

SUMMARY REPORT
POWER RANCHES WELL NO. 1

Spud Date 1-31-73 - 7 P.M.
2-02-73 20" csg. @ 204 K.B. w/400 sks 2% C.C.
2-14-73 13 3/8" @ 3117 w/ 2050 sks reg. w/30%
Silica Flour Cement Circ.
2-26-73 D.S.T. #1 4626 to 4326
Rec approx. 2078 slightly
Gas & Mud Cut Salt Water - Est. Temp. 230°
IFP 328.8 - FFP 1272.8 - SIP 1541 HP 2499
3-01-73
3-06-73 Ran 61 JTS of 9 5/8" Liner
Bottom of Liner 5404-Top of Liner 2903'
Cemented w/650 sks. Reg cement w/30%
Silica Flour, 4/10 of 1% HR-4 Retardar
3-13-73 Squeezed Bottom of liner w/550 sks reg.
w/ 8/10 of 1% Hollad No. 9 & 4/14% of HR4
3-14-73 Tested liner w/1000 PSI, OK
3-30-73 T.D. 9065' - Ran 3863 of 7"
29# N-80 csg. Bottom of liner 9064
top of liner 5201 - Cemented w/825 sks
Class A Cement w/3% gel, 600 sks posmix,
1 1/8% CFR-2 8% Salt, 1% HR-12, 6% Pevlite
20% Silica Flour
4-02-73 Squeezed top of liner w/200 sks class A
Cement (30% Silica Flour) 8/10% Hollad No.9,
4/10% HR4 Tested OK
4-09-73 T.D. 9207 Top of Basement by log 9165'
4-10-73 Ran logs, perforated w/ 4 shots @ 8998 - Not enough fluid
4-11-73 Perforated
8148-8152 (8 shots) 7752-7760
(8 shots); 7006-7014 (8 shots);
6309-6313 (4 shots); 6167-6168 (2 shots)
6-18,19-73 Perforated 9025-7027
Total 610 shots (See attached sheet for details.)

Geothermal Kinetics Inc., has spudded their Power Ranches No. 1, located in the NE/SE Section 1-T2S-R6E, Maricopa County and is now drilling below 1945'.

3-7-73
I have been spending considerable time at the Geothermal Kinetics Systems Corp. Power Ranches Inc., No. 1 Well site in an effort to get all the information possible pertaining to the mechanics of drilling a well for geothermal resources. The operators have made one drill stem test on this hole. This test was made February 25th and was witnessed by myself and Mr. Bannister.

ARIZONA GEYSER ERUPTS STEAM IN GEOTHERMAL WELL

Arizona's first geothermal well has struck superheated water 2 miles southeast of Higley, near Williams Air Force Base, causing geysers to erupt at 7 minute intervals. Mike O'Donnell of Geothermal Kinetics Systems said surface temperatures are well above 212° F but before testing underground temperatures the well must be drilled to granite. The well is currently 4500 ft deep and an additional 3000 ft of pipe has been ordered. Steam jets out near the speed of sound into a column 100 ft long. The hole is 9 5/8" in diameter. It may be anywhere from a week to six months to determine if the well will support a generating system.

4-11-73
Geothermal Kinetics are still working on the steam well near Higley. The next few days should indicate either the presence or absence of steam. (I've been thinking that the next few days would reveal something definite for a month now.)

5-10-73
Geothermal Kinetics Systems, Inc., has installed a Reda Pump in their Power Ranches No. 1 in an effort to further evaluate the potential of this well. We are catching water samples from the well. These samples will be analyzed by the State Lab. to determine the quality of the water being produced. The operators have expressed a desire to dispose of this produced water through a part of the drainage system used by the Roosevelt Water Conservation District. Unless the produced water is suitable for crops and livestock, this requested method of disposal cannot be allowed by this Commission.

Geothermal Kinetics ran a Reda downhole pump in their Power Ranches No. 1 Well. This well pumped hot water for approximately 1 week. The operators ran out of space to contain the water and had to shut the well in, (Preliminary analysis of the produced water indicates some 30,000 PPM of total combined solids). Another rig is being moved in to pull and service the pump and to allow the operators to perform further completion work on their No. 1 Well.

7-17-73
Geothermal Kinetics is having considerable mechanical difficulties on their Power Ranches No. 2. They have been fishing for stuck drill pipe and drill collars for over three weeks. At the last report they were attempting to wash over the drill collars. Some difficulty has also been experienced with the Reda Pump in the Power Ranches No. 1. When this well is pumping, the produced water is too cool to flash to steam.

8-8-73
Geothermal Kinetics Systems are still having trouble on their Power Ranches No. 2. At this time they are attempting to wash over the remaining four drill collars that are stuck in the hole at approximately 6,300'. The Power Ranches No. 1 has been shut-in for an indefinite period. The operators will check this well for temperature build up.

9-19-73
Work has been halted on Geothermal Kinetics Power Ranches No. 1. The operators plan to run periodic temperature profiles on this well for an extended period of time.

*For
Brewer*

Well at Chandler nearing planned depth; steam scant

Drilling is continuing past the 5,800-foot level on Arizona's first geothermal well nine miles east of Chandler, but a consultant for the project says he is only "mildly optimistic" about the potential in Arizona.

William A. Brewer, a former professor at the University of California at Berkeley and now a consultant on geothermal projects, said parts of Arizona are promising for

eventual geothermal power development, but cautioned, "It is unlikely, however, that these geothermal resources will be able in the short term to supplant conventional sources of either power or water in the state."

He said the problem here is not a dearth of heat, but a shortage of subsurface water. He said the country's only successful geothermal field area — The Geysers,

north of San Francisco — has an average annual rainfall of 50 inches.

Mike O'Donnell, general manager of Geothermal Kinetics Systems of Phoenix, the firm drilling the well, said flashes of steam have been noted at the well site, but said they are only the edge of a superheated steam pocket.

The targeted depth of the well is 6,000 feet, O'Donnell said, but the firm is prepared to extend it to 10,000 feet.

GEOTHERMAL ENERGY WELL

The first well being drilled for geothermal energy in Arizona is currently drilling at a location approximately two miles south and fifteen miles east of Chandler. The legal description on this well is the NE SE Sec 1 T2S R6E, Maricopa County.

Although this well is not within the geographical location of the Council's interest, it is felt that the potential source of energy and its effect on the environment should be called to the attention of the Council and its individual members who might be interested.

* Information received from the Oil and Gas Conservation Commission of the State of Arizona.

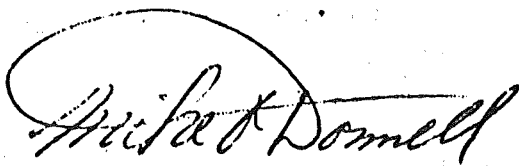
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DEPARTMENTAL CORRESPONDENCEDATE March 9, 1973SUBJECT CHANDLER WELL -- OFFICIAL RELEASETO All Personnel

DEP'T _____

FROM Mike O'DonnellDEP'T Management

Geothermal Kinetics Systems Corporation's initial geothermal well appears to have encountered the top of a super heated water zone which is causing some steam flash.

The hole is being deepened toward its major objective at which time the necessary detailed tests will be made to determine if economic steam production will be developed.



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O & G CONS. COMM.

State steam wells shut as unproductive venture

CHANDLER — Arizona's first geothermal steam wells have been temporarily shut down because of their failure to yield steam and hot water in commercial quantities, an official of Geothermal Kinetics Systems Inc. said yesterday.

Mike O'Donnell, a vice president of the Phoenix-based company, said the problem involves the need for advanced technology and further testing to make the two wells productive.

O'Donnell refused to characterize the steam wells as failures.

The 10,000-foot wells, deepest of their kind in the world, were drilled last year near Williams Air Force Base.

Both hit a source of superheated steam and vented small quantities of steam at the surface.

The wells encountered a layer of water heated by molten rock deep below the earth's surface, Company

experts believe the hot water layer is extensive enough to provide steam power for an electric generating plant.

O'Donnell said the wells were shut down to give experts time to explore new technology of deep earth steam extraction and develop new pumps and other equipment.

"We need equipment to get (steam) flowing at depth again and to get it flashing (into steam) of its own accord when it reaches the surface," said O'Donnell.

"We intend to go ahead and obtain pumps to go commercial before the summer is out."

The geothermal exploration is being partly financed by Arizona Public Service Co., the Salt River Project and Tucson Gas and Electric Co.

Geothermal energy is favored by environmentalists because it is a virtually pollution-free power source and can provide, by distillation of the steam and hot water, a cheap source of fresh water.

HIGLEY WORLD'S DEEPEST GEOTHERMAL TEST

*Geothermal Kinetics Systems Corp. "Power Ranches Inc" 9207 T.D. Ran E. Log. From
1-2S-6E, Fr SE cor 1980'N 660'W 20c.204 5300-9065' had a continuous
Spud 1/31/73 El. 1339'GR 13³/₈c.3117 homogeneous Lithictuff-
(Geo Drlg.- Co. Rig) 7c.9065 Volcanic Ash producing
reservoir. Porosity 30%.

Permeability good. Fluid rate, 3000-6000 gallons/minute. Steam flashing commenced at 5400' and continued to 9065'. Below 9065', permeability decreased, however the bottom is not in basement. Bottom hole temperature is 325° and increasing. Drilling rig will move 1/4 mile North to drill the Power Ranches, Inc. No. 2.

Geothermal Kinetics Systems Corp. managed the drilling operations for Arizona's three major utilities: Arizona Public Service Co., the Salt River Project and Tucson Gas and Electric Co., for Arizona's first geothermal well - 2 miles SE of Higley, 19 miles E of Chandler, on farmlands which are a part of the Power Ranches, Inc., which is a portion of some 7000 acres. Geothermal Kinetics is headquartered at 301 West Indian School Rd. Suite 117 Phoenix, Arizona 85013, Tel. 602-248-0202, Mike O'Donnell, V.P. and General Manager. President is Bradley T. J. Mateo.

NW CALDWELL PAYETTE COUNTY STATE OF IDAHO


*Standard Oil Co. "Highland Livestock & Land Co." 1 9597 Drilling.
24-6N-5W, Fr NW cor 1650'S 2310'E 13³/₈c.3028 S-3/9/73
(8500 to 12,500' - Exploratory) (R.B. Montgomery Drlg. #7)
(36 miles NW of Boise)

BLUE MOUNTAIN MALHEUR COUNTY STATE OF OREGON

*Standard Oil Co. "Blue Mountain Unit" 1 Will follow Company's
34-37S-4E, Fr SW cor 2630'N 200'E Idaho well.
(±20 mi. N of Nevada Border in SE cor. of Oregon) (6500' - Exploratory)

*Wildcat **Outpost or New Zone Test

4/27/73 Page "D"

 **Petroleum Information.**
A Subsidiary of A C Nielsen Company

1640 GRANT STREET, DENVER, COLORADO 80203, 303/825-2181

ROCKY MOUNTAIN REGION NEWSLETTER EDITION

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AMOCO TESTING STEP-OUT FROM AMBUSH FIELD IN COLORADO

Amoco Production gauged gas at the rate of 1,840,000 cu ft per day and recovered 167 bbls of load oil and 40 bbls of water in 15 hours at 1 Champlin 75 Amoco-C, sw nw 19-2s-64w, Adams County, Colorado. It is a half mile east of the Ambush field discovery. Amoco is continuing to test. Production is through treated perforations 8006-26 ft. Total depth is 8150 ft. Koch Exploration completed the Ambush discovery in sw ne 24-2s-65w, as a J sand oil well. Koch has tests under way at two offsets to the discovery and is drilling a third.

PIPE SET AT GEOTHERMAL WELL IN ARIZONA'S MARICOPA COUNTY

Geothermal Kinetics Systems Corp reports casing set and tests started at 1 Power Ranches, ne se 1-2s-6e, Maricopa County, Arizona. The well was drilled to 9207 ft and pipe is set at 9065 ft. During drilling from 5300 ft to pipe depth the operator encountered superheated water. Geothermal reports that well behavior indicates homogeneous volcanic activity, and that plans are being made to drill an offset to the north.

NEBRASKA'S BUNKER HILL FIELD AREA TO GET J SAND EXPLORATION

Location has been staked by Jack G. Ladmer and Gear Drilling for 2 Larson, se nw 2-15n-51w, a scheduled 5175 ft J sand test in Cheyenne County, Nebraska. The exploratory test is two miles northeast of Bunker Hill field and about eight miles west of the town of Gurley. Closest previous drilling is a 5163 ft failure a half mile to the northwest in ne ne 3-15n-51w. Wytex Service and Ladmer recorded oil stain in a sand section of a core 5070-96½ ft. Water without shows was recovered on a drillstem test 5077-99½ ft. Log tops include D sand at 4930 ft, J sand 5074 and Skull Creek at 5133 ft.

DOHENY TO DRILL J SAND TEST IN WASHINGTON COUNTY COLORADO

Patrick A. Doheny has location for I-A Shook, se nw 13-3n-52w, Washington County, Colorado. The wildcat, to go to J sand at 4642 ft, is a mile northwest of Akron East field and five miles northeast of the town of Akron. It is a south offset to a dry hole drilled by Farrar Oil in ne nw 13-3n-52w. Oil stain was recorded in sand and silt sections of a core 4513-59 ft. A drillstem test 4539-49 ft recovered 30 ft of slightly oil cut muddy water, 50 ft of muddy water and 2000 ft of slightly gas cut and slightly salty water. Total depth is 4663 ft. D sand was logged at 4510 ft and J sand at 4599 ft.

EXPLORATION SCHEDULED IN WILHELM FIELD AREA OF KANSAS

Chief Drilling and Bill J. Porter have location for I Vap-A, nw sw 21-1s-33w, Rawlins County, Kansas. The wildcat, to go to Lansing at 4200 ft, is three and a half miles west of Wilhelm field and four miles east of Cahoj field. The town of Atwood is eight miles to the south. Closest previous drilling is a 4664 ft failure drilled by Rains-Williamson a mile to the south in nw sw 28-1s-33w. Two drillstem tests of Lansing recovered mud and water with slight oil shows. Formations include Lansing at 3896 ft, Base Kansas City 4164, Cherokee 4398, Mississippian 4514 and Arbuckle at 4564 ft.

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APR 30 1973



OFFICE OF

Oil and Gas Conservation Commission

STATE OF ARIZONA

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PUBLISHED DATA GEOTHERMAL KINETICS SYSTEMS POWER RANCHES NO. 1

NE/SE Section 1-T2S-R6E

Total Depth 9207' (Well Bottomed in Hydrothermally Altered Volcanics)

7" Production Casing - 9065'

5400'-9000' - Continuous Geothermal Zone - (3600')

30% Porosity (Volcanic Ash)

5400' - Steam Commenced Flashing, continued to 9065'

325 F. @ T.D. (Formation Cooled by Drilling Fluid)

525 F. Estimated True Temperature

All above information from Interim Progress Report -

United Siscoe Mines Limited. (United Siscoe owns approximately 57% of Geothermal Kinetics.)

Mailed to SEN. FANNING'S OFFICE

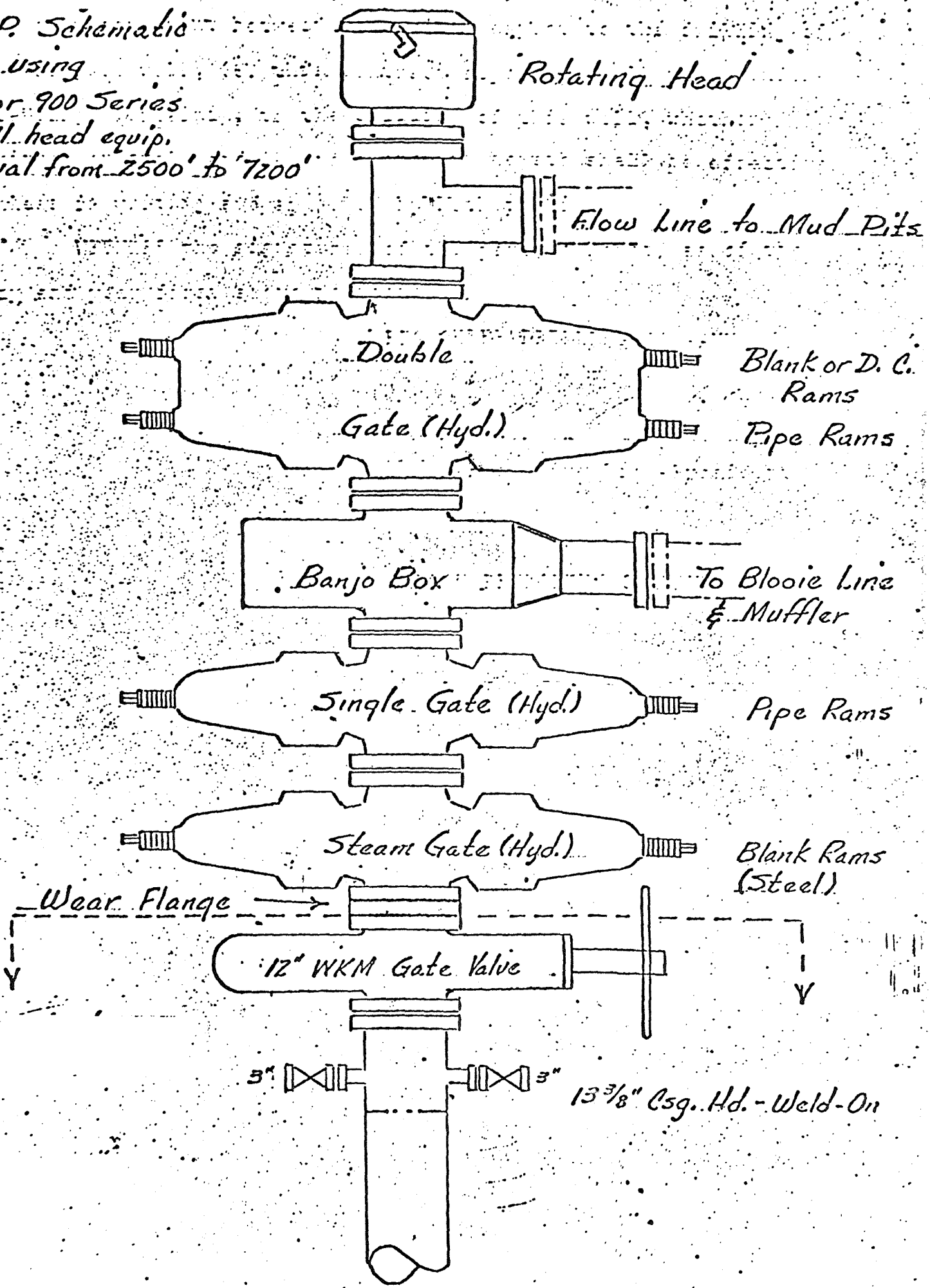
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EXHIBIT "A"

THERMAL KINETICS
SYSTEMS CORPORATION

O.P. Schematic

using
10 or 900 Series
well head equip.
operational from 2500' to 7200'



13 3/8" Csg. Hd. - Weld-On

20" O.D. 5# @ 2151'
Cemented w/ 4000 psi w/ 3% S.S.

13 3/4" O.D. J-55 @ 3117'
Cemented w/ 2100 psi w/ 30% Silica Flour

Top of liner 2903'

9 5/8" O.D. 40# J-55
Cemented w/ 4000 psi Reg.
w/ 30% Silica Flour &
40# of 1% HR-U

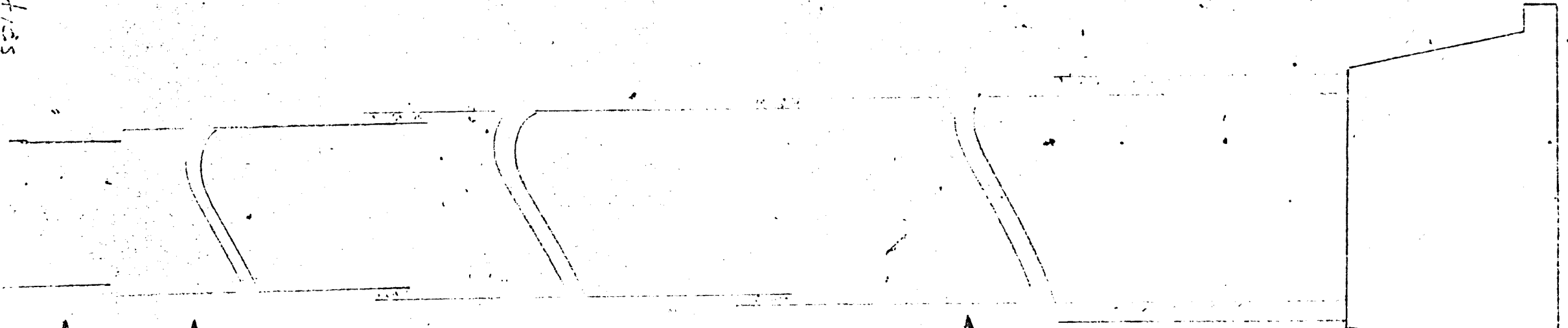
Bottom of liner 5405'

1299 Bbl's per year

75.8 Bbl's per year

301 Bbl's per year

See Thermal Kinetics
Liner Number No 1
1985



20" C.I. @ 200'

48"
13 3/4" O.D. @ 2114'

48"
9 3/8" O.D. Liner
Top 2903' Bottom 5404'

37"

7" O.D. Liner
Top 5201' Bottom 7164'

