

B.1.b. (Strat 18-34). 2

Hole No. 18-34

Coordinates \_\_\_\_\_

Sheet No. 1

PHILLIPS PETROLEUM CO.

Collar Elevation \_\_\_\_\_

Date Started \_\_\_\_\_

Total Footage \_\_\_\_\_

Type Drill \_\_\_\_\_

Date Completed \_\_\_\_\_

Overall Core Recovery \_\_\_\_\_

Bit Size \_\_\_\_\_ Box

GEOLOGIC LOG

Logged By Ball

FROM	TO	FT. OF CORE	CORRECTION	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION			SECTION DEPTH	
519	529		1	Andesite, fine grnd, med grey, prominent sub-horizontal parting or rock cleavage surfaces. <u>Platy Andesite?</u>					
529	532.5		2	AA					
532.5	542		3	AA					
542	545		3	AA but dk grey to black					
545	549		4	AA					
549	555		4	Cinders / scoriaceous basalt					
555	572		5	AA					
572	582		6	Scoria + cinders grading to v. vesicular andesite					
582	587		7	Andesite, med grey, dense, solid numerous small white plagioclase phenos					
587	592		7	Scoria, dk red to black					
592	609		8	Cinders, scoria, scoriaceous basalt, poorly consolidated					
609	623.5		9	Scoria + highly vesicular basalt - blk, fine grnd					
623.5	624		10	AA					
624	627		10	Clay, lt tan to yellow					
627	639		10	Scoriaceous to v. vesicular basalt					
639	640.5		10	basalt, dk grey to black fine grnd, dense					
640.5	735.5		10-19	basalt - varies from dense, fine grnd to vesicular, highly vesicular and scoriaceous. DK grey to black. Few thin zones of cinders					
735.5	747		20	Scoria, cinders, scoriaceous basalt					
747	764		21	Porous, v. fragmental, glass, crumbly					
764	768		21	Fine grnd to glassy, black vitrophyre					
768	779.5		22	AA					
779.5	784.5		23	AA					

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Type Drill \_\_\_\_\_

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Sheet No. 2

Date Started \_\_\_\_\_

Date Completed \_\_\_\_\_

PHILLIPS PETROLEUM CO.

Collar Elevation \_\_\_\_\_

Total Footage \_\_\_\_\_

Overall Core Recovery \_\_\_\_\_

Logged By Beall

GEOLOGIC LOG

FROM	TO	FT. OF CORE	TYPE	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION			SECTION DEPTH	
788.5	796	23	Bas	Basalt, dense, blk, fine grnd					
796	799	34		Basalt, vesic to scoriaceous, some cinders					
799	809	25		AA, w/more cinders, brt red, unconsol					
809	818.5	26		AA					
818.5	834	27		AA					
835	835	28		AA					
835	846	28		basalt/andes dk grey, finegrnd, v. hard, fine flow banding					
846	855	29		AA					
855	857	30		AA					
857	871	30		DK red cinders + scoriaceous basalt					
871	881.5	31		Vesicular basalt, blk and minor scoria					
881.5	896	32		basalt, blk, finegrnd, highly vesicular					
896	911	33		AA					
911	918.5	34		Basalt/Andesite? dk grey, finegrnd, prominent sub horiz parting or rock cleavage					
918.5	926	35		AA					
926	934	36		AA					
934	942.5	37		AA					
942.5	951.5	38		AA					
951.5	962	39		AA					
962	971	40		AA					
971	980.5	41		AA					
980.5	986	42		AA					
986	990.5	42		Pid-Orange cinders w/6" of glassy rx-obsid					

Platy Andesite?

Platy Andesite seen in 44-33

cinder-red colored coatings in v. fine laminations/fine folia

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Coordinates \_\_\_\_\_

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Bit Size \_\_\_\_\_

Sheet No. 3

Date Started \_\_\_\_\_

Date Completed \_\_\_\_\_

PHILLIPS PETROLEUM CO.

Collar Elevation \_\_\_\_\_

Total Footage \_\_\_\_\_

Overall Core Recovery \_\_\_\_\_

Logged By Beall

GEOLOGIC LOG

FROM	TO	FT. OF CORE	CORRECTION	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION			SECTION DEPTH	
1007.5	1007.5		43	Obsidian, blk, glassy mostly fragmental					
1007.5	1018		44	AA					
1018	1049		45	AA but more lt. grey in color-					
1049	1059		46	AA					
1059	1069		47	AA					
1069	1079		48	AA w/ thin grey pumice zone, obsidian frags mixed w/ pumice ash					
1079	1099		49	Ash, v. poorly consolidated, grading to finely vesicular scoria					
1099	1118.5		50	Obsidian - glassy to v. slightly devitrified - badly broken up, dk grey					
1118.5	1140		51	AA but becoming mixed w/ red scoria and brecciated, v. broken up					
1140	1146		52	Andes/Basalt? v. fine grad, dk grey, fresh					
1146	1154		53	AA but lighter grey + more broken up					
1154	1162		54	AA					
1162	1170		55	AA, but w/ a subhorizontal platy parting or rock cleavage					
1170	1180		56	AA w/ slow banding - broken up toward bottom					
1180	1190		57	AA becoming mixed with then grading to brick red scoria then unconsol cinders					
1190	1200		58	Brick-red scoria					
1200	1207		58	Obsidian, fresh, black, well broken up					
1207	1224		59	AA					
1224	1247		60	AA					
1247	1257		61	AA but becoming more scoriaceous to bottom					
1257	1267		62	Scoria w/ mixed black obsidian					
1267	1283		63	AA but grading back into obsidian					
1283	1292		64	Obsidian - broken up					

Obsid/Pumice/Ash  
 Andes/Basalt  
 Scoria/Cinders  
 Obsidian

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Coordinates \_\_\_\_\_

Sheet No. 4

PHILLIPS PETROLEUM CO.

Coffer Elevation \_\_\_\_\_

Date Started \_\_\_\_\_

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Type Drill \_\_\_\_\_

Date Completed \_\_\_\_\_

Overall Core Recovery \_\_\_\_\_

Bit Size \_\_\_\_\_

Logged By Beall

## GEOLOGIC LOG

	FROM	TO	FT. OF CORE	BOX	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION			SECTION DEPTH	
Obsidian	1272	1315	65		Obsidian - becoming v. fragmental					
	1315	1357	65		Pumice - mostly ground into "mush", v. poor recovery					
	1357	1366	66		Scoria ± pumice with bands of fragmental obsidian					
	1366	1374	67		A.A. but relatively less obsid.					
	1374	1382.5	68		AA - grading into flow banded rhyolite, (fairly rotten stuff)					
	1382.5	1391	69		Rhyolite? flow banded, dk grey to lt. pink/red					
	1391	1399	70		AA but w/ some scoriaceous +/or cindery zones					
	1399	1408.5	71		AA					
	1408.5	1416	72		AA but grading to dk grey or black w/ lt grey pumiceous zones in banding					
	1416	1424	73		AA					
Mkyolite	1424	1432.5	74		AA (beautiful flow banding)					
	1432.5	1440.5	75		AA - grading to more scoriaceous + cindery rubble					
	1440.5	1449.5	76		AA - grading back to more solid + flow banded - darker grey					
	1449.5	1456	77		AA, but <del>more</del> badly broken up					
	1456	1464	78		AA					
	1464	1471.5	79		AA (less broken up)					
	1471.5	1480	80		AA - fairly solid w/ good flow banding					
	1480	1488	81		AA, but w/ glassy bands downward bottom					
	1488	1496.5	82		AA - flow banded w/ glassy bands, brecciated zones					
	1496.5	1506	83		AA grading into finely vesicular, glassy, lt grey, non banded flow quite solid core					
	1506	1514.5	84		AA					
	1514.5	1524	85		AA					
	1524	1527	86		AA					

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Sheet No. 5

Date Started \_\_\_\_\_

Date Completed \_\_\_\_\_

PHILLIPS PETROLEUM CO.

Collar Elevation \_\_\_\_\_

Total Footage \_\_\_\_\_

Overall Core Recovery \_\_\_\_\_

Logged By Beall

**GEOLOGIC LOG**

Pumice + Obsidian Glass Rhyolite

FROM	TO	FT. OF CORE	TYPE BOX	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION			SECTION DEPTH	
1527	1532	86		Rhyolite? Med-grey, fine grained, solid, dense					
1532	1540.5	87		AA - mod & parting along glass banding					
1540.5	1549	88		AA					
1549	1558	89A		AA					
1558	1564	89B		AA					
1564	1572	90		AA					
1572	1579.5	91		AA					
1579.5	1588	92		AA - well devel parting along glass banding					
1588	1596	93		AA					
1596	1605	94		AA					
1605	1611.5	95		AA					
1611.5	1619.5	96		AA grading back into finely vesicular grey-glass					
1619.5	1626.5	97		AA - v. porous but still very cohesive core					
1626.5	1633	98		Obsidian, badly broken up, becoming mixed w/ light grey ash					
1633	1644	99		Obsidian / Ash					
1644	1654	100		AA w/rel more pumice					
1654	1663	101		Pumice w/ abundant fragments obsidian					
1663	1674.5	102		AA					
1674.5	1682.5	103		AA					
1682.5	1692	104		AA					
1692	1703	105		AA					
1703	1713.5	106		AA					
1713.5	1726	107		AA					
1726	1734	108		AA					

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Sheet No. 6

PHILLIPS PETROLEUM CO.

Coffer Elevation \_\_\_\_\_

Date Started \_\_\_\_\_

Total Footage \_\_\_\_\_

Type Drill \_\_\_\_\_

Date Completed \_\_\_\_\_

Overall Core Recovery \_\_\_\_\_

Bit Size \_\_\_\_\_

Logged By BEALL

## GEOLOGIC LOG

FROM	TO	FT. OF CORE	CORRECTION BOX	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION			SECTION DEPTH
1734	1743	109		AA				
1743	1752	110		AA				
1752	1754	111		Obsidian fragments in matrix of pumice + ash				
1754	1761	111		Obsidian fragments w/ spherical to rounded pumice blocks				
1761	1761			some weak segregation of pumice/ash into flow bands				
1761	1768	112		AA				
1768	1777	113		AA				
1777	1786	114		AA (intermittent flow banding - high L)				
1786	1794	115		AA				
1794	1802	116		AA (vertical flow banding)				
1802	1809	117		AA (Obsidian becoming less fragmental)				
1809	1817.5	118		AA - grading into flow banded rhyolite w/ pumice spherulites				
1817.5	1824	119		Flow banded rhyolite/obsid w/ pumice/ash bands and spherulites				
1824	1832.5	120		AA				
1832.5	1842	121		AA				
1842	1850	122		AA				
1850	1857	123		AA				
1857	1868	124		AA				
1868	1877	125		AA				
1877	1886.5	126		AA				
1886.5	1895	127		AA				
1895	1903	128		AA (badly broken up)				
1903	1909	129		AA (pumice spherulites becoming flattened)				
1909	1918	130		AA				

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Sheet No. 7

Date Started \_\_\_\_\_

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PHILLIPS PETROLEUM CO.

Collar Elevation \_\_\_\_\_

Total Footage \_\_\_\_\_

Overall Core Recovery \_\_\_\_\_

Logged By BEALL

### GEOLOGIC LOG

FROM	TO	FT. OF CORE	TIME, RDX	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION				SECTION DEPTH	
1918	1926		131	Flow banded puriceous ash + rhyolite (dam high 4)						
1926	1934		132	AA						
1934	1942		133	AA						
1942	1950.5		134	AA						
1950.5	1960		135	AA						
1960	1968.5		136	AA						
1968.5	1980		137	AA						
1980	1988		138	AA						
1988	1998		139	AA						
1998	2007		140	AA						
2007	2015		141	AA						
2015	2023		142	AA						
2023	2032		143	AA						
2032	2040		144	AA						
2040	2049		145	AA						
2049	2059		146	AA						
2059	2069.5		147	AA						
2069.5	2076.5		148	AA						
2076.5	2085		149	AA						
2085	2094		150	AA						
2094	2103		151	AA						
2103	2113		152	AA						
2113	2122		153	AA						
2122	2130		154	AA but flow banding becoming very fine + even - like varves						

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Sheet No. 8

PHILLIPS PETROLEUM CO.

Collar Elevation \_\_\_\_\_

Date Started \_\_\_\_\_

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Type Drill \_\_\_\_\_

Date Completed \_\_\_\_\_

Overall Core Recovery \_\_\_\_\_

Bit Size \_\_\_\_\_

Logged By Bull

**GEOLOGIC LOG**

FROM	TO	FT. OF CORE	TYPE BOX	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION				SECTION DEPTH	
2130	2139.5		156	AA						
2139.5	2148.5		156	AA						
2148.5	2157		157	AA						
2157	2166		159	AA						
2166	2175		159	AA						
2175	2184		160	AA						
2184	2187		161	AA/very high L contact with black vesicular glassy dike						
2187	2192		161	→						
2192	2196		162	Banded rhyolite + black, dense glassy dike in nearly vertical contact						
2196	2200.5		162	Dense, black glassy dike						
2200.5	2208		162	Glass - dk grey to black, finely vesicular in places						
2208	2215		164	AA glassy to marginally microcrystalline, lacks glassy luster of true obsidian						
2215	2222.5		165	AA						
2222.5	2231.5		166	AA						
2231.5	2238		167	AA						
2238	2246		168	AA						
2246	2255		169	AA						
2255	2264		170	AA						
2264	2271		171	AA						
2271	2282		172	AA						
2282	2291		173	AA						
2291	2300		174	AA						
2300	2309		175	AA						
2309	2317		176	AA						



Well No. 18-34

Coordinates

Sheet No. 9

PHILLIPS PETROLEUM CO.

Collar Elevation

Date Started

Total Footage

Date Completed

Overall Core Recovery

Type Drill

Logged By

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Bit Size

GEOLOGIC LOG

FROM	TO	FT. OF CORE	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION	SECTION DEPTH
2317	2325	177	AA		
2325	2333	178	AA		
2333	2342	179	AA		
2342	2349.5	190	AA		
2349.5	2358.5	181	AA (Felsite, light grey, v. fine grnd to pass. glassy, v. fine flow banding at bgl. Lt. & 80°)		
2358.5	2367	182	AA		
2367	2375	183	AA (finely crystalline)		
2375	2383	184	AA yellow-ang. flow banding, finely vesicular in thin zones		
2383	2391	185	AA but badly broken, somewhat altered, chlorite exfoliation surfaces		
2391	2400	186	AA but grading to v. finely flow banded v. cinnamon-red coating on fine flow laminations giving cast a pinkish to red cast.		
2400	2409	187	AA		
2409	2417	188	AA		
2417	2425	189	AA (dk red-grey to light cinnamon red)		
2425	2434	190	AA		
2434	2442.6	191	AA v. finely banded at ~ 30°		
2442.6	2451	192	AA		
2451	2459	193-97	AA v. broken in places		
2459	2468	197	ANDESITE - M Gray, sl. vesicular; v. fn. xtltn, broken		
2468	2476.5	198	ANDESITE - AA		
2476.5	2485	199	ANDESITE - AA		
2485	2493.5	199	BASALT - M-dk gray; vesicular; v. fn. xtltn		
2493.5	2502	200-203	BASALT - AA becoming v. fn. xtltn at bottom		
2502	2510.5	203	v. Ash - Lt. Red; hard; v. fine crystalline fragments of basalt		

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Coordinates

Sheet No. 10

PHILLIPS PETROLEUM CO.

Coffer Elevation

Date Started

Total Footage

Type Drill

Date Completed

Overall Core Recovery

Bit Size

Logged By

## GEOLOGIC LOG

FROM	TO	FT. OF CORE	TYPE	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION			SECTION DEPTH	
2536.5	2563		204-26	V. Ash-AA frags of basalt/Scoria getting larger					
2563	2570		207	B. Ash-AA					
2570	2572		207	BASALT - Md-k gray; v. fr. xt 1/4; occ. vesicular;					
2572	2580.5		208	BASALT					
2580.5	2596		209-10	BASALT-AA					
2596	2604.5		211	BASALT-AA pyrite on parting surfaces					
2604.5	2613.5		212	BASALT-AA pyrite? on parting surfaces? 2611					
2613.5	2630.5		213-14	BASALT (?) - AA; faint banding in rx; reddish stain on parting surf. Neats fs					
2630.5	2645		15-16	BASALT or Welded Basalt; - m gray to reddish gray; v. fr. xt 1/4 faint banding; becoming reddish @ 2642					
2645	2654		17	Welded V. Ash - red; soft to hard; occ. scoriae up					
2654	2665		18	V. Ash - red to black; becoming black @ 2663; soft to m. hard; occ. lithic					
2665	2670		19	V. Ash - abrasion					
2670	2679		20	V. Ash - black; AA becoming v. hard @ 2670					
2679	2698		21-22	V. Ash - v. welded AA					
2698	2717		23-24	V. Ash - v. welded AA					
2717	2726		25	Welded V. Ash - AA					
2726	2771.5		226-30	Welded V. Ash - AA m. hard @ 2731-2735.5					
2771	2783		231	Welded V. Ash - AA					
2783	2791.5		232	W. V. Ash - AA					
2791.5	2808		233	W. V. Ash - AA becoming v. broken at 2792					
2808	2812		234	W. V. Ash - AA					

Hole No. \_\_\_\_\_

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PHILLIPS PETROLEUM CO.

Cellar Elevation \_\_\_\_\_

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Total Footage \_\_\_\_\_

Type Drill \_\_\_\_\_

Overall Core Recovery \_\_\_\_\_

Bit Size \_\_\_\_\_

Logged By \_\_\_\_\_

### GEOLOGIC LOG

FROM	TO	FT. OF CORE	TYPE	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION	SECTION DEPTH
2812	2840		234	BASALT - M-dk gray; v.v. fr. x 1/16" ; v. broken; no vesicles or phenos.		
2840	2851		235	BASALT-AA		
2851	2864		236	BASALT-AAH ; becoming thinly jointed at 2857.5		
2864	2875		237	BASALT-AA		
2875	2884		238	BASALT-AA		
2884	2893		239	BASALT-AA		
2893	2902	48	416a	skipped		
2902	2910		242	BASALT-AA becoming less broken more massive faint banding of squashed vesicles?		
2910	2920		243	BASALT-AA		
2920	2929		244	BASALT-AA		
2929	2927.5		245	BASALT-AA		
2927.5	2946.5		246	BASALT (TYPE??) AA		
2946.5	2955		247	BASALT (TYPE??) AA		
2955	2964		248	BASALT-AA Needs to s; v. broken in places.		
2964	2972		249	BASALT-AA		
2972	2976		250	BASALT-AA		
2976	2985		251	BASALT-AA		
2985	2995.5		252	CINDER PROBLE - reddish gray; broken to massive B. Rubble - greenish gray to reddish gray; v. broken, occ. locally <del>phenos</del> phenos zones; chl. also present?		
2995.5	3006.5		253	B. Rubble - AA more broken zones		
3006.5	3013		254	B. Rubble - AA		

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Coordinates \_\_\_\_\_

Sheet No. 2

PHILLIPS PETROLEUM CO.

Collar Elevation \_\_\_\_\_

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**GEOLOGIC LOG**

FROM	TO	FT. OF CORE	TYPE	ROCK DESCRIPTION, ALTERATION AND REMARKS	METALLIZATION	SECTION DEPTH
3023	3036	255		B. Rubble - AA		
3036	3037	255		Cinder - Reddish gray to gray sand; soft to hard		
3037	3144	256-45		Cinder - AA occ. some oil and some.		
3144	3204	256-72		Cinder - AA becoming hard & massive at bottom		
3204	3207	272		Basalt - m-dk gray; occ. cinder at top of unit; massive to broken, non vesicular		
3207	3215	273		Basalt -		
3215	3223	273		Basalt - slightly greenish altn present		
3223	3286	274-82		Basalt - AA		
3286	3295	282		Dark Ash - red; soft to hard occ. cinders		
3295	3301	283		Ash Cinder - red turning to dk gray; massive		
3301	3305	283		Basalt - dk gray, broken to massive;		
3305	3305	284		Bubbly basalt + cinders - soil		
3305	3315	284+5		Dark massive black basalt		
3315	3317	285		Broken basalt		
3317	3322	285		Massive basalt with some small cinders		
3322	3323	286		clay filled fracture between 3317 and 3319		
3323	3353	286-9		Broken basalt		
3353	3364	289-90		Massive Basalt		
3364	3403	290-5		Basalt - fairly hard, black and generally vesicular and oxidized		
3403	3403	290-5		Hard dense massive basalt		
3403	3418	295-8		one reddish possible flow boundary at 3382		
3418	3418	295-8		Hard basalt. small to medium vesicles		

