AA - harder			
1333	1336		80	Tuff - AA - becoming clayey and more massive			

Note No. 68-16

Coordinates _____

PHILLIPS PETROLEUM CO.

Sheet No. 5

Collar Elevation _____

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Overall Core Recovery _____

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Logged By _____

GEOLOGIC LOG

FROM	TO	FT. OF CORE	TYPE	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION	SECTION DEPTH
1336	1344		80	Vitrophyre - block w/ H gray dentritic areas; porphy. vugs or full of vugs; lessening more & thin at bottom		
1344	1365		81	Vitrophyre - AA grades into XTH material below		
1365	1367		81	Rhyodacite - Tuff or flow; H. redish gray w/ dk gray banding - S. porphy; vascular at top grading into massive at 1372.5		
1367	1376	*	82	Rhyodacite - AA		
1376	1384		83	Rhyodacite - AA / occ. vugs		
1384	1394		84	Rhyodacite - AA		
1394	1404		85	Rhyodacite - AA		
1404	142		86	Rhyodacite - AA dk gray bands becoming more prominent		
1412	1421		87	Rhyodacite - AA		
1421	1430		88	Rhyodacite - AA		
1430	1440		89	Rhyodacite - AA is rubby 1432-38		
1440	1449		90	Rhyodacite - AA, becoming more dk gray		
1440	1457		91	Rhyodacite - AA		
1457	1467		92	Rhyodacite - AA		
1467	1476	*	93	Rhyodacite - AA		
1476	1486		94	Rhyodacite - AA v. broken 1477-86		
1486	1546	100#	95/101	Rhyodacite - AD		
1546	1555		102	Rhyodacite - AA		
1555	1563		103	Rhyodacite - becoming vitrophyre lacking chlorophyll		
1563	1565		103	Lithic tuff - redish gray matrix w/ vitrophyre clasts; matrix is hard		

Wells No. 68-16

Coordinates _____

Sheet No. 6

PHILLIPS PETROLEUM CO.

Collar Elevation _____

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Overall Core Recovery _____

Type Drill _____

Logged By _____

GEOLOGIC LOG

FROM	TO	FT. OF CORE	TYPE	ROCK DESCRIPTION, ALTERATION AND REMARKS	UTILIZATION		SECTION DEPTH
1565	1574	*	104	Lithic Tuff - AA lg. block of vulcanophyte			
1574	1582		105	Lithic Tuff - AA			
1582	1592		106	Tuff - becoming gray less litho			
1592	1601		107	Tuff - AA soft to hard			
1601	1610		108	Tuff - AA			
1610	1620	*	109	Tuff - AA occ. lg. blocks of welded material			
1620	1630		110	Tuff - becoming harder and breaking fractured - welded portion remaining dk. and glassy			
1630	1639		111	Vitrophyre - dk gray; glassy w/ phenocrysts			
1639	1658	112-117		Vitrophyre - becoming opalescent 1652-5 loss of long			
1658	1694	*	117	Rubble			
1694	1704		118	Rhyolite - m - dk gray; occ. glassy mostly crystallized (occ. spherulite); st. porph.			
1704	1713	*	119	Rhyolite - AA			
1713	1724		120	Rhyolite - AA - occ. soft, broken zone.			
1724	1736		121	Rhyolite - AA			
1736	1737		122	Rhyolite - AA			
1737	1749	*	122	BASALT - dk gray; v. fr. stln; basaltic breccia			
1749	1749						
1749	1749		122	Rhyolite rubble			
1749	1754		123	Rhyolite - AA; broken; glassy in places; d. punky			
1754	1763		124	Rhyolite - AA			
1763	1772		125	Rhyolite - AD becoming less pink at 1767			

AA

Vitrophyre
RUBBLE

Rhyolite

BASALT DIKE

Rhyolite

Hole No. 65-16

Coordinates _____

Sheet No. 7

PHILLIPS PETROLEUM CO.

Collar Elevation _____

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Date Completed _____

Overall Core Recovery _____

Bit Size _____

GEOLOGIC LOG

Logged By _____

FROM	TO	FT. OF CORE	TYPE	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION		SECTION DEPTH
1772	1781	*	D6	Rhyolite - Alt spherulitic w/occ. soft tuffaceous zones			
1781	1789		D7	Rhyolite - Alt broken & soft occ. zones of red volcanic glass (trassalic?)			Rhyolite
1789	1798		128	Rhyolite - Alt			
1798	1808		129	Rhyolite - becoming punky 1798-1802 then vitrophane to 1808			
1808	811		130	Rhyolite - Punky and glassy			
1811	1817	*	130	Breccia - Vitrophane blocks surrounded by soft matrix			
1817	1824		131	BASALT - Mt dk gray; w/tn gr; med broken brecciated at top			BASALT DIKE
1824	1832	*	132	BASALT - Alt			
1832	1834		133	BASALT - Alt			
1834	1841		133	Vitrophane - Alt in 1811-1817			
1841	1851	*	134	Vitrophane - Alt			
1851	1861		135	Vitrophane - Alt			Vitrophane
1861	1867		136	Vitrophane - Alt			
1867	1870	*	136	TUFF - reddish gray; soft to hand			TUFF
1870	1872		137	TUFF - Alt			
1872	1880		137	Vitrophane - Alt			Vitrophane
1880	1890		138	Vitrophane - Alt occ. frag. of red ash			
1890	1900		B9	LAMP - Reddish gray - angular to subrounded frags of basal t. vitrophane in red clay matrix; matrix suggests			

Hole No. 68-16

Coordinates

PHILLIPS PETROLEUM CO.

Sheet No. 8

Collar Elevation

Date Started

Total Footage

Date Completed

Overall Core Recovery

Logged By: Smith/Beall

Type Drill

Bit Size BOX

GEOLOGIC LOG

FROM	TO	FT. OF CORE	THICK	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION	SECTION	DEPTH
1900	1910		140	LAHAR AA			
1910	1919	*	141	LAHAR - AA			
1919	1924		142	LAHAR - AA			
1924	1928		142	Altered Tuff or tuffaceous - reddish gray; soft but not broken; looks like tuff or tuffaceous fragments			
1928	1938	*	143	Altered tuff or tuffaceous			
1938	1947		144	Altered tuff or tuffaceous - AA			
1947	1956		145	Altered tuff or tuffaceous - AA			
1956	1966		146	Altered tuff or tuffaceous - AA			
1966	1975	*	147	Altered tuff or tuffaceous - AA			
1975	1984	*	148	Altered tuff or tuffaceous - AA			
1984	1986		149	Altered tuff or tuffaceous - AA			
1986	1993		149	Basalt - m. gray; En 41			
1993	2001		150	Basalt - AR			
2001	2010		151	Basalt/Andesite gray - dk grey, fresh, hard			
2010	2019	*	152	Andesite? It is med grey,			
2019	2027		153	Andesite AA			
2027	2036		154	Andesite/Basalt dk grey to black, fresh, hard			
2036	2045		155	Basalt/Andesite? broken up; well adhered			
2045	2055		156	Cinders, dk red, well consolidated			
2055	2065	*	157	Cinders AA			
2065	2073		158	Cinders + basalt, broken up			
2073	2082		159	basalt/Andesite w/ thin zones of cinders			

BRISACT

CINDER

BA

Hole No. 68-16

Coordinates

PHILLIPS PETROLEUM CO.

Sheet No. 9

Center Elevation

Date Started

Total Footage

Date Completed

Overall Core Recovery

Bit Size

20X

Logged By *B. Seal*

GEOLOGIC LOG

FROM	TO	FT. OF CORE	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION	SECTION DEPTH
2082	2090	* 160	Basalt/Andesite dk grey w/small white plug phenocr. Thin cinder zones		
2090	2098	161	Basalt/Andesite AA v. fresh, solid, hard		
2098	2107	162	Basalt/Andesite AA		
2107	2116	163	Basalt/Andesite AA w/thin cinder zones		
2116	2124	164	Basalt/Andesite interbedded w/dk red cinders		
2124	2133	165	Bas/And w/cinders AA		
2133	2142	166	A.A. cinder zones up to 3'		
2142	2151	167	A.A.		
2151	2159	168	Dk red to black cinders w/small pieces bas/Andesite		
2159	2167	169	Bas/And interbedded w/dk red-black cinders		
2167	2177	* 170	A.A.		
2177	2185	171	A.A.		
2185	2196	172	A.A.		
2196	2203.5	173	A.A. somewhat more consolidated		
2203.5	2212	174	AA		
2212	2222	175	AA		
2222	2230	* 176	A.A. but w/larger % of Bas/Andes		
2230	2240	177	Andesite w/minor cinders		
2240	2250	178	A.A.		
2250	2259	179	Andesite interbedded with cinders		
2259	2268	180	A.A.		
2268	2276	181	A.A.		
2276	2285	* 182	Andesite dk grey to red w/minor cinders		

Note No. 68-16

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Sheet No. 1D

PHILLIPS PETROLEUM CO.

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Overall Core Recovery _____

Type Drill _____

Logged By Reall

Bit Size 1 3/8 X

GEOLOGIC LOG

FROM	TO	FT. OF CORE	TIME	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION		SECTION DEPTH
2285	2295		183	dk grey to dk red Andesite w/ small white plug phenos / minor cinders			Andesite
2295	2303		184	Predominantly red cinders w/ Andesite A.A.			
2303	2312		185	A. A.			
2312	2320		186	Andesite + Cinders A.A.			
2320	2329	*	187	Andesite dk grey to red w/ small white plug phenos			
2329	2338		188	A.A. w/ minor cinders			
2338	2347		189	Andesite grading downward into volcanlastic conglomerate, well consolidated			
2347	2353	*	190	Volcanlastic conglomerate			
2353	2356		190	light grey / white ash / tuff, soft			
2356	2366		191	soft, dk grey tuff / ash			
2366	2376		192	Tuff / ash A.A. w/ some volcanlastic gravels in ash matrix			
2376	2380		193	Tuff soft, white, breaks up into fine sand			
2380	2382	*	193	Welded tuff, dk grey, hard			
2382	2391		194	Tuff dk grey varies from welded to hard to soft + friable			
2391	2398		195	Tuff A.A.			
2398	2406		196	Tuff A.A.			
2406	2417		197	Tuff welded, dk grey			
2417	2425	*	198	Tuff A.A.			
2425	2435		199	Tuff-AA occ. v. porous			
2435	2443		200	TUFF-AA			
2443	2452		200	TUFF-AA			
2452	2460		202	TUFF-AA			

