

FILE NOTATIONS

Entered in NID File ✓
 Entered On S R Sheet ✓
 Location Map Plotted ✓
 Card Indexed ✓
 IWR for State or Fee Land

Checked by Chief ✓
 Copy NID to Field Office ✓
 Approval Letter ✓
 Disapproval Letter

COMPLETION DATA:Date Well Completed 1-29-59Location Inspected P. G. H.OW WW TA Bond released GW OS PA ~~X~~State of Fee Land **LOGS FILED**Driller's Log 271-58Electric Logs (No.) 1

E ✓ I E-I GR GR-N Misc
 Lat Mi-L Sonic Others

Scout Report sent out

Noted in the NID File

Location map pinned

Approval or Disapproval Letter

Date Completed, P. & A, or
operations suspended

Pin changed on location map

Affidavit and Record of A & P

Water Shut-Off Test

Gas-Oil Ratio Test

Well Log Filed



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LAND OFFICE _____
LEASE NUMBER _____
UNIT _____

LESSEE'S MONTHLY REPORT OF OPERATIONS

7-H
1-12

State Utah County Grand Field Harley Dome Area

The following is a correct report of operations and production (including drilling and producing wells) for the month of December, 1958,

Agent's address P. O. Box 279 Company Western States Refining Co.

Chemical & Geological Laboratories Signed F. R. Wheeler

Phone 3-5741 Agent's title Petroleum engineer

SEC. AND 1/4 OF 1/4	TWP.	RANGE	WELL NO.	DAYS PRODUCED	BARRELS OF OIL	GRAVITY	CU. FT. OF GAS (In thousands)	GALLONS OF GASOLINE RECOVERED	BARRELS OF WATER (If none, so state)	REMARKS (If drilling, depth; if shut down, cause; date and result of test for gasoline content of gas)
NW NW Sec 10	18S	24E	Federal 10 No. 1							drilling @ 1580 as of 1/1/59(7:00 AM) (Cemented 6 joints - 8 5/8" O.D.-24#-J55 @ 190.56 with 75 sack cement on 12/29/58)

NOTE.—There were no runs or sales of oil; _____ M cu. ft. of gas sold;

_____ runs or sales of gasoline during the month. (Write "no" where applicable.)

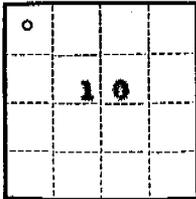
NOTE.—Report on this form is required for each calendar month, regardless of the status of operations, and must be filed in duplicate with the supervisor by the 6th of the succeeding month, unless otherwise directed by the supervisor.

(SUBMIT IN TRIPLICATE)

Land Office U-06748

Lease No. _____

Unit _____



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL.....	<input checked="" type="checkbox"/>	SUBSEQUENT REPORT OF WATER SHUT-OFF.....	
NOTICE OF INTENTION TO CHANGE PLANS.....		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING.....	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF.....		SUBSEQUENT REPORT OF ALTERING CASING.....	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL.....		SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR.....	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE.....		SUBSEQUENT REPORT OF ABANDONMENT.....	
NOTICE OF INTENTION TO PULL OR ALTER CASING.....		SUPPLEMENTARY WELL HISTORY.....	
NOTICE OF INTENTION TO ABANDON WELL.....			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

December 8, 1958

Federal 10 No. 1

Well No. _____ is located 500 ft. from $\left\{ \begin{matrix} N \\ S \end{matrix} \right\}$ line and 500 ft. from $\left\{ \begin{matrix} E \\ W \end{matrix} \right\}$ line of sec. 10

NW 1/4 NW 1/4 10
(1/4 Sec. and Sec. No.)

T. 18S
(Twp.)

R. 24 E
(Range)

Salt Lake Meridian
(Meridian)

Harley Dome Area
(Field)

Grand
(County or Subdivision)

Utah
(State or Territory)

The elevation of the ~~drinking water~~ ground above sea level is 5032 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

To set 8 5/8" O.D. surface pipe to approximately 175 ft. cemented to surface
Drill to not deeper than 4000 ft. below surface or to first commercial oil
and/or gas shows, or 80 feet into Entrada
Dakota estimated depth - 3200 feet
Morrison estimated depth - 3300 feet
Entrada estimated depth - 3700 feet
To set 5 1/2" O.D. - 15 1/2" casing through completion sand

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Western States Refining Company

Address P. O. Drawer 200

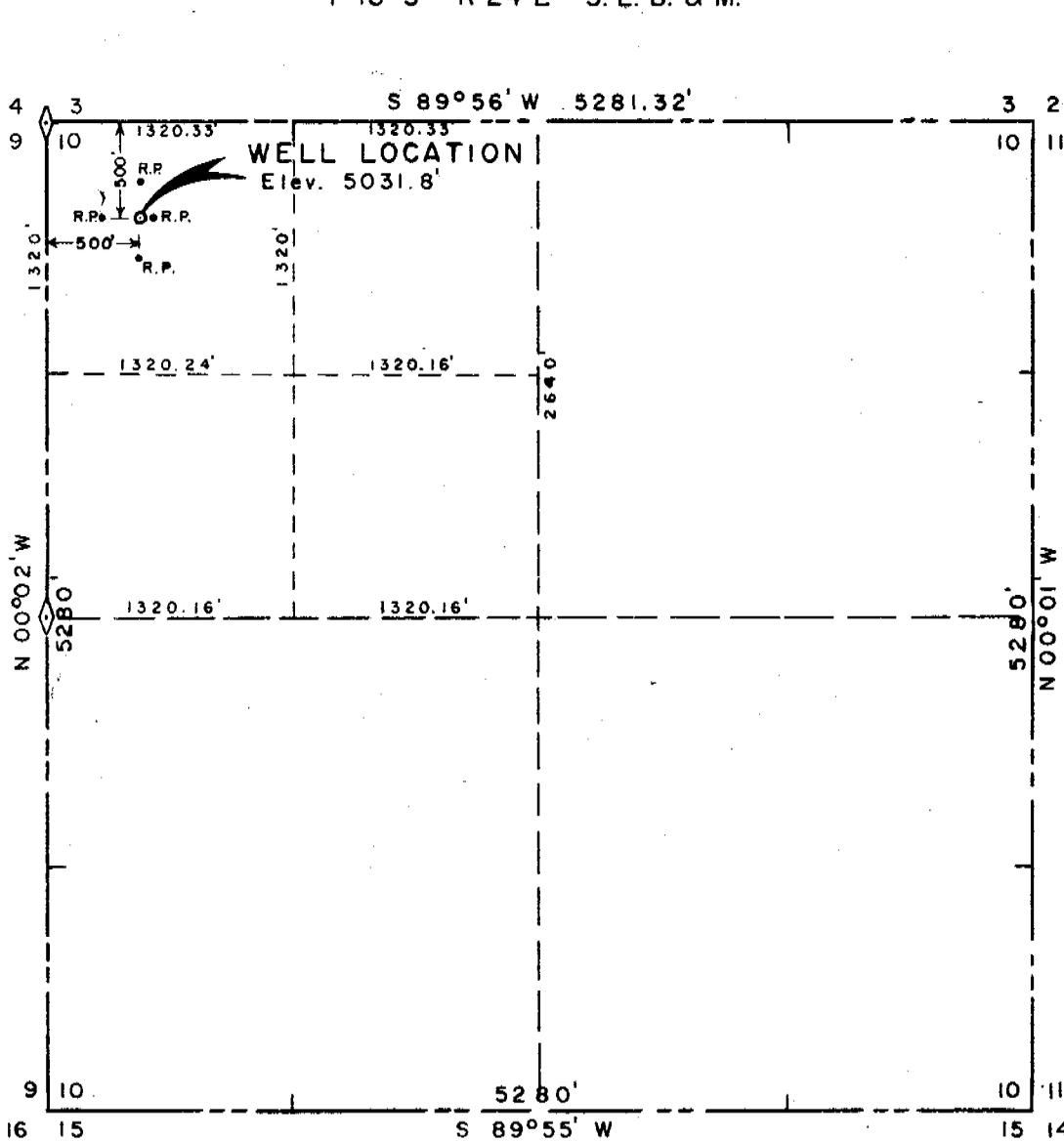
North Salt Lake, Utah

By *F.R. White*

Title Petroleum Engineer

WELL LOCATION

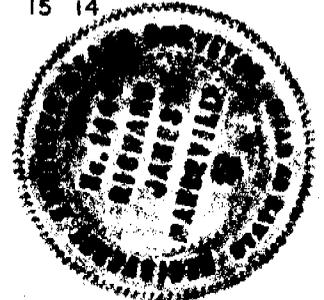
NW ¼ NW ¼ SEC. 10
T 18 S R 24 E S.L.B. & M.



Scale 1"=1000'

- R. P. South 200' Elev. 5024.15'
- R. P. North 200' Elev. 5035.04'
- R. P. West 200' Elev. 5033.05'
- R. P. East 85' Elev. 5058.86'

Note: Elevations run from Western States Oil and Metals Gov't. No. 1.
NE ¼ NW ¼ S.10 T18S R 24 E S.L.B. & M. Elev. 5023.



I, Richard J. Mandeville, do hereby certify that this plat was plotted from notes of a field survey made under my supervision on Dec. 4, 1958.

Richard J. Mandeville
Registered Engineer & Land Surveyor

WESTERN ENGINEERS WELL LOCATION WESTERN STATES REFG. CO. FEDERAL NO. 1 U.S. OIL & GAS LEASE NO.06748 GRAND COUNTY, UTAH
SURVEYED <u>C.J.B. & W.F.R.</u> DRAWN <u>E.B.F.</u>
GRAND JCT., COLO. 12/4/58

December 15, 1958

Western States Refining Company
P. O. Drawer 200
North Salt Lake, Utah

Attention: F. R. Wheeler, Petroleum Engineer

Gentlemen:

This is to acknowledge receipt of your notice of intention to drill Well No. Federal 10 - 1, which is to be located 300 feet from the north line and 500 feet from the west line of Section 10, Township 18 South, Range 24 East, SEEM, Grand County, Utah.

Please be advised that insofar as this office is concerned, approval to drill said well is hereby granted.

This approval terminates within 90 days if the above mentioned well is not spudded in within said period.

Yours very truly,

OIL & GAS CONSERVATION COMMISSION

CLEON B. FEIGHT
EXECUTIVE SECRETARY

CBF:ce

cc: Don Russell, Dist. Eng.
USGS, Federal Bldg.
Salt Lake City, Utah

CHEMICAL & GEOLOGICAL LABORATORIES



CHEMISTS CORE ANALYSTS ENGINEERS

P. O. BOX 279
CASPER, WYOMING

December 30, 1958

State of Utah,
Oil & Gas Conservation Commission
State Capitol Building
Salt Lake City 14, Utah

71-4
1-12

Gentlemen:

Enclosed is a copy of the report submitted
to the U. S. Geological Survey on the cementing and
testing of surface pipe of the Western States Refining
Company Federal 10 Well No. 1, Grand County, Utah.

Yours very truly,

CHEMICAL & GEOLOGICAL LABORATORIES

F. R. Wheeler,
Manager, Engineering Dept.

FRW:lc
Encl.

o			
	10		

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Land Office
Lease No.
Unit

71-#
1-12

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL.....	SUBSEQUENT REPORT OF WATER SHUT-OFF.....	
NOTICE OF INTENTION TO CHANGE PLANS.....	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING.....	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF.....	SUBSEQUENT REPORT OF ALTERING CASING.....	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL.....	SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR.....	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE.....	SUBSEQUENT REPORT OF ABANDONMENT.....	
NOTICE OF INTENTION TO PULL OR ALTER CASING.....	SUPPLEMENTARY WELL HISTORY.....	X
NOTICE OF INTENTION TO ABANDON WELL.....		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

December 30, 19 58

Federal 10 No. 1

Well No. _____ is located 500 ft. from $\left\{ \begin{matrix} N \\ S \end{matrix} \right\}$ line and 500 ft. from $\left\{ \begin{matrix} E \\ W \end{matrix} \right\}$ line of sec. 10

NW 1/4 NW 1/4 10 T18S R24E Salt Lake Meridian
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)

Harley Dome Area Grand Utah
(Field) (County or Subdivision) (State or Territory)

The elevation of the ~~surface~~ ^{ground} above sea level is 5022 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

December 27, 1958 - Spud well in @ 4:30 P.M.

December 29, 1958 - Cemented 6 joints of 3 5/8" O.D., -24#-J55-GR thd - @ 100.00 ft. below ground level with 75 sack - 2% Ca Cl. T.D. @ time - 205' Cemented pipe to surface.

December 30, 1958 - Tested pipe and cement job with 1000 psig on blowout preventor. Pressure held O.K.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

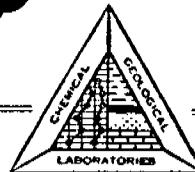
Company Western States Refining Company

Address P. O. Box 175

North Salt Lake, Utah

By F. R. Wheeler
F. R. Wheeler
Title Petroleum Engineer

CHEMICAL & GEOLOGICAL LABORATORIES



P. O. BOX 279
CASPER, WYOMING

CHEMISTS CORE ANALYSTS ENGINEERS

January 5, 1959

State of Utah
Oil & Gas Conservation Commission
State Capitol Building
Salt Lake City 14, Utah

71-H
1-12

Gentlemen:

Enclosed please find one copy of Lessee's
Monthly Report of Operations, Form No. 9-329 on the
Western States Refining Company Federal 10 Well No. 1,
Grand County, Utah.

Yours very truly,

CHEMICAL & GEOLOGICAL LABORATORIES

F. R. Wheeler,
Manager, Engineering Dept.

FRW:lc
Encl.

CHEMICAL & GEOLOGICAL LABORATORIES



CHEMISTS CORE ANALYSTS ENGINEERS

P. O. BOX 279
CASPER, WYOMING

January 29, 1959

State of Utah,
Oil & Gas Conservation Commission
State Capitol Building
Salt Lake City 41, Utah

Gentlemen:

Enclosed is a copy of the report submitted
to the U. S. Geological Survey on the Request to plug
and abandon the Western States Refining Company Federal 10
No. 1, Grand County, Utah.

Yours very truly,

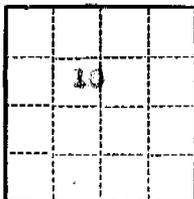
CHEMICAL & GEOLOGICAL LABORATORIES

F. R. Wheeler

F. R. Wheeler,
Manager, Engineering Dept.

FRW:lc
Encl.

7/11
2/11



(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Land Office
Lease No.
Unit

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL.....		SUBSEQUENT REPORT OF WATER SHUT-OFF.....	
NOTICE OF INTENTION TO CHANGE PLANS.....		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING.....	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF.....		SUBSEQUENT REPORT OF ALTERING CASING.....	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL.....		SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR.....	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE.....		SUBSEQUENT REPORT OF ABANDONMENT.....	
NOTICE OF INTENTION TO PULL OR ALTER CASING.....		SUPPLEMENTARY WELL HISTORY.....	
NOTICE OF INTENTION TO ABANDON WELL.....	X		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

January 29, 1950

Federal 10 No. 1

Well No. _____ is located 500 ft. from $\left\{ \begin{matrix} N \\ X \end{matrix} \right\}$ line and 500 ft. from $\left\{ \begin{matrix} E \\ W \end{matrix} \right\}$ line of sec. 10

NW 1/4 NW 1/4 10 T18S R24E Salt Lake Meridian
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)
Harley Dome Area Grand Utah
(Field) (County or Subdivision) (State or Territory)

The elevation of the derrick floor above sea level is 5032 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

REQUEST TO PLUG & ABANDON

- (1) To plug off Entrada Sand - 3788 to 3814 TD, with 20 sack cement; hole size 7 7/8" O.D.
- (2) To leave heavy mud above 1st plug and place 65 sack cement from 3155 feet in Morrison to 3000 feet above Dakota.
- (3) To leave heavy mud above 2nd plug and place 30 sack cement from 240 feet (below surface pipe) to 160 feet (in pipe).
- (4) To cap well with 6 sack cement and cement suitable marker on well.
- (5) Clean up location.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

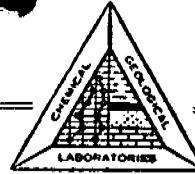
Company Western States Refining Company

Address P. O. Box 175

North Salt Lake, Utah

By F. R. Wheeler
F. R. Wheeler,
Title Petroleum Engineer

CHEMICAL & GEOLOGICAL LABORATORIES



P. O. BOX 279
CASPER, WYOMING

CHEMISTS CORE ANALYSTS ENGINEERS

January 31, 1959

State of Utah,
Oil & Gas Conservation Commission
State Capitol Building
Salt Lake City 14, Utah

Gentlemen:

Enclosed is a copy of the report submitted to the U. S. Geological Survey on the Report of Abandonment of the Western States Refining Company Federal 10 No. 1, Grand County, Utah.

Also, please find one copy of Lessee's Monthly Report of Operations, Form No. 9-329 on same well.

Yours very truly,

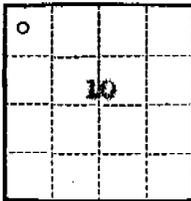
CHEMICAL & GEOLOGICAL LABORATORIES

F. R. Wheeler

F. R. Wheeler,
Manager, Engineering Dept.

FRW:lc
Encl.

M/H 2/11



(SUBMIT IN TRIPPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Land Office

Lease No.

Unit

21/8
21/11

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL.....	SUBSEQUENT REPORT OF WATER SHUT-OFF.....	
NOTICE OF INTENTION TO CHANGE PLANS.....	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING.....	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF.....	SUBSEQUENT REPORT OF ALTERING CASING.....	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL.....	SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR.....	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE.....	SUBSEQUENT REPORT OF ABANDONMENT.....	X
NOTICE OF INTENTION TO PULL OR ALTER CASING.....	SUPPLEMENTARY WELL HISTORY.....	
NOTICE OF INTENTION TO ABANDON WELL.....		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

January 31, 1959

Well No. Federal 10 No. 1 is located 500 ft. from N line and 500 ft. from E line of sec. 10

NW 1/4 NW 1/4 10 T18S R24E Salt Lake Meridian
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)
Harley Dome Area Grand Utah
(Field) (County or Subdivision) (State or Territory)

The elevation of the derrick floor above sea level is 5032 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

- Well plugged and abandoned as drilling January 31, 1959.
- (1) 20 sax cement from T.D. 3814 to above top of Entrada (3788).
 - (2) Heavy mud to 3155.
 - (3) 65 sax cement from 3155 to above 3000 to cover Dakota (3018-3145).
 - (4) Heavy mud to 240.
 - (5) 30 sax cement from 240 to 160' (9 5/8" O.D. @ 190.50).
 - (6) Mud from 100 to surface.
 - (7) Casing topped off with 6 sax cement and 4" pipe marker placed at top.
 - (8) Location cleaned up and pits filled.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Western States Refining Company

Address P. O. Box 175

North Salt Lake, Utah

By F. R. Wheeler
F. R. Wheeler,
Title Petroleum Engineer

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LAND OFFICE
LEASE NUMBER
UNIT

LESSEE'S MONTHLY REPORT OF OPERATIONS

State Utah County Grand Field Harley Dome Area

The following is a correct report of operations and production (including drilling and producing wells) for the month of January, 1959,

Agent's address P. O. Box 279 Company Western States Refining Co.

Chemical & Geological Laboratories Signed F. R. Wheeler

Phone 3-5741 Agent's title F. R. Wheeler,

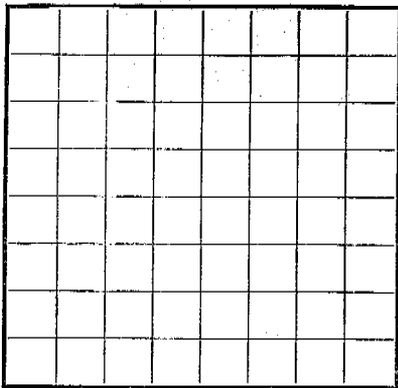
Petroleum Engineer

SEC. AND 1/4 OF 1/4	TWP.	RANGE	WELL NO.	DAYS PRODUCED	BARRELS OF OIL	GRAVITY	CU. FT. OF GAS (In thousands)	GALLONS OF GASOLINE RECOVERED	BARRELS OF WATER (If none, so state)	REMARKS (If drilling, depth; if shut down, cause; date and result of test for gasoline content of gas)
NE NW Sec 10	18S	24E	Federal 10		No. 1					- Drilled to 3814 in Entrada. Entrada wet - well P. & A. 1-31-59.

NOTE.—There were ----- runs or sales of oil; ----- M cu. ft. of gas sold;

----- runs or sales of gasoline during the month. (Write "no" where applicable.)

NOTE.—Report on this form is required for each calendar month, regardless of the status of operations, and must be filed in duplicate with the supervisor by the 6th of the succeeding month, unless otherwise directed by the supervisor.



LOCATE WELL CORRECTLY

U. S. LAND OFFICE _____
SERIAL NUMBER _____
LEASE OR PERMIT TO PROSPECT _____

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL

Company Western States Refining Company Address P.O.Box 175, North Salt Lake, Utah

Lessor or Tract U. S. -06748 Field Harley Dome Area State Utah

Federal 10 NO. 1
Well No. _____ Sec. 10 T. 18SR. 24E Meridian Salt Lake County Grand

Location 500 ft. $\left\{ \begin{matrix} N \\ S \end{matrix} \right\}$ of N Line and 500 ft. $\left\{ \begin{matrix} E \\ W \end{matrix} \right\}$ of W Line of Section 10 Elevation 5042KB
(Derrick floor relative to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon so far as can be determined from all available records.

Signed _____
F. R. Wheeler

Date February 9, 1959 Title F. R. Wheeler
Petroleum Engineer

The summary on this page is for the condition of the well at above date.

Commenced drilling December 27, 1958 Finished drilling January 29, 1959

OIL OR GAS SANDS OR ZONES

(Denote gas by G)

No. 1, from none to _____ No. 4, from _____ to _____
No. 2, from _____ to _____ No. 5, from _____ to _____
No. 3, from _____ to _____ No. 6, from _____ to _____

IMPORTANT WATER SANDS

No. 1, from none to _____ No. 3, from _____ to _____
No. 2, from _____ to _____ No. 4, from _____ to _____

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated		Purpose
							From -	To -	
8 5/8	OD 24#	8	J55	190.56	Float shoe				

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
8 5/8	OD	200.5	75 sax	plug & pump	
Plug well 1/30 & 31/59 of 20 sax from T.D. to above Entrada; 9# mud to 3155'; 65 sax 3155 to 3000 (cover Dakota); 9# mud to 240; 30 sax 240 to 160; mud to surface - cap well with 6 sax and install marker.					

PLUGS AND ADAPTERS

Heaving plug—Material _____ Length _____ Depth set _____

Adapters—Material _____ Size _____

SHOOTING RECORD

Size	Shell used	Explosive used	Quantity	Date	Depth shot	Depth cleaned out

TOOLS USED

Rotary tools were used from top feet to 3815 feet, and from _____ feet to _____ feet
 Cable tools were used from _____ feet to _____ feet, and from _____ feet to _____ feet

DATES

_____, 19____ Put to producing _____, 19____
 The production for the first 24 hours was _____ barrels of fluid of which _____% was oil; _____%
 emulsion; _____% water; and _____% sediment. Gravity, °Bé. _____
 If gas well, cu. ft. per 24 hours _____ Gallons gasoline per 1,000 cu. ft. of gas _____
 Rock pressure, lbs. per sq. in. _____ **No production - dry hole.**

EMPLOYEES

Floyd Reed - Pusher, Driller Lyle Robinson, Driller
C. F. Cain, Driller G. M. Skinner, Driller

FORMATION RECORD

FROM--	TO--	TOTAL FEET	FORMATION
			SURFACE IN MANCOS SHALE
60	90	30	Gritty, gray shale.
90	350	260	Shale with some sandstone and siltstone interbedding.
350	355	5	Sandstone, slightly calcareous, hard & tight.
355	490	135	Shale, some interbedding sandstone.
490	580	90	Shale, some bentonite.
580	620	40	Sandstone, hard & tight.
620	1260	640	Shale, gray to black, some siltstone.
1260	1340	80	Shale, slightly calcareous, some brown speckling.
1340	1342	2	Bentonite.
1342	1400	58	Shale, as above.
1400	1930	530	Shale, few sandstone streaks.
1930	2320	390	Shale, gray, some siltstone.
2320	2325	5	Sandstone, calcareous & tight.
2325	2600	275	Shale, dark gray.
2600	2630	30	Shale, trace of sandstone-pyrite.
2630	2647	17	Dark gray shale, trace of bentonite.
	2647		TOP FRONTIER
2647	2680	33	Sandstone, very fine, calcareous-no shows.
2680	2770	90	Dark gray shale.
2770	2850	80	Shale, dark gray, hard & silty.
2850	2895	45	Core No. 1: all shale. (Depth correction: 2964-2960)
2895	2960	65	Dark shale.

(OVER)

16-43004-4

--	--	--	--	--	--	--	--

U. S. LAND OFFICE _____
SERIAL NUMBER _____
LEASE OR PERMIT TO PROSPECT _____

57

FORMATION RECORD—Continued

FROM—	TO—	TOTAL FEET	FORMATION
2960	2973	13	Core No. 2: shale, dark gray.
2973	3012	39	Dark gray shale.
	3012	TOP DAKOTA	
3012	3020	8	Sandstone, light gray, poorly assorted, some bentonite, no odor, fluorescence or stain.
(3020)	(3065)	(45)	Core No. 3:
3020	3045½	25½	Shale.
3045½	3046	½	Coal.
3046	3054	8	Shale, bentonitic.
3054	3057	3	Sandstone, tight with dense clay matrix.
3057	3058	1	Shale, hard & sandy.
3058	3065	7	Shale, bentonitic, very soft.
(3065)	(3098)	(33)	Core No. 4:
3065	3069	4	Shale.
3069	3072	3	Sandstone. No show - wet.
3072	3078½	6½	Shale, silty & carbonaceous, some quartz.
3078½	3098	19½	Sand, coarse grain, conglomerate, no shows, very wet.
3098	3146	48	Sandstone as above, no stain or odor.
	3146	TOP BRUSHY CANYON	
3146	3150	4	Green to brown shale.
3150	3180	30	Sandstone, with considerable shale & bentonite.
3180	3310	130	Shale, traces of sandstone.
3310	3360	50	Shale, variegated with some sandstone. Hard & tight.
3360	3380	20	Sandstone, poorly assorted with variegated shale.
3380	3480	100	Mostly shale, variegated, silty to sandy in part.
	3480	TOP SALT WASH	
3480	3490	10	Same as above with some limestone.
3490	3500	10	Sandstone, no shows, tight.
3500	3540	40	Shale, with numerous scattered red sand grains.
3540	3550	10	Sandstone, considerable chert and limestone fragments.
3550	3660	110	Shale, with sand layers.
3660	3670	10	(Poor sample—mostly cavings.)
3670	3733	63	Shale, variegated with some sandstone. Wet appearing—no shows.
	3733	TOP SUMMERVILLE	
3733	3788	55	Shale, chocolate brown with some siltstone & limestone.
	3788	TOP ENTRADA	
3788	3792	4	Sandstone, white, calcareous, no odor or stain.
3792	3811	19	Core No. 5: No recovery.
3811	3813	2	Sand, no show. (Corrected depth by Schlumberger: 3815.)