

PROJECTION OF ESTIMATED PRODUCTION & REVENUE  
AS OF  
JANUARY 1, 1974

BEGIN WORKING INTEREST .500000  
BEGIN REVENUE INTEREST .405000  
INTEREST CHANGE POINT NONE

LEASE NAME : PARTNER 50% OF 220  
FIELD NAME : GEOTHERMAL  
CNTY, STATE : CHAFFEE, COLORADO  
OPERATOR : PETRO-LEWIS

PROVEN-UNDEVELOPED RESERVES

CALENDAR YEAR	GROSS DELIVERY MW-----	NET DELIVERY MW-----	GROSS SALES MMW/YR.---	NET SALES MMW/YR.---	TOTAL		NET OPERATING EXPENSES M\$-----	NET OPERATING CASHFLOW M\$-----	CUMULATIVE OPERATING CASHFLOW M\$-----	CUMULATIVE CASHFLOW DISC8.% M\$-----
					REV. AFTER PROD. TAXES M\$-----	TOTAL ALL INVESTMENT M\$-----				
1973 (12MO)	.000	.000	.000	.000	.000	.000	150.000	.000	-150.000	-150.000
1974	.000	.000	.000	.000	.000	.000	435.000	.00	-435.000	-585.000
1975	1.500	.608	9.720	3.937	11.219	.000	295.000	4.500	-284.281	-873.281
1976	.000	.000	.000	.000	.000	.000	45.000	.000	-45.000	-918.281
1977	.000	.000	.000	.000	.000	.000	1117.500	.000	-1117.500	-2035.781
1978	.000	.000	.000	.000	.000	.000	40.000	.000	-40.000	-2075.781
1979	.000	.000	.000	.000	.000	.000	40.000	.000	-40.000	-2115.781
1980	.000	.000	.000	.000	.000	.000	40.000	.000	-40.000	-2155.781
1981	54.000	21.075	481.800	195.129	709.977	.000	40.000	42.000	627.977	-1527.804
1982	54.000	22.075	481.800	195.129	709.977	.000	1092.500	42.000	-424.523	-1952.327
1983	110.000	44.500	963.600	390.258	1419.954	.000	37.500	78.000	1304.454	-647.873
1984	110.000	44.500	963.600	390.258	1812.944	.000	1092.500	78.000	642.444	-5.429
1985	165.000	66.825	1445.400	585.387	2719.415	.000	40.000	114.000	2565.415	2559.986
1986	165.000	66.825	1445.400	585.387	2719.415	.000	1087.500	114.000	1517.915	407.901
1987	210.000	82.100	1972.200	798.741	3710.511	.000	30.000	150.000	3530.511	7608.452
SUB TOTAL	891.500	357.008	7763.520	3144.266	13813.452	.000	5082.500	622.500	7608.452	7608.452
THEREAFTER	1100.000	405.500	9636.000	3902.580	18129.436	.000	150.000	750.000	17229.436	24837.888
TOTAL OF 20.0 YEARS	1981.500	802.508	17399.520	7046.806	31942.888	.000	5732.500	1372.500	24837.888	24837.888

CURRENT PRICES AFTER PRODN & AD VAL TAXES: \*2.8500 \$  
BEGIN OPRG COST 100 \$/MO

RATE OF RETURN 25.07%, PAYOUT TIME 12.00 YR  
FOR 6.00 PCT. PRESENT WORTH IS M\$ 9806.580  
FOR 10.00 PCT. PRESENT WORTH IS M\$ 5203.363  
FOR 12.00 PCT. PRESENT WORTH IS M\$ 3732.033  
FOR 15.00 PCT. PRESENT WORTH IS M\$ 2177.355  
FOR 20.00 PCT. PRESENT WORTH IS M\$ 659.300

THE FOLLOWING PROPERTIES ARE INCLUDED IN THIS TAX SUMMARY:

PARTNER 50% OF 2:0 1111 113 1111:

YEAR	INCOME AFTER ROYALTIES	OPERATING EXPENSES PROD TAXES	OPERATING REVENUE BEFORE FIT	TOTAL FUTURE INVESTMENT	U.O.P. DEPRECIATION TANGIBLE EQUIPMENT	ALLOWABLE DEPLETION	TAXABLE NET INCOME	INCOME TAX TO BE PAID	NET INCOME AFTER TAX	NET CASH FLOW AFTER TAXES	NET CASH FLOW DISC. @ 8.0%
1973	0.	0.	0.	15000.	0.	0.	0.	0.	0.	-150000.	-141338.
1974	0.	0.	0.	43500.	0.	0.	-25000.	-12500.	125000.	-310000.	-276202.
1975	11810.	5001.	6710.	29500.	383.	0.	-118604.	-5932.	61051.	-228949.	-188877.
1976	0.	0.	0.	45000.	0.	0.	0.	0.	0.	-45000.	-34374.
197	0.	0.	0.	117500.	0.	0.	-935000.	-467500.	46750.	-650000.	-459734.
1978	0.	0.	0.	4000.	0.	0.	0.	0.	0.	-400.	-26196.
1979	0.	0.	0.	4000.	0.	0.	0.	0.	0.	-40000.	-2425.
1980	0.	0.	0.	4000.	0.	0.	0.	0.	0.	-40000.	-22459.
1981	74734.	79367.	67977.	4000.	24781.	16416.	478780.	239390.	428587.	388587.	202016.
1982	74734.	79367.	6797.	109250.	20781.	0.	-296304.	-148152.	816129.	-276371.	-133035.
1983	140168.	152734.	1341954.	37500.	60708.	32831.	952350.	47617.	865777.	828277.	369170.
1984	1908362.	173418.	173494.	1092500.	70612.	3640.	3640.	182333.	152611.	460111.	189884.
1985	2862542.	257127.	2605415.	40.	10917.	629759.	1865738.	932869.	1672546.	1632546.	623833.
1986	2862542.	257127.	2605415.	1087500.	12682.	629759.	913794.	456897.	2148518.	1061018.	375407.
1987	3905843.	345290.	356051.	30000.	174149.	859285.	2527116.	1263558.	2096913.	266903.	742687.
15 YEAR	14540875.	1349523.	13190952.	5182501.	596752.	2976717.	5102482.	2751241.	10439711.	4857211.	1193528.
REV.	19083614.	1704180.	17379436.	150000.	870748.	4198396.	12310293.	6154147.	1124290.	11074290.	2199971.
TOT.	31624091.	3053703.	3057038.	573250.	1467500.	7175113.	17812776.	890638.	2164001.	15931509.	3393490.

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THE PRESENT VALUE OF FUTURE CASH FLOW DISCOUNTED AT:

8.0 PERCENT IS \$ 339490.

4.0 PERCENT IS \$ 7373943.

6.0 PERCENT IS \$ 5018523.

8.0 PERCENT IS \$ 3493497.

10.0 PERCENT IS \$ 2761582.

12.0 PERCENT IS \$ 146138.

15.0 PERCENT IS \$ 685313.

25.0 PERCENT IS \$ -290519.

50.0 PERCENT IS \$ -453234.

USED 1.57 UNITS

11/5/73

PROJECTION OF ESTIMATED PRODUCTION & REVENUE  
AS OF  
JANUARY 1, 1982

BEGIN WORKING INTEREST .5000000  
BEGIN REVENUE INTEREST .4050000  
INTEREST CHANGE POINT NONE

LEASE NAME : PARTNER 50% 220  
FIELD NAME : GEOTHERMAL  
CNTY. STATE : CHAFFEE, COLORADO  
OPERATOR : PETRO-LEWIS

PROVEN-UNDEVELOPED RESERVES

CALENDAR YEAR	GROSS DELIVERY	NET DELIVERY	GROSS SALES	NET SALES	TOTAL REV. AFTER PROD. TAXES	TOTAL ALL INVESTMENT	NET OPERATING EXPENSES	NET OPERATING CASHFLOW	CUMULATIVE OPERATING CASHFLOW	CUMULATIVE CASHFLOW DISC 8.0%
	MW-----	MW-----	MW/YR.-----	M W/YR.-----	M\$-----	M\$-----	M\$-----	M\$-----	M\$-----	M\$-----
1981 (12MO)	55.000	22.275	489.415	198.213	721.198	2002.500	46.500	-1527.802	-1527.802	-1527.802
1982	55.000	22.275	481.800	195.129	709.977	1092.500	42.000	-424.523	-1952.325	-1936.29
1983	110.000	44.550	963.600	390.258	1419.954	37.500	78.000	1304.454	-647.871	-74.066
1984	110.000	44.550	963.600	390.258	1812.944	1092.500	78.000	642.444	-5.427	-244.06
1985	165.000	66.825	1445.400	585.387	2719.415	40.000	114.000	2565.415	2559.988	1715.566
1986	165.000	66.825	1445.400	585.387	2719.415	1087.500	114.000	1517.915	4077.903	2789.161
1987	220.000	89.100	1927.200	780.516	3625.887	30.000	150.000	3445.887	7523.790	5045.843
1988	220.000	89.100	1927.200	780.516	3625.887	30.000	150.000	3445.887	10969.677	7135.363
1989	220.000	89.100	1927.200	780.516	4641.729	162.500	156.000	4323.219	15292.906	9562.700
1990	220.000	89.100	1927.200	780.516	4641.729	162.500	162.000	4317.229	19610.135	11807.115
1991	200.000	89.100	1927.200	780.516	4641.729	162.500	168.000	4311.229	23921.364	13882.389
1992	220.000	89.100	1927.200	780.516	4641.729	162.500	174.000	4305.229	28226.593	15801.265
1993	220.000	89.100	1927.200	780.516	4641.729	162.500	180.000	4299.229	32525.822	17575.526
1994	220.000	89.100	1927.200	780.516	5941.600	162.500	186.000	5933.100	38118.922	19712.758
1995	220.000	89.100	1927.200	780.516	5941.600	162.500	192.000	5927.100	43706.022	21689.592
SUB TOTAL	2640.000	1069.200	23134.015	9369.276	52446.522	6750.000	1990.500	43706.022	43706.022	21689.592
THEREAFTER	220.000	89.100	13490.400	5463.612	41591.200	1137.500	1487.500	38966.200	82672.222	32200.946
TOTAL OF 22.0 YEARS	2860.000	1158.300	36624.415	14832.888	94037.722	7887.500	3478.000	82672.222	82672.222	32200.946

CURRENT PRICES AFTER PRODN & AD VAL TAXES: - \*3.6385 \$  
BEGIN OPRG COST 1000 \$/MO

RATE OF RETURN 52.56%, PAYOUT TIME 4.00 YR  
FOR 6.00 PCT. PRESENT WORTH IS M\$ 40 82.416  
FOR 10.00 PCT. PRESENT WORTH IS M\$ 26174.936  
FOR 12.00 PCT. PRESENT WORTH IS M\$ 21473.425  
FOR 15.00 PCT. PRESENT WORTH IS M\$ 16227.166  
FOR 20.00 PCT. PRESENT WORTH IS M\$ 10574.747

THE FOLLOWING PROPERTIES ARE INCLUDED IN THIS TAX SUMMARY:

PARTNER 50% 220 111114 11111

YEAR	INCOME AFTER ROYALTIES	OPERATING EXPENSES PROD TAXES	OPERATING REVENUE BEFORE FIT	TOTAL FUTURE INVESTMENT	U.O.P. DEPRECIATION TANGIBLE EQUIPMENT	ALLOWABLE DEPLETION	TAXABLE NET INCOME	INCOME TAX TO BE PAID	NET INCOME AFTER TAX	NET CASH FLOW AFTER TAXES	NET CASH FLOW DISC. @ 8.0%
1982	74734 .	79367.	647977.	1092500.	3080.	0.	-270111.	-135056.	803033.	-289467.	-278540.
1983	149468.	152734.	1341954.	37500.	7676.	328031.	1005446.	502723.	839231.	801731.	714320.
1984	1908362.	173418.	1734940.	1092500.	14239.	392853.	392853.	196426.	1538518.	446018.	367953.
1985	2862542.	257127.	2605415.	40000.	23967.	629759.	1951689.	975844.	1629571.	1589571.	1214218.
1986	2862542.	257127.	2605415.	1087500.	34607.	629759.	1006049.	503025.	2102390.	1014890.	717815.
1987	3816723.	340836.	3475887.	30000.	49142.	839679.	2587066.	1293533.	2182354.	2152354.	1409558.
1988	3816723.	340836.	3475887.	30000.	52476.	839679.	2583732.	1291866.	2184021.	2154021.	1306157.
1989	486030.	40301.	4485729.	16250.	56276.	1074927.	3227077.	1611038.	2874691.	2712191.	1522797.
1990	486030.	406301.	479729.	162500.	60511.	1074927.	3211791.	1605896.	2873833.	2711333.	1409552.
1991	486030.	412301.	473729.	162500.	65111.	1074927.	3200791.	1600396.	2873333.	2710833.	1304900.
1992	486030.	418301.	467729.	162500.	71511.	1074927.	3188791.	1594396.	2873333.	2710833.	1208241.
1993	486030.	424301.	461729.	162500.	79011.	1074927.	3175291.	1587646.	2874083.	2711583.	1119051.
1994	6254316.	498716.	574600.	162500.	89011.	1375950.	4158139.	2079070.	3676530.	3514030.	1342791.
1995	6254316.	504716.	5749600.	162500.	104011.	1375950.	4137139.	2068570.	3681030.	3518530.	1244918.
14 YEAR	5447706.	46382.	49781324.	4547500.	71098.	11787093.	33540744.	16775372.	33005953.	28458452.	14603731.
PEM.	4378021.	367651.	40103700.	1137500.	104012.	9631646.	29440542.	14720271.	25383429.	24245929.	4816593.
TOT.	9827917.	8342893.	8945024.	568500.	81500.	21418739.	62941286.	31495643.	58389382.	52704382.	19420324.

THE PRESENT VALUE OF FUTURE CASH FLOW DISCOUNTED AT:  
8.00 PERCENT IS \$ 19420324.

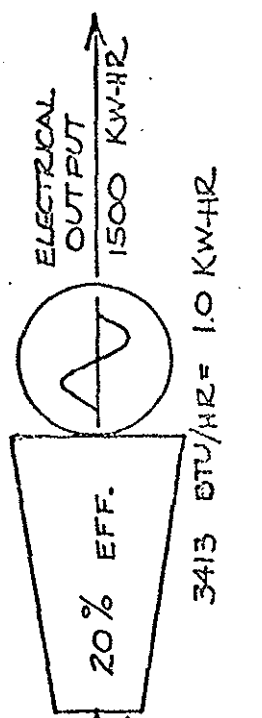
4.00 PERCENT IS \$ 30735352.  
6.00 PERCENT IS \$ 24204149.  
8.00 PERCENT IS \$ 19420324.  
10.00 PERCENT IS \$ 15851086.  
12.00 PERCENT IS \$ 13140116.  
15.00 PERCENT IS \$ 10174817.  
25.00 PERCENT IS \$ 5128045.  
50.00 PERCENT IS \$ 1675262.

USED 1.57 UNITS

11/5/73

PETRO-LEWIS CORP.

PUBLIC SERVICE CO.



ENERGY INPUT  
25,600,000 BTU/HR  
120 PSIG  
350°F

PIPELINE LOSSES  
4,400,000 BTU/HR (17%)  
20 PSIG

STEAM WELL  
OUT PUT  
30,000,000 BTU/HR  
120 PSIG  
350°F

ENTHALPY - 1200 BTU/LB

REQUIRED DELIVERABILITY  
25,000 LBS STEAM/HR.

6000'

6" ID.

GEOHERMAL PROJECT  
MT. PRINCETON, CHAFFEE CO., COLO.  
ENERGY FLOW DIAGRAM

DETAILED DRILLING PROGNOSIS

Geothermal Prospect  
Mt. Princeton, Chaffee Co., Colorado  
Pilot Exploratory Hole

1. Build road, location and reserve pit.
  2. Install PVC liner in reserve pit, and Hycalon line in skimmer pit.
  3. Dig 6' x 10' x 6' celler. Install drains, board up.
  4. Set 30' - 20' culvert with dry hole digger.
  5. MIRU drilling rig, 2 - 400 bbl water tanks, trailer houses, etc.
  6. Drill 7-7/8" hole with water or mud to  $\pm$  450'. Be sure hole is through the Valley Fill and into the Dry Union Formation. (Geologist to pick from samples).
  7. Ream 7-7/8" x 17 1/2" to casing setting depth.
  8. Run 13-3/8", 48.0#, H40, Buttress to  $\pm$  400'.
  9. Cement to surface with 530 cu.ft. of heat resistant cement.
 

300 sx	Class G (Yield 1.77)
50%	Silica Flour
10%	Salt
.5%	CFR-2
2%	CaCl <sub>2</sub>
- Pump cement through drill pipe and a stab-in float collar.
10. WOC 6 hours, cut off 20" culvert, and 13-3/8" surface casing. Weld on 13-3/8" x 12" ANSI casing head. Set head so flange is 40" below ground level.
  11. N.U. BOP stack as shown in the attached diagram. Stack height is 123" above ground level.
  12. Drill out 13-3/8" casing with 12 1/4" bit.
  13. Drill out with 7-7/8" bit, using water or light weight mud as a circulating medium. Will monitor mud flow line temperatures and run thermistor on wire-line between trips to check bottom hole temperature. Potential problems that might be encountered:
    1. Water flows
    2. Lost circulation

Alter the drilling program to combat these problems, and continue to drill ahead. We wish to drill this hole to the base of the Dry Union Formation. Evaluate with logs and Amerada maximum recording temperature survey.

14. Log well at  $\pm$  4500'

IES - SP  
FDC - GR w/caliper  
Sonic - GR  
Temperature survey

High temperatures may necessitate trips with drill pipe and circulate mud to cool the well bore between log runs.

IF WELL SHOWS THERMAL POTENTIAL:

15. Ream 7-7/8" x 12 $\frac{1}{2}$ " through the Dry Union Formation.
16. Run 10-3/4", 51.0#, 45.5# and 40.5#, K55 Buttress liner to  $\pm$  4500'. Top of liner will be centralized inside the 13 3/8" casing at  $\pm$  350'.
17. Cement 10-3/4" in 3 stages to fully support casing. Cement composition will depend on B.H.T.
18. Back off and retrieve excess 10-3/4" casing.
19. W.O.C. 24 hours.
20. N.U. air compressors.
21. Clean out liner with 9-7/8" bit.
22. Drill out with 7-7/8" bit and air as the circulating medium, looking for fracture zones with steam production.

IF TEMPERATURE GRADIENTS INDICATE POTENTIALLY PRODUCTIVE ZONES, BUT WATER IS BEING PRODUCED FROM SHALLOWER ZONES:

23. Ream 7-7/8" x 9-7/8" through water bearing formations.
24. L.D. 4 $\frac{1}{2}$ " drill pipe and drill collars.
25. Run 7-5/8", 26.4#, N-80, K55 Buttress liner. Top of liner would be hung inside the 10 3/4" liner. (A 5 $\frac{1}{2}$ " liner could be run if no more drilling is anticipated).
26. Cement in one stage to obtain 100% support. Cement composition will depend on B.H.T.
27. WOC 24 hours.
28. PU up 3 $\frac{1}{2}$ " drill pipe and 4-3/4" drill collars.

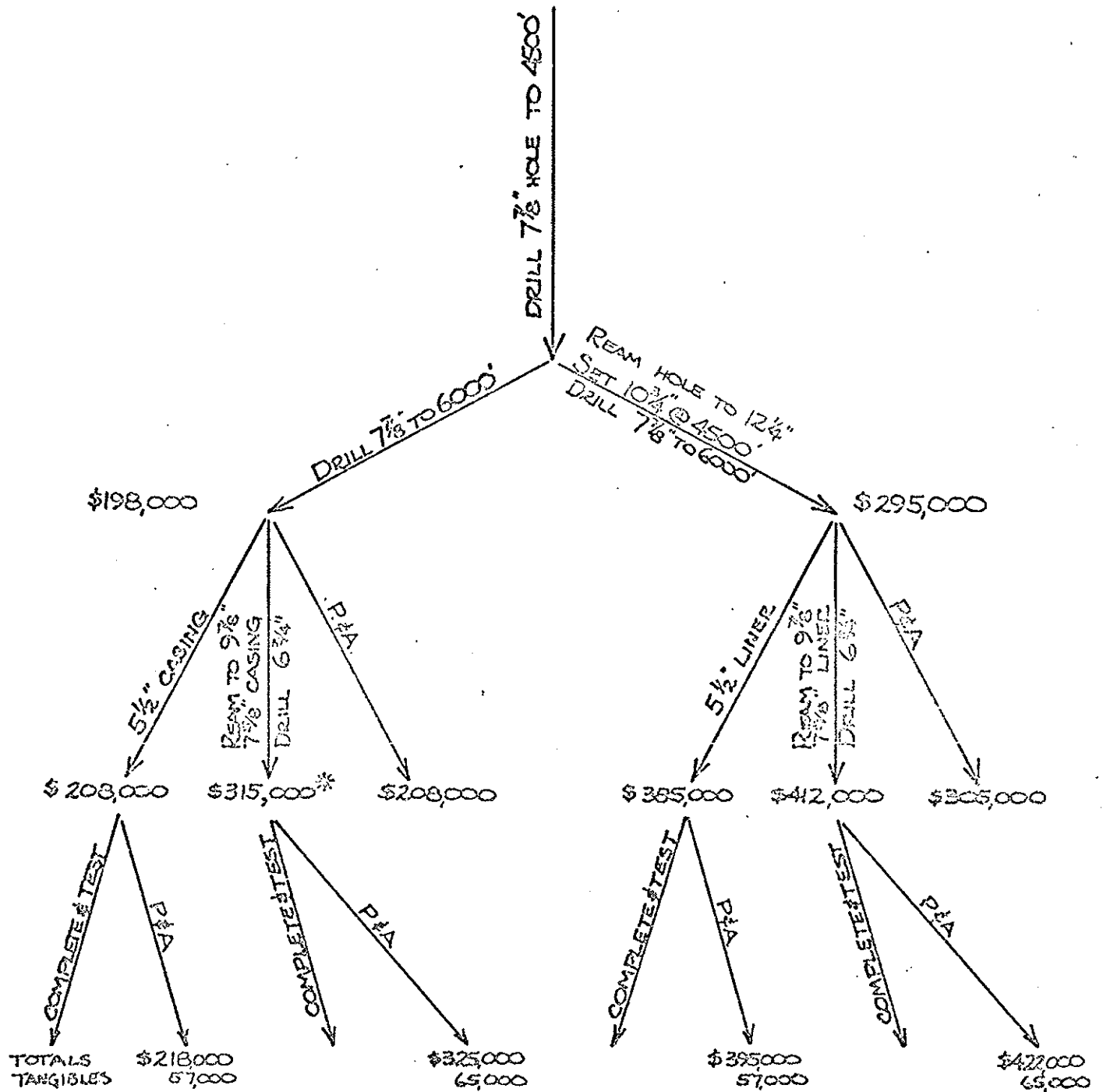
29. Clean out liner and drill out with 6-3/4" bit using air to circulate.
30. When steam is encountered, continue to drill ahead to expose as much open hole as possible with the bit.
31. POH with the well flowing steam. Keep the rotating head rubber lubricated and cool.
32. Measure steam flow rate with orifice tester in the blooie line.
33. If flow rate is satisfactory shut in well with master valve, and open 3" vent to atmosphere.
34. RD MO rotary tools.

Curtis F. Clark

*C.F. Clark*

*11/6/73*

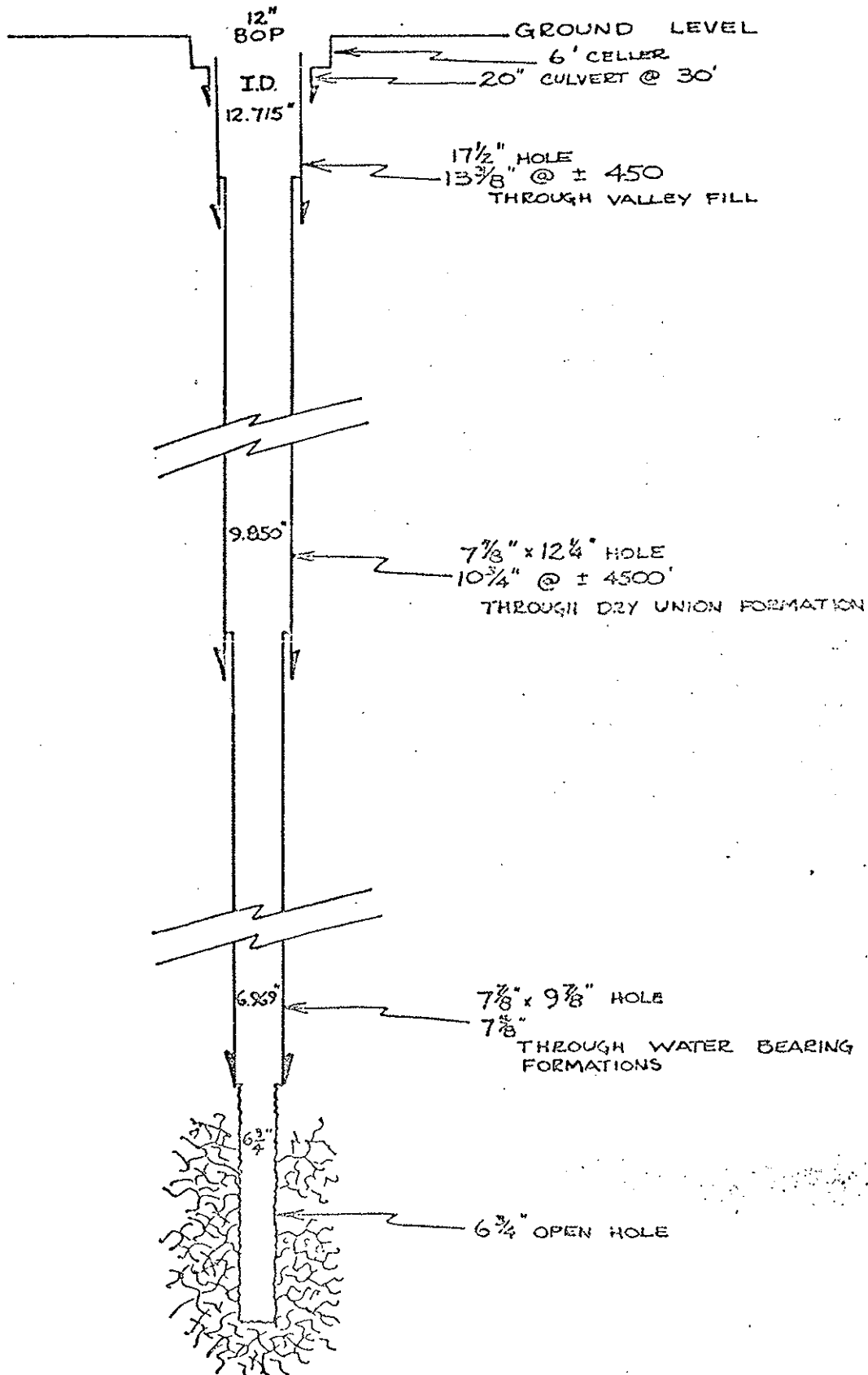




GEOHERMAL PROJECT  
 MT. PRINCETON, CHAFFEE CO., COLO.  
 DECISION - COST TREE

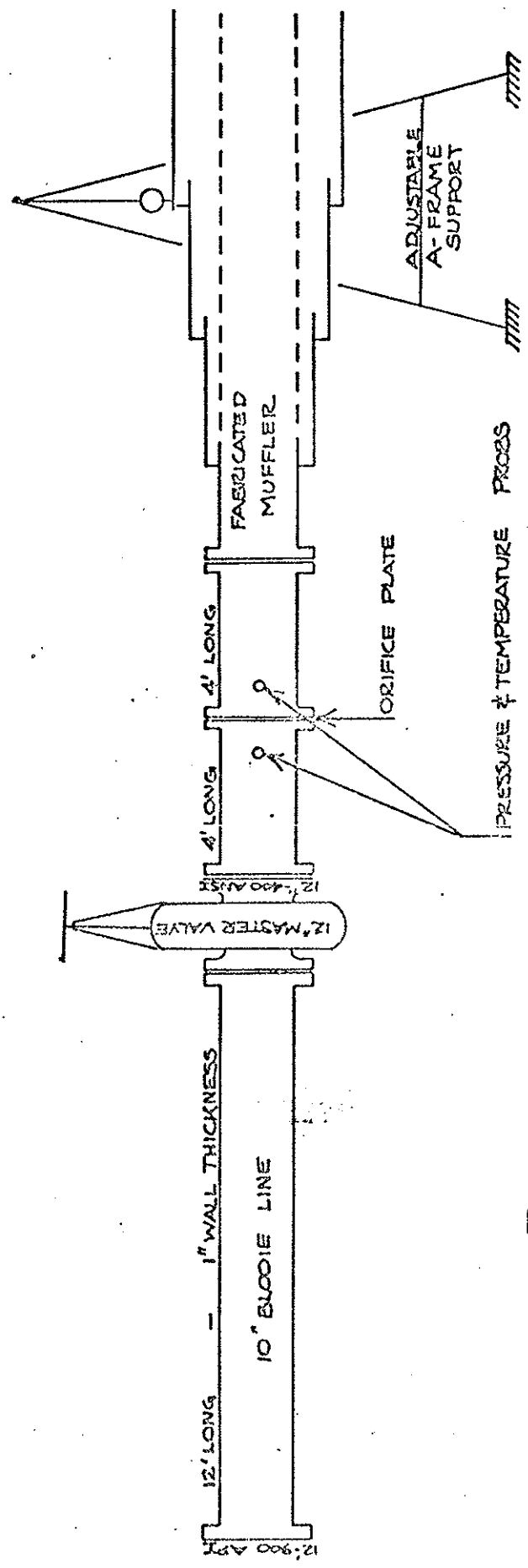
E.T.C. 11/1/73

GEOTHERMAL PROSPECT  
 MT. PRINCETON, CHAFFEE CO., COLO.  
 PROPOSED CASING PROGRAM



C70 11/5/75

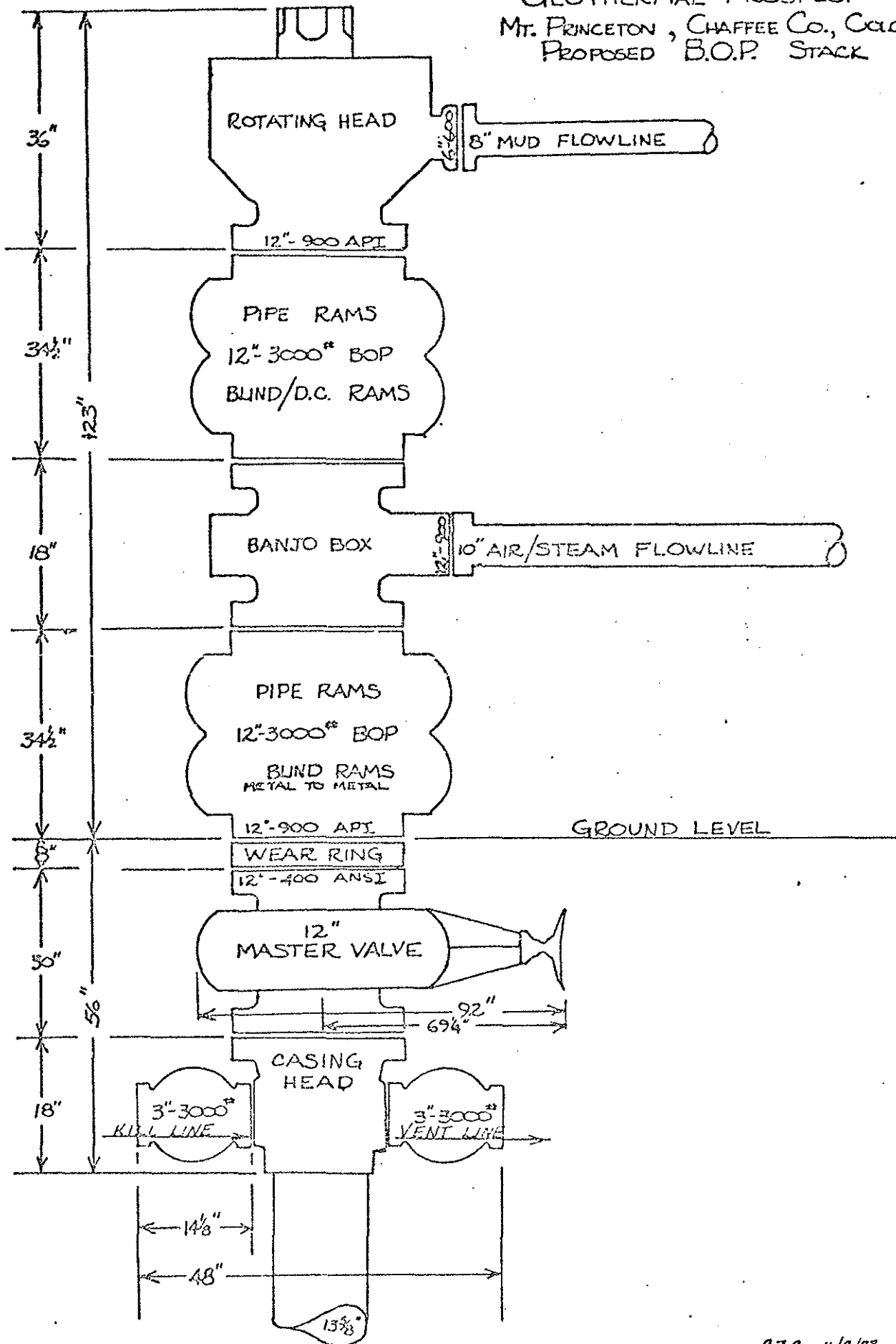
8" MUD FLOW LINE TO SHALE SHAKER & MUD PITS  
 BLIND FLANGE WHEN AIR/STREAM DRILLING



GEO THERMAL PROSPECT  
 MT. PRINCETON, CHAFFEE CO., COLO.  
 FLOWLINE SCHEMATICS

C.R.C. 1/4/73

GEOTHERMAL PROSPECT  
 MT. PRINCETON, CHAFFEE CO., COLO.  
 PROPOSED B.O.P. STACK



C.F.C. 11/2/73