



02391453

OIL AND GAS CONSERVATION COMMISSION

Fac ID#

OF THE

STATE OF COLORADO

STEVE McNICHOLS, GOVERNOR

ROOM 312, STATE SERVICES BLDG.

1525 SHERMAN ST.

DENVER 3, COLORADO

255973

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CHARLES D. CONRADO

A. J. JERSIN
DIRECTORD. V. ROGERS
SECRETARY

April 11, 1961

Mr. Warwick M. Downing
824 Equitable Building
Denver 2, Colorado

Dear Mr. Downing:

The California Oil Company reported that the Weber reservoir of the Rangely Field Unit Area produced 1,245,652 barrels of oil, and 3,961,662 MCF of gas during the month of February 1961, from 360 producing wells, 19 of which were reported as flowing wells.

The following tabulation presents the breakdown of daily averages of oil produced, and the disposition of produced gas for the month of February 1961:

Oil:	44,488 Barrels
Gas:	104,290 MCF injected
	2,324 MCF flared
	34,874 MCF utilized
	<u>141,488</u> Total MCF produced

As of March 1, 1961, a cumulative total of 34,970,234 barrels of water was injected into the Weber reservoir, with 2,012,171 barrels of water injected during the month of February, utilizing 56 water injection wells. The daily average injection rate for February was 71,863 barrels of water.

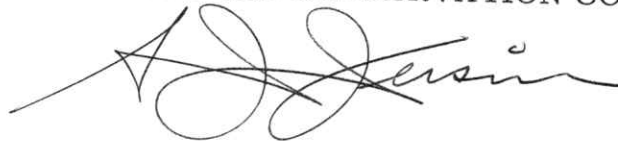
Mr. Warwick M. Downing
Page 2

April 11, 1961

Attached please find graphs showing daily average figures of oil production, water injection, and gas production with disposition, for a period starting January 1960 and ending February 1961.

Very truly yours,

OIL AND GAS CONSERVATION COMMISSION

A handwritten signature in dark ink, appearing to read "A. J. Jersin". The signature is fluid and cursive, with a long horizontal stroke extending to the left.

A. J. Jersin, Director

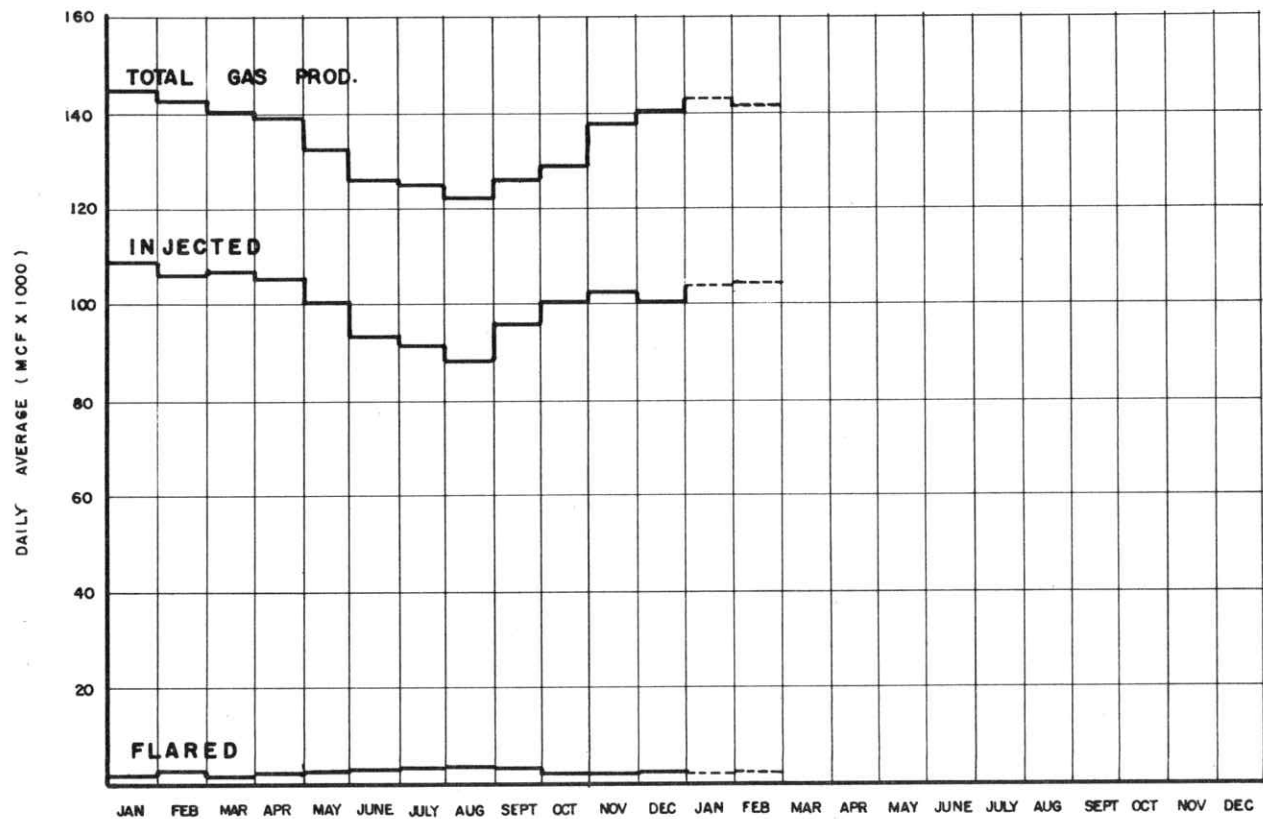
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cc:

Commissioners
Sam Freeman
Harold J. Duncan

GAS PRODUCTION & DISPOSITION

1960 — 1961 - - -

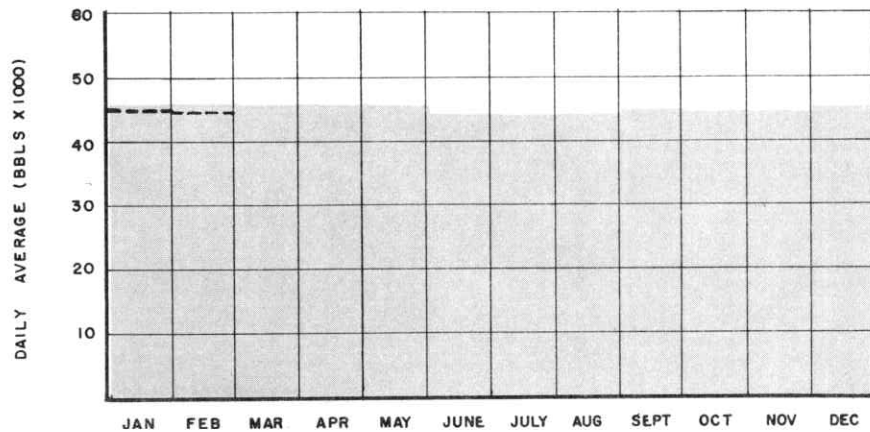


RANGELY FIELD

Weber Reservoir

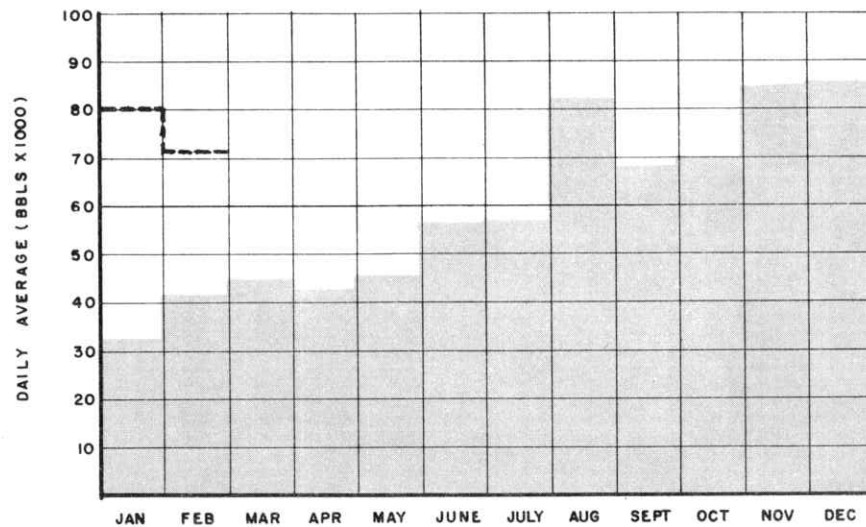
OIL PRODUCTION

1960 ■ 1961 - - -



WATER INJECTION

1960 ■ 1961 - - -



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HARVEY H. HOUSTON
CHARLES D. CONRADO
A. J. JERSIN

March 8, 1961

Mr. ~~Warwick~~ M. Downing
824 Equitable Building
Denver 2, Colorado

Dear Mr. Downing:

The California Oil Company reported that the Weber reservoir of the Rangely Field Unit Area produced 1,389,949 barrels of oil, and 4,433,057 MCF of gas during the month of January 1961, from 356 producing wells, 18 of which were reported as flowing wells.

The following tabulation presents the breakdown of daily averages of oil produced, and the disposition of produced gas for the month of January 1961:

Oil:	44,837 Barrels
Gas:	103,963 MCF injected
	2,294 MCF flared
	36,745 MCF utilized
	<u>143,002 Total MCF produced</u>

As of February 1, 1961, a cumulative total of 32,958,063 barrels of water was injected into the Weber reservoir, with 2,492,608 barrels of water injected during the month of January, utilizing 56 water injection wells. The daily average injection rate for January was 80,407 barrels of water.

Attached please find graphs showing daily average figures of oil production, water injection, and gas production with disposition, for a period starting January 1959 and ending January 1961.

Very truly yours,

OIL AND GAS CONSERVATION COMMISSION



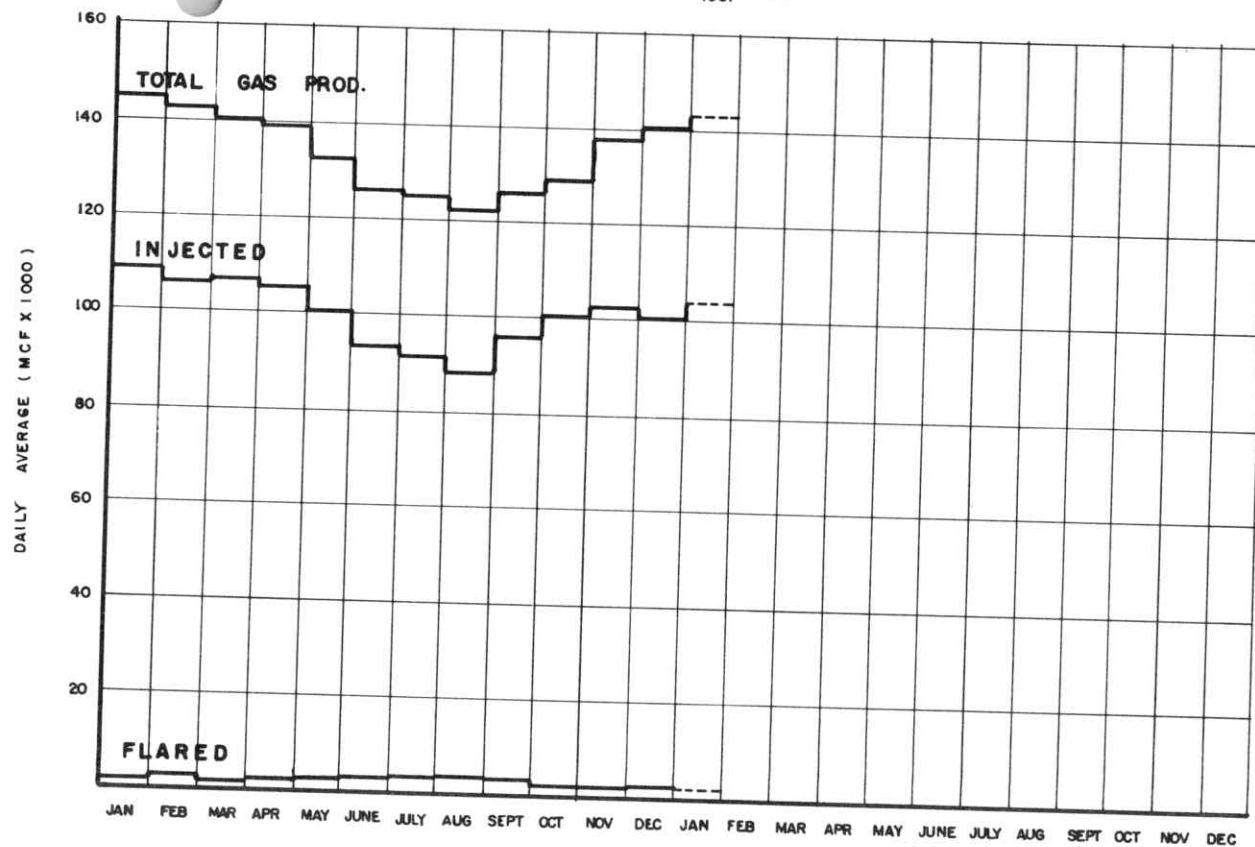
A. J. Jersin, Director

AJJ:cm

cc: Commissioners
Sam Freeman
Harold J. Duncan

GAS PRODUCTION & DISPOSITION

1960 — 1961 ----

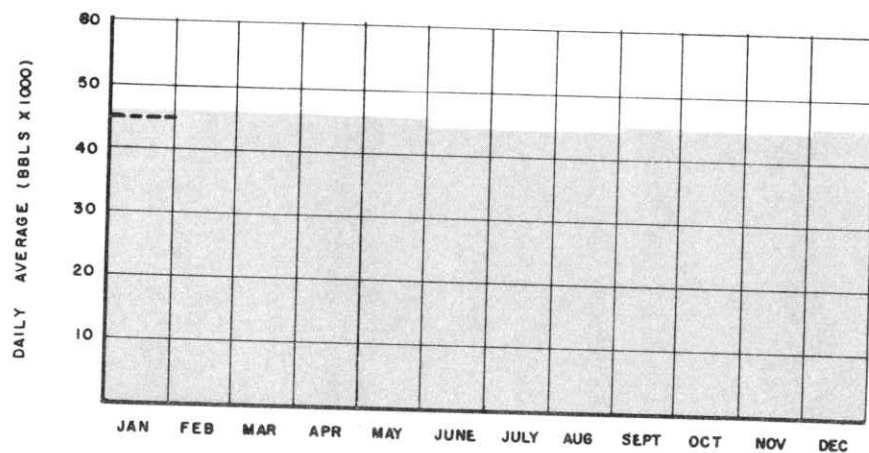


RANGELY FIELD

Weber Reservoir

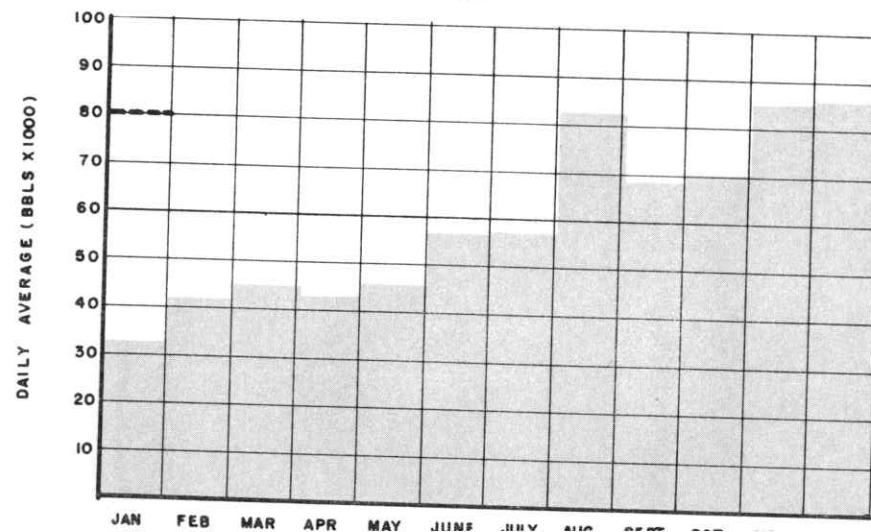
OIL PRODUCTION

1960 ■ 1961 ----



WATER INJECTION

1960 ■ 1961 ----



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A. J. JERSIN
DIRECTOR

February 3, 1961

Mr. Warwick M. Downing
824 Equitable Building
Denver 2, Colorado

Dear Mr. Downing:

The California Oil Company reported that the Weber reservoir of the Rangely Field Unit Area produced 1,396,360 barrels of oil, and 4,373,522 Mcf. of gas during the month of December 1960, from 361 producing wells, 17 of which were reported as flowing wells.

The following tabulation presents the breakdown of daily averages of oil produced, and the disposition of produced gas for the month of December 1960:

Oil:	45,044 Barrels
Gas:	100,719 Mcf. injected
	2,570 Mcf. flared
	37,792 Mcf. utilized
	<u>141,081</u> Total Mcf. produced

As of January 1, 1961, a cumulative total of 30,465,455 barrels of water was injected into the Weber reservoir, with 2,653,668 barrels of water injected during the month of December, utilizing 56 water injection wells. The daily average injection rate for December was 85,602 barrels of water.

The Unit Operator is finishing the installation of two additional pumps at the central water injection plant, to increase the injection capacity to 140,000 barrels of water per day. The injection capacity now is 90,000 barrels of water per day. The additional injection capacity should be ready for use by the end of this month.

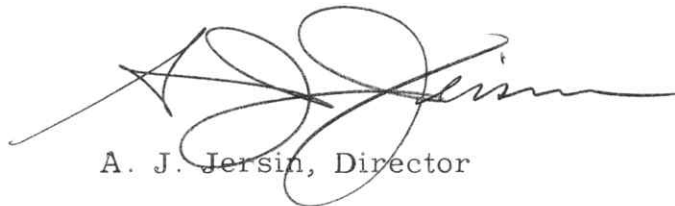
Mr. Warwick M. Downing
Page 2

February 3, 1961

Attached please find graphs showing daily average figures of oil production, water injection, and gas production with disposition, for a period starting January 1959 and ending December 1960.

Very truly yours,

OIL AND GAS CONSERVATION COMMISSION

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A. J. Jersin, Director

AJJ:cm

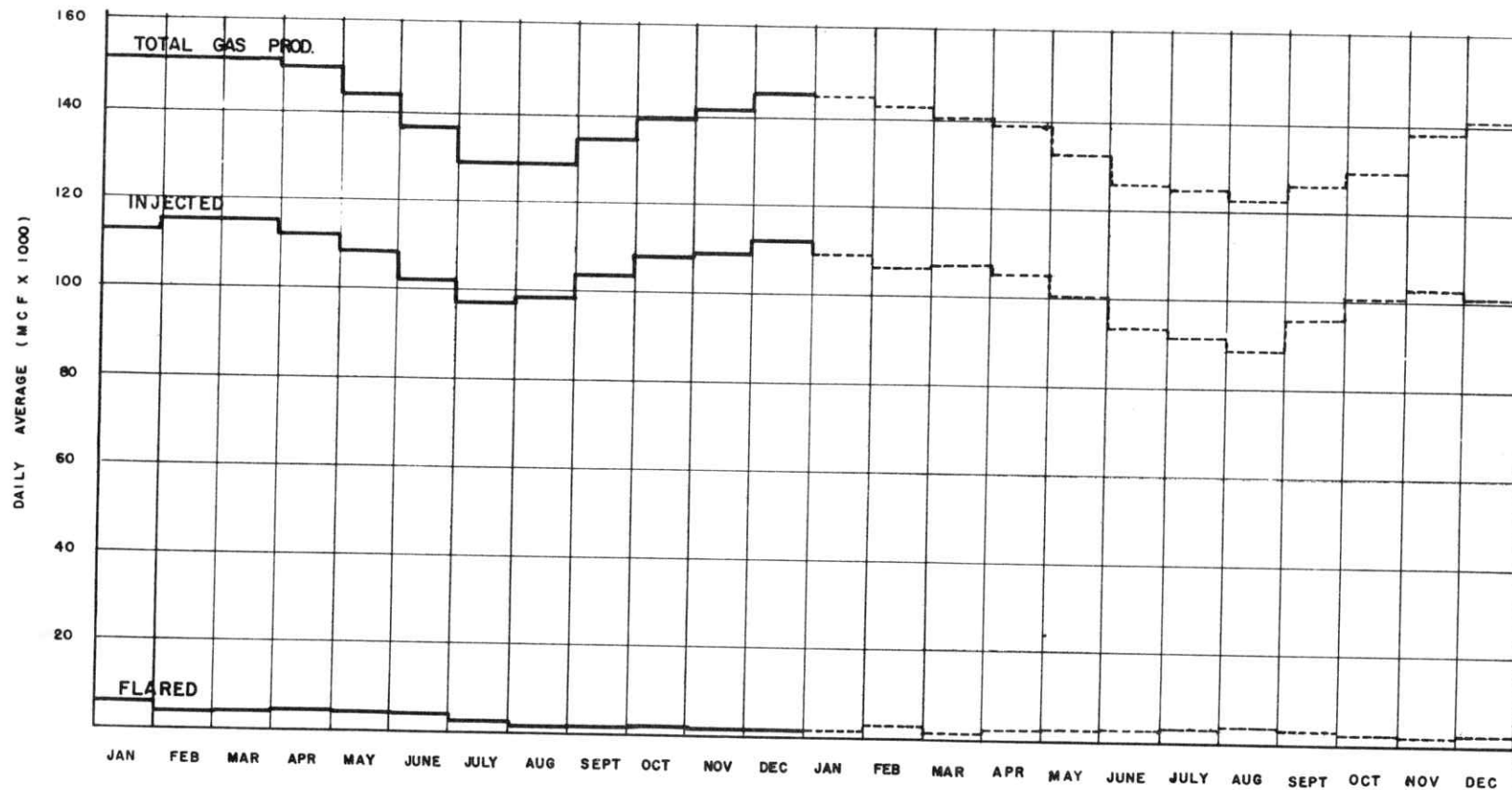
cc;

Commissioners
Sam Freeman
Harold J. Duncan

GAS PRODUCTION & DISPOSITION

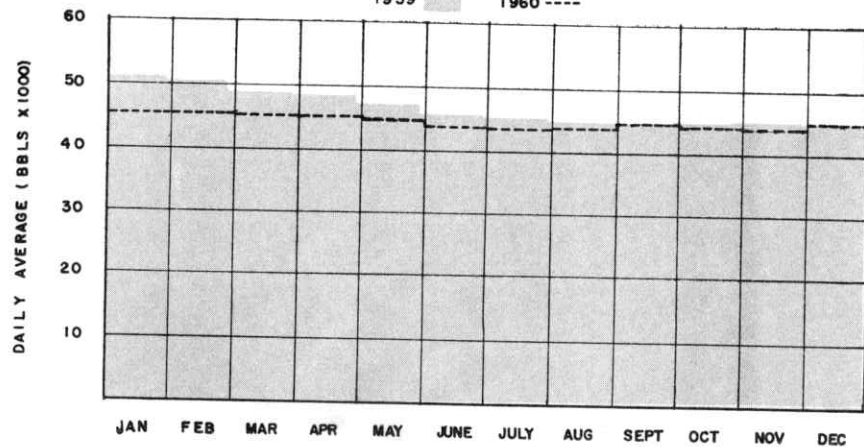
RANGELY FIELD
Weber Reservoir

1959 — 1960 ----



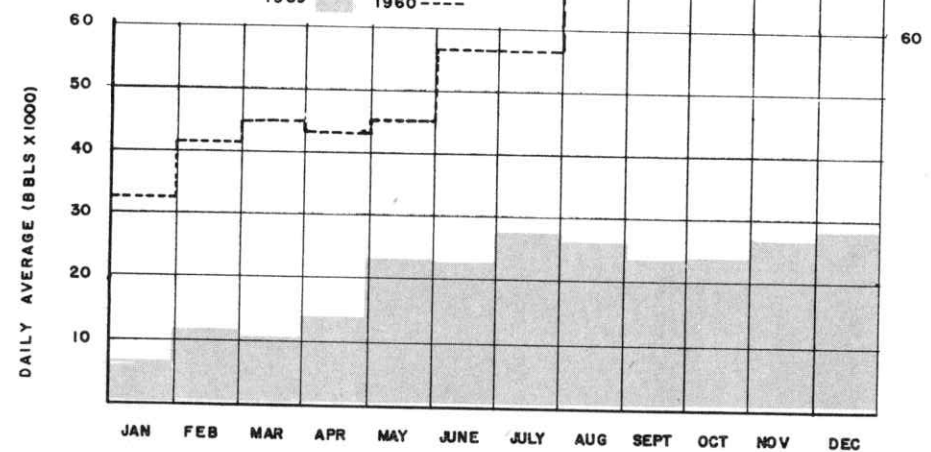
OIL PRODUCTION

1959 ■ 1960 ----



WATER INJECTION

1959 ■ 1960 ----



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CHARLES D. CONRADO
A. J. JERSIN
DIRECTOR

January 5, 1961

Mr. Warwick M. Downing
824 Equitable Building
Denver 2, Colorado

Dear Mr. Downing:

The California Oil Company reported that the Weber reservoir of the Rangely Field Unit Area produced 1,333,425 barrels of oil, and 4,138,182 Mcf. of gas during the month of November 1960, from 359 producing wells, 19 of which were reported as flowing wells.

The following tabulation presents the breakdown of daily averages of oil produced, and the disposition of produced gas for the month of November 1960:

Oil:	44,448 Barrels
Gas:	102,876 Mcf injected
	2,066 Mcf flared
	32,997 Mcf utilized
	<u>137,939 Total Mcf produced</u>

As of December 1, 1960, a cumulative total of 27,811,787 barrels of water was injected into the Weber reservoir, with 2,538,611 barrels of water injected during the month of November, utilizing 56 water injection wells. The daily average injection rate for November was 84,620 barrels of water.

Attached please find graphs showing daily average figures of oil production, water injection, and gas production with disposition, for a period starting January 1959 and ending November 1960.

Very truly yours,

OIL AND GAS CONSERVATION COMMISSION


A. J. Jersin, Director

McKee:cm

cc: Commissioners

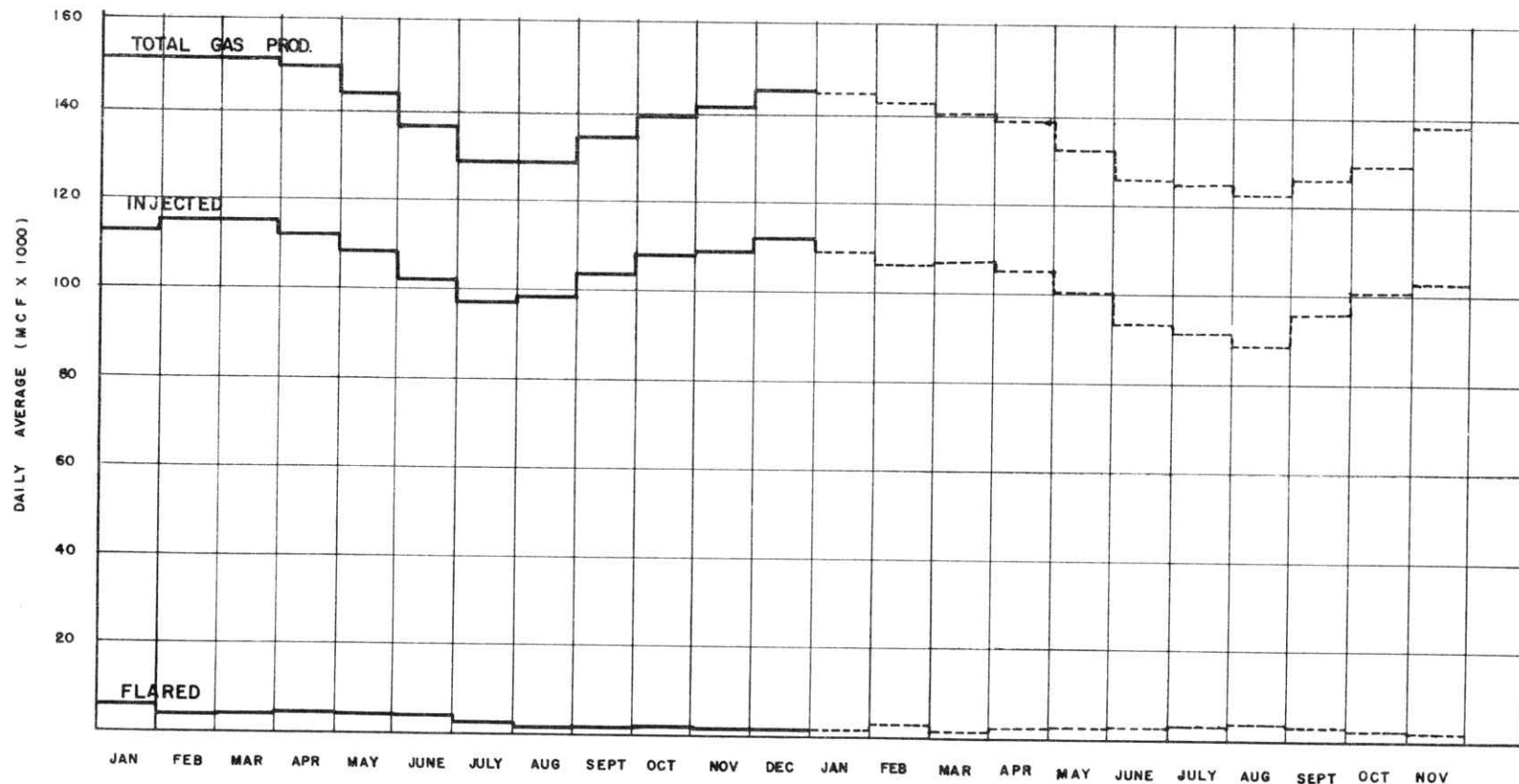
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GAS PRODUCTION & DISPOSITION

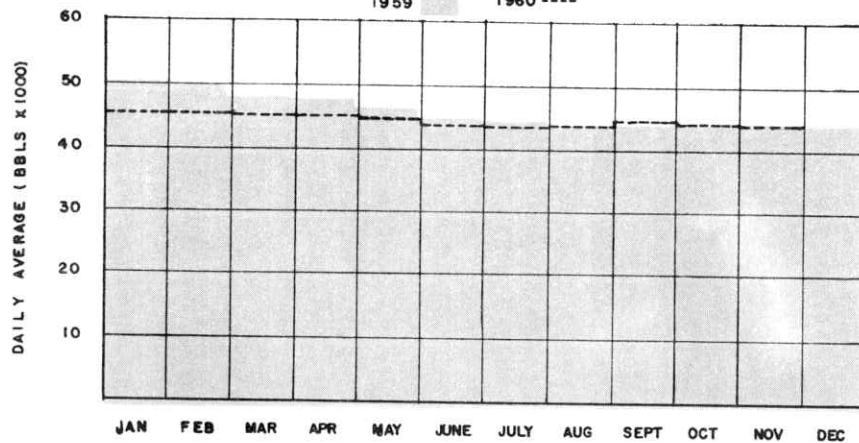
RANGELY FIELD
Weber Reservoir

1959 — 1960 ----



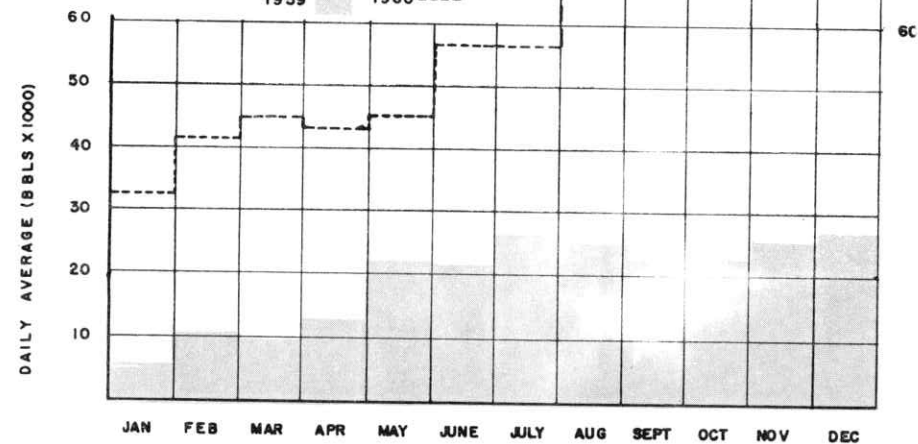
OIL PRODUCTION

1959 ■ 1960 ----



WATER INJECTION

1959 ■ 1960 ----



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A. J. JERSIN
DIRECTOR

D. V. ROGERS
SECRETARY

December 6, 1961

Mr. Warwick M. Downing
824 Equitable Building
Denver 2, Colorado

Dear Mr. Downing:

The California Oil Company reported that the Weber reservoir of the Rangely Field Unit Area produced 1,330,590 barrels of oil, and 4,042,490 MCF of gas during the month of October 1961, from 360 producing wells, 20 of which were reported as flowing wells.

The following tabulation presents the breakdown of daily averages of oil produced, and the disposition of produced gas for the month of October 1961:

Oil:	42,922 Barrels
Gas:	94,994 MCF injected
	1,845 MCF flared
	33,564 MCF utilized
	<hr/> 130,403 Total MCF produced

As of November 1, 1961, a cumulative total of 57,589,160 barrels of water was injected into the Weber reservoir, with 2,733,807 barrels of water injected during the month of October, utilizing 57 water injection wells. The daily average injection rate for October was 88,187 barrels of water.

Mr. Warwick M. Downing
Page 2

December 6, 1961

Attached please find graphs showing daily average figures of oil production, water injection, and gas production with disposition, for a period starting January 1960 and ending October 1961.

Very truly yours,

OIL AND GAS CONSERVATION COMMISSION



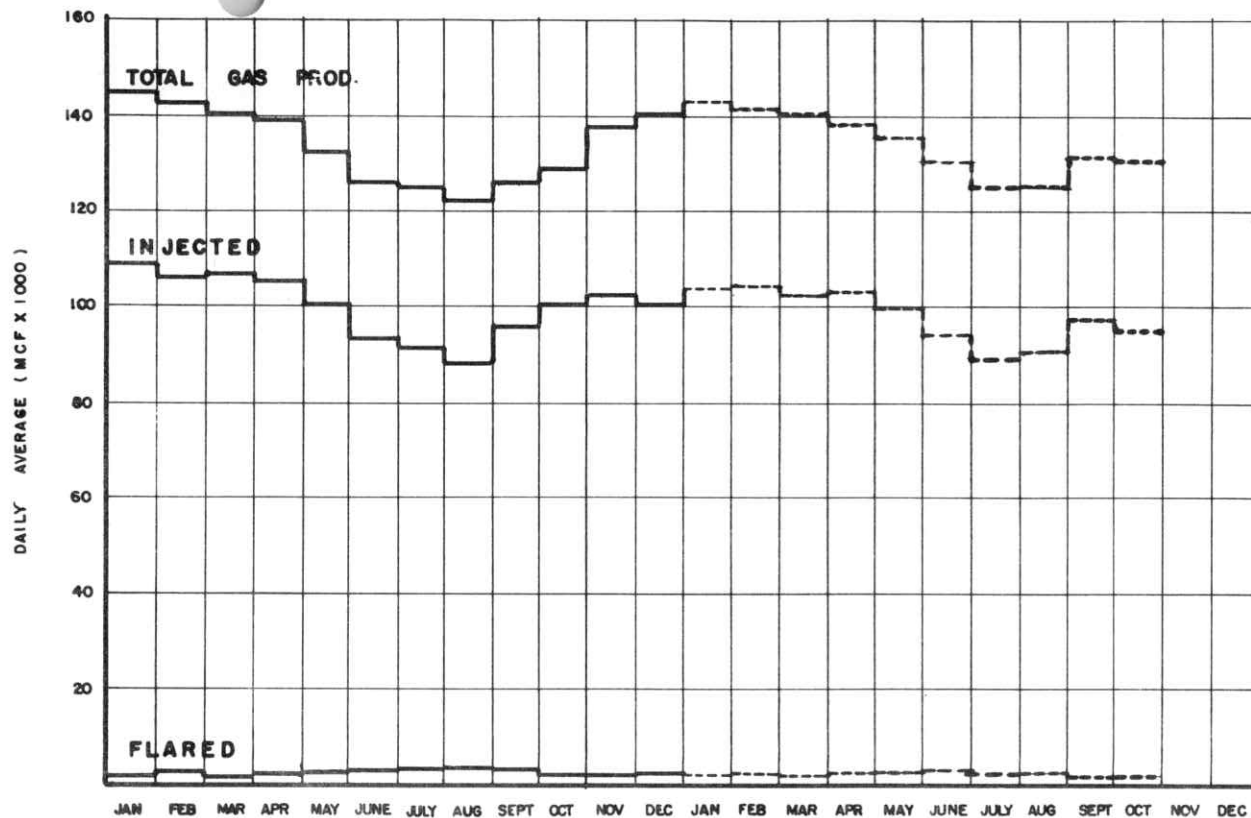
A. J. Jersin, Director

McKee:cm

cc: Commissioners
Sam Freeman
Harold J. Duncan

GAS PRODUCTION & DISPOSITION

1960 — 1961 ----

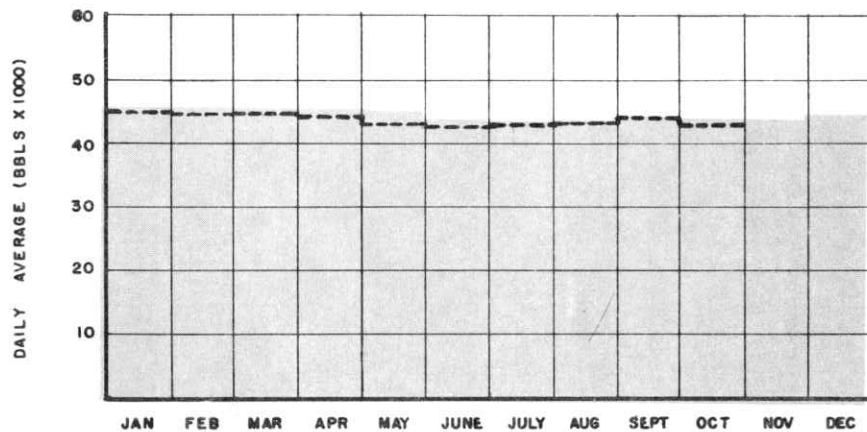


RANGELY FIELD

Weber Reservoir

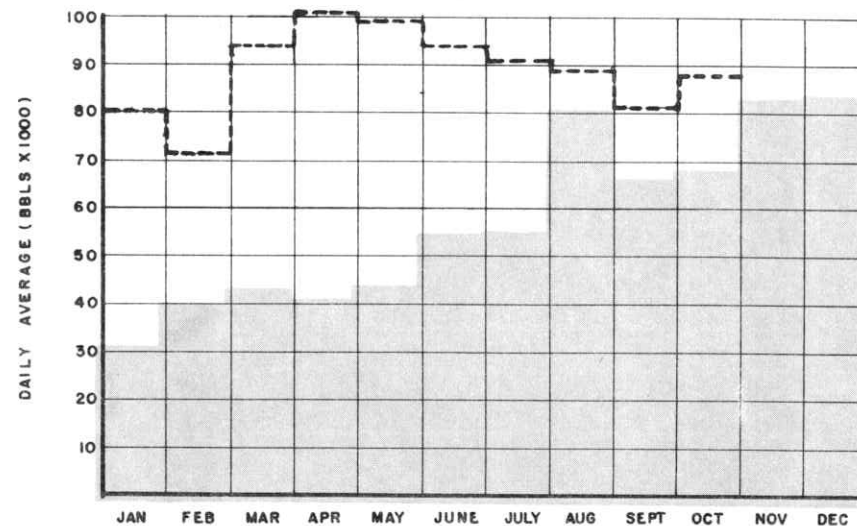
OIL PRODUCTION

1960 ■ 1961 ----



WATER INJECTION

1960 ■ 1961 ----



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A. J. JERSIN
DIRECTOR

D. V. ROGERS
SECRETARY

November 7, 1961

Mr. Warwick M. Downing
824 Equitable Building
Denver 2, Colorado

Dear Mr. Downing:

The California Oil Company reported that the Weber reservoir of the Rangely Field Unit Area produced 1,321,077 barrels of oil, and 3,950,568 MCF of gas during the month of September 1961, from 357 producing wells, 17 of which were reported as flowing wells.

The following tabulation presents the breakdown of daily averages of oil produced, and the disposition of produced gas for the month of September 1961:

Oil:	44,036 Barrels
Gas:	97,350 MCF injected
	1,839 MCF flared
	32,497 MCF utilized
	<u>131,686 Total MCF produced</u>

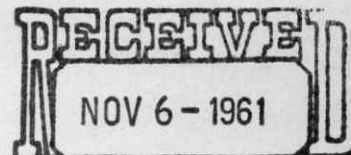
As of October 1, 1961, a cumulative total of 54,855,353 barrels of water was injected into the Weber reservoir, with 2,448,149 barrels of water injected during the month of September, utilizing 56 water injection wells. The daily average injection rate for September was 81,605 barrels of water.

Following is the Unit Operator's "Rangely Weber Sand Unit Plan of Operation for Second Half 1961," which was approved by the United States Geological Survey:

CALIFORNIA OIL COMPANY

WESTERN DIVISION

P. O. Box 780
Denver 1, Colorado



OIL & GAS
CONSERVATION COMMISSION

June 22, 1961

RANGELY WEBER SAND UNIT
PLAN OF OPERATION FOR
SECOND HALF 1961

United States Geological Survey
P. O. Box 400
Casper, Wyoming

Attention: Mr. J. R. Schwabrow,
Regional Oil and Gas Supervisor

Gentlemen:

In accordance with Section 9 of the Unit Agreement for the Development and Operation of the Rangely Weber Sand Unit, California Oil Company, Western Division, Unit Operator, herewith submits for your approval the plan of operations for the unitized land for the second half of 1961. It is intended that this plan become effective July 1, 1961. This plan has been approved by the Working Interest Owners of the Unit.

REVIEW OF THE FIRST HALF OF 1961

Water Injection

Facilities have been completed to increase the water injection capacity to 145,000 BWP. These facilities consist of two additional 29,000 BWP pumps at the main water station plus a 14" water main from the plant connecting to the peripheral system in the northwest corner of the field.

These five water injection wells were deepened to the stratigraphic equivalent of the oil-water contact in the third row upstructure wells: A. C. McLaughlin #25, Associated Unit C-1, Gray B-17, Gray B-16, and S. A. Guiberson A-2. This work is designed to help alleviate the low bottom hole pressures in Sections 13, 14, and 18, immediately south of these injection wells.

Water Source

A considerable amount of miscellaneous work has been performed in the Navajo-Entrada water source wells.

1. Installed shaft driven turbine pump in Rangely Weber Sand Unit Water Source Well #1.
2. Installed submersible pump in S. W. McLaughlin #8-33.
3. Lowered the turbine pumps in U.P.R.R. #16-27 and Emerald #36.
4. Cement squeezed the Dakota perforations in Emerald #10 to reduce gas production thus improving pump efficiency.
5. Perforated an additional 50' in the Navajo and Entrada in M. C. Hagood #7 and tested well potential by gas lifting 6,700 BWPD.

A recent study indicates that the Navajo-Entrada source will furnish approximately 75,000 BWPD at a constant bottom hole pressure. Since the water requirements exceed this figure, plans have been expedited for using White River water.

The initial step toward utilizing White River water was a hydrogeographic survey to study the feasibility of an induced filtration system. As an outcome of this study, one test well installation has been made and is pumping water from the gravel beds adjacent to the river.

Water Gathering

Facilities have been installed to gather, treat, filter and inject in A. C. McLaughlin #34 all produced water from collection stations #1, #2, and #44. Also, water produced from collection station #33 is being injected into Levison #12 and station #38 water is now commingled with station #39 water and injected into F. V. Larson B-4.

High Volume Pumping

Three 120" beam pumping units and one submersible type electric driven turbine were installed in producing offsets to water injection wells.

U. S. Geological Survey
June 22, 1961

Page 3

Workovers

Twenty-six workovers have been completed that include nine fracs, eleven cleanouts, two deepening jobs and four surfactant oil squeezes.

Also, formerly shut-in gas injection well U.P.R.R. #56-21 has been returned to oil production.

Miscellaneous

Several methods were used in an unsuccessful attempt to improve the injection profile and capacity of Newton Government #1. A surfactant-solvent solution was used to treat the sand face followed by an HCl acid treatment, neither of which helped. Implosion bottles were then utilized with negative results.

Water injection well F. V. Larson B-2 was low pressure squeezed with cement in an effort to improve the profile and plug off the "thief" zone taking water. This work was partially successful in that the zone taking water is now 100 feet longer, but the offset producers still have excessive water cuts.

Two water injection wells, Levison #19 and Gentry 4-D, were water fraced in an attempt to improve their injectivity. This work is now being evaluated.

Water slugs have been used in gas injection wells L. N. Hagood A-6 and Gray A-10 in order to improve the injection profile.

PLAN OF OPERATION - SECOND HALF 1961

Water Injection

A study is being conducted to evaluate the desirability of crestal water injection. Expansion of the five-spot pattern in the eastern portion of the field is also under consideration.

Suitable edge producers that water-out around the periphery of the field will be converted to water injection.

Water Source

To further evaluate the induced filtration method of utilizing White River water, twelve additional shallow water wells will be installed and tested. At the same time, a regular municipal type water treating plant will be designed. At the end of a

U. S. Geological Survey
June 22, 1961

Page 4

suitable test period for the infiltration wells, the decision will be made to install additional infiltration wells or the water treating plant.

It will probably be necessary to lower the pumps in several of the present Navajo-Entrada water source wells while awaiting the additional water to be made available by the above outlined work.

Water Gathering

Facilities will be installed, as needed, to gather, treat, filter and inject produced water.

Gas Injection

It is planned to convert to gas injection service one well in the low bottom hole pressure area in Section 13, T2N, R103W. Gas will be diverted from the present gas injection wells, A. C. McLaughlin #38, A. C. McLaughlin #40, Fee #4, and Fee #65, for injection into the new well. It is anticipated that an injection well at this location will help alleviate the low pressure sink now present in this area.

Large Volume Pumping

Large volume pumps will be installed on producing offsets to water injection wells as the need arises.

Workovers

Plans are to continue an active program of stimulation. It is anticipated that the cleanouts and deepening jobs will progress at a normal rate. There will be some surfactant squeezes performed on selected wells.

Miscellaneous

Various types of special jobs will be performed to improve the injection profiles in both the water and gas injection wells by selectively plugging present "thief" zones, or by selectively stimulating zones not taking a proportionate share of fluid.

U. S. Geological Survey
June 22, 1961

Page 5

Estimated Production - Second Half 1961

July	42,700
August	43,400
September	44,300
October	44,800
November	45,400
December	45,900

Your early approval of this plan of operation for the second half of 1961 will be appreciated.

Yours very truly,

CALIFORNIA OIL COMPANY
Western Division
Unit Operator

By _____

Approved _____

J. R. Schwabrow
Regional Oil & Gas Supervisor
U. S. Geological Survey
Casper, Wyoming

Mr. Warwick M. Downing

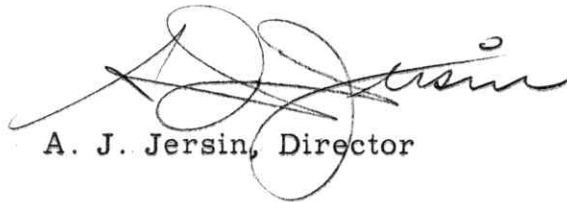
- 6 -

November 7, 1961

Attached please find graphs showing daily average figures of oil production, water injection, and gas production with disposition, for a period starting January 1960 and ending September 1961.

Very truly yours,

OIL AND GAS CONSERVATION COMMISSION

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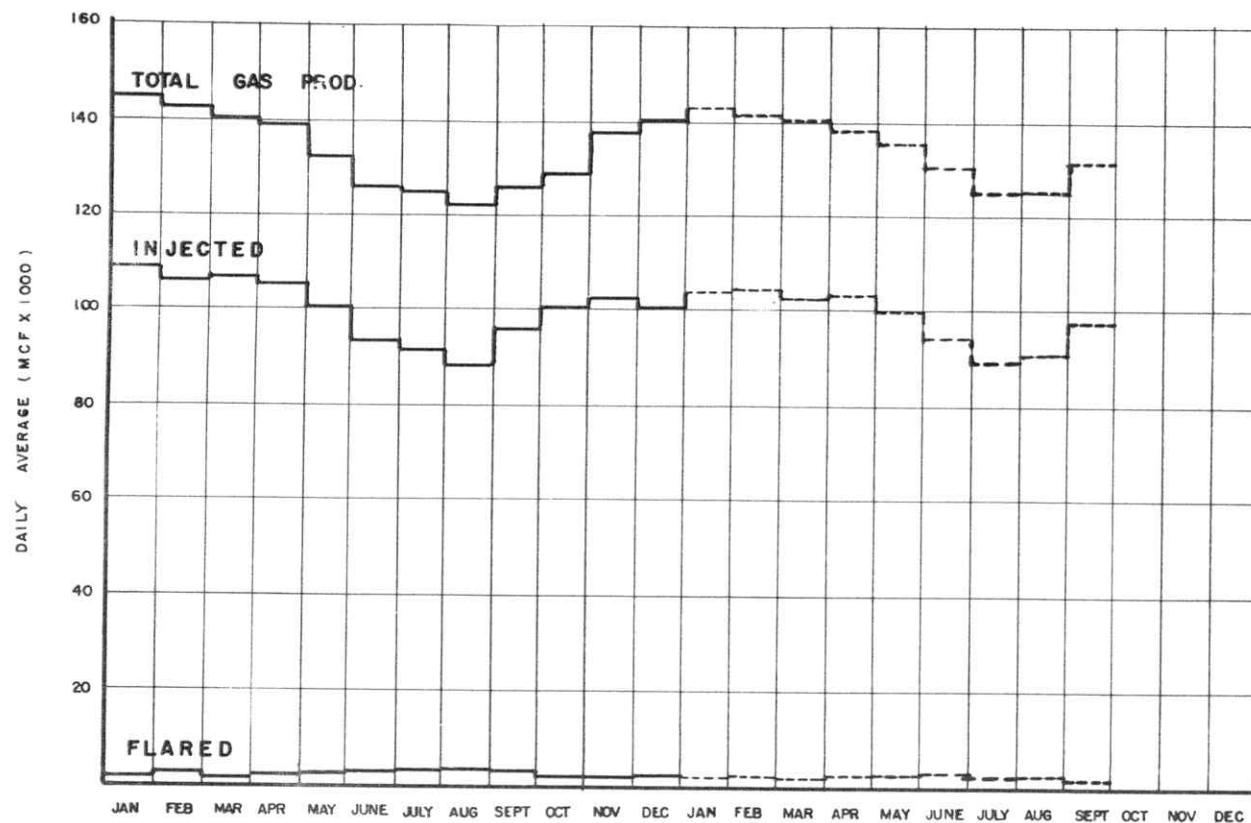
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GAS PRODUCTION & DISPOSITION

1960 — 1961 - - - -

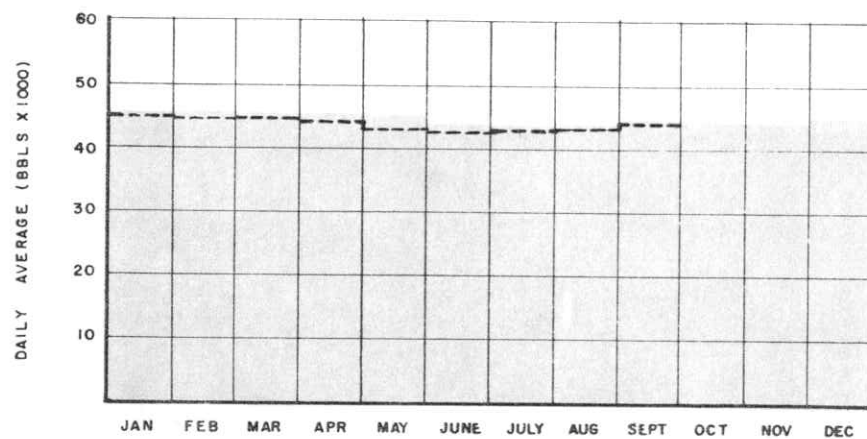


RANGELY FIELD

Weber Reservoir

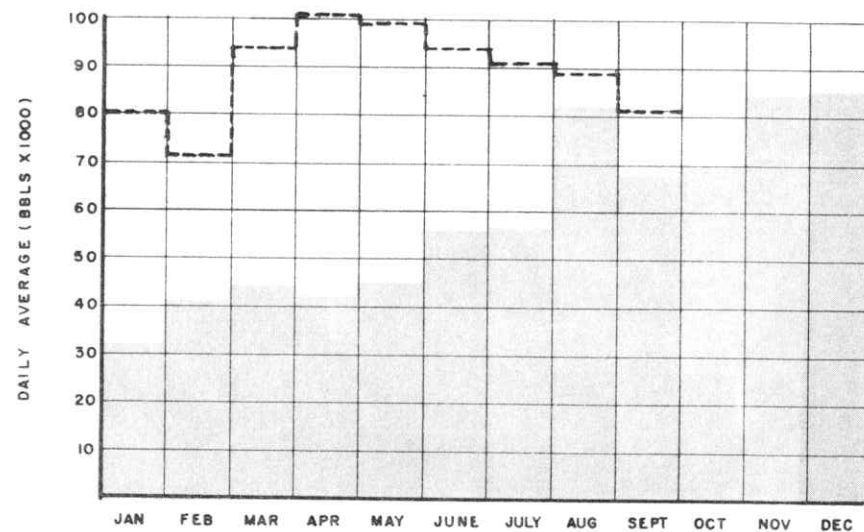
OIL PRODUCTION

1960 ■ 1961 - - - -



WATER INJECTION

1960 ■ 1961 - - - -



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A. J. JERSIN
DIRECTOR

D. V. ROGERS
SECRETARY

October 5, 1961

Mr. Warwick M. Downing
824 Equitable Building
Denver 2, Colorado

Dear Mr. Downing:

The California Oil Company reported that the Weber reservoir of the Rangely Field Unit Area produced 1,334,545 barrels of oil, and 3,875,761 MCF of gas during the month of August 1961, from 352 producing wells, 15 of which were reported as flowing wells.

The following tabulation presents the breakdown of daily averages of oil produced, and the disposition of produced gas for the month of August 1961:

Oil:	43,050 Barrels
Gas:	90,817 MCF injected
	2,239 MCF flared
	31,969 MCF utilized
	<u>125,025</u> Total MCF produced

As of September 1, 1961, a cumulative total of 52,407,204 barrels of water was injected into the Weber reservoir, with 2,764,078 barrels of water injected during the month of August, utilizing 56 water injection wells. The daily average injection rate for August was 89,164 barrels of water.

Mr. Warwick M. Downing
Page 2

October 5, 1961

Attached please find graphs showing daily average figures of oil production, water injection, and gas production with disposition, for a period starting January 1960 and ending August 1961.

Very truly yours,

OIL AND GAS CONSERVATION COMMISSION

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A. J. Jersin, Director

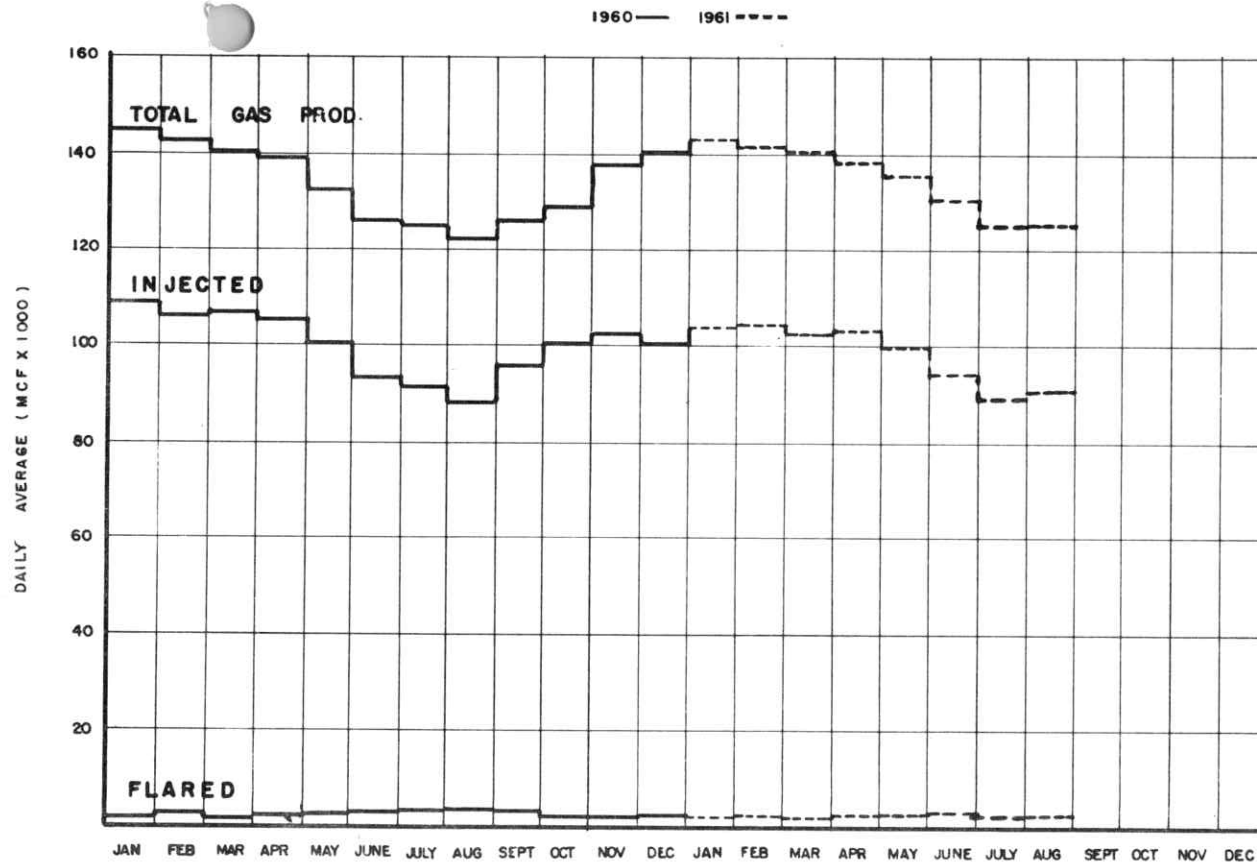
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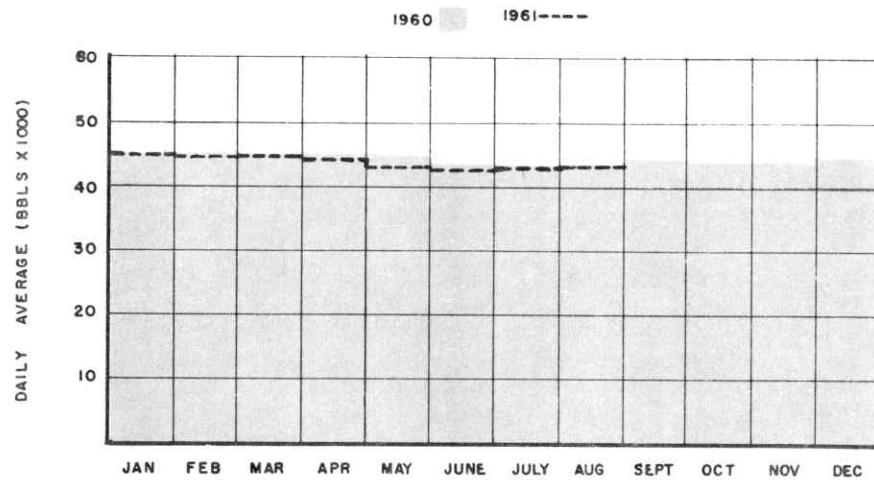
GAS PRODUCTION & DISPOSITION

RANGELY FIELD

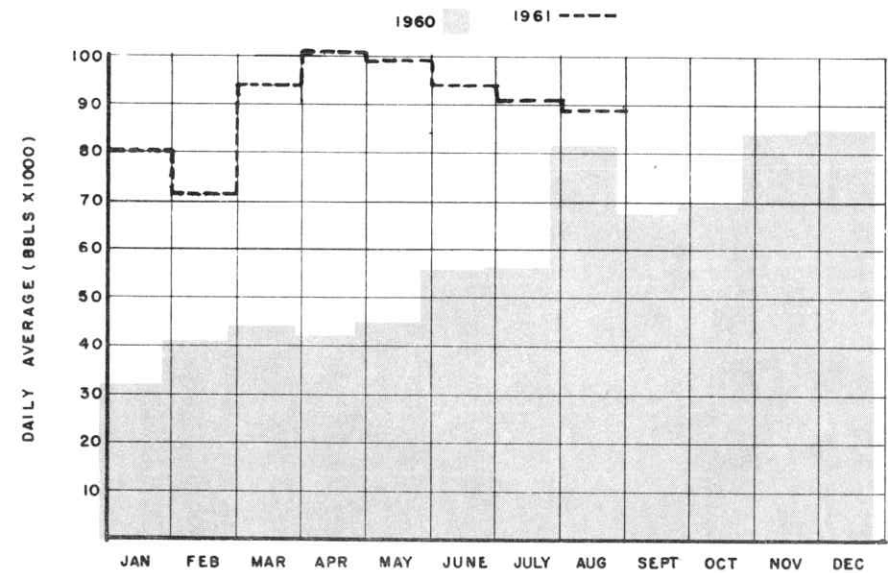
Weber Reservoir



OIL PRODUCTION



WATER INJECTION



OIL AND GAS CONSERVATION COMMISSION

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DIRECTOR

D. V. ROGERS
SECRETARY

September 7, 1961

Mr. Warwick M. Downing
824 Equitable Building
Denver 2, Colorado

Dear Mr. Downing:

The California Oil Company reported that the Weber reservoir of the Rangely Field Unit Area produced 1,325,904 barrels of oil, and 3,874,370 MCF of gas during the month of July 1961, from 350 producing wells, 12 of which were reported as flowing wells.

The following tabulation presents the breakdown of daily averages of oil produced, and the disposition of produced gas for the month of July 1961:

Oil: 42,771 Barrels

Gas: 89,295 MCF injected
2,274 MCF flared
33,411 MCF utilized
124,980 Total MCF produced

As of August 1, 1961, a cumulative total of 49,643,126 barrels of water was injected into the Weber reservoir, with 2,814,657 barrels of water injected during the month of July, utilizing 56 water injection wells. The daily average injection rate for July was 90,795 barrels of water.

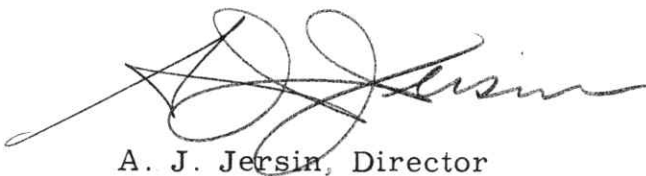
Mr. Warwick M. Downing
Page 2

September 5, 1961

Attached please find graphs showing daily average figures of oil production, water injection, and gas production with disposition, for a period starting January 1960 and ending July 1961.

Very truly yours,

OIL AND GAS CONSERVATION COMMISSION

A handwritten signature in dark ink, appearing to read "A. J. Jersin", is written over a horizontal line. The signature is fluid and cursive, with a long horizontal stroke extending to the right.

A. J. Jersin, Director

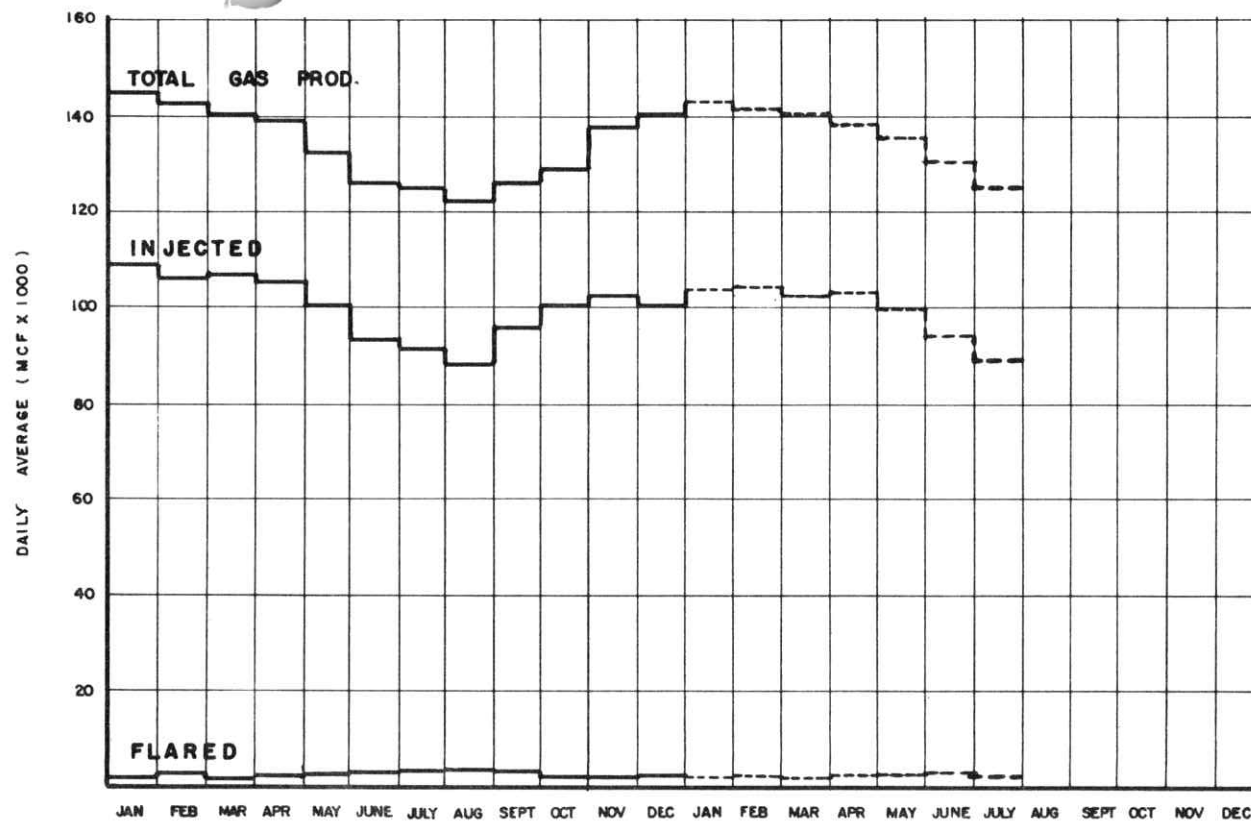
JAMcK:cm

cc:

Commissioners
Sam Freeman
Harold J. Duncan

GAS PRODUCTION & DISPOSITION

1960 — 1961 - - -

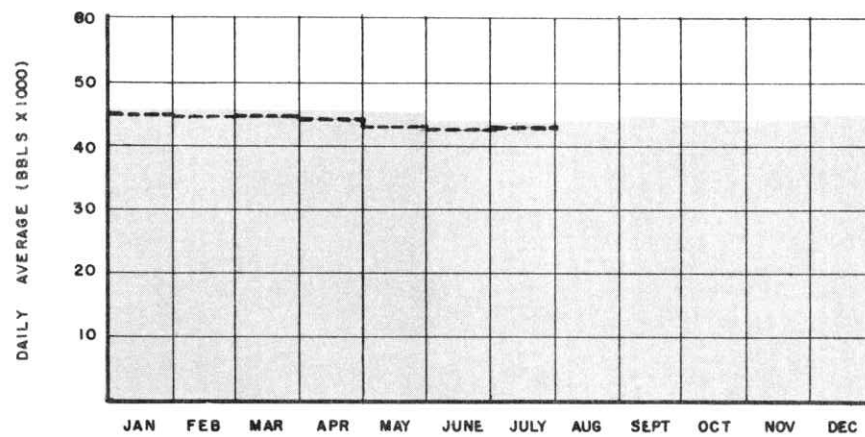


RANGELY FIELD

Weber Reservoir

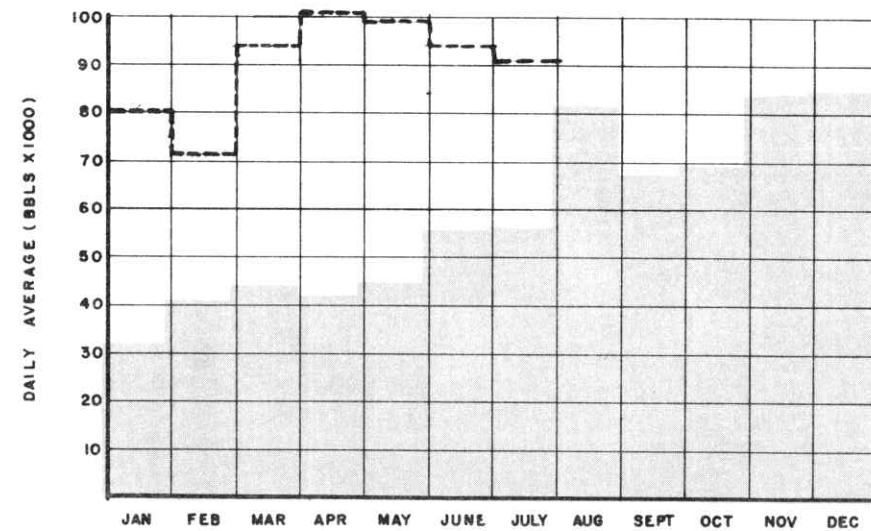
OIL PRODUCTION

1960 — 1961 - - -



WATER INJECTION

1960 — 1961 - - -



OIL AND GAS CONSERVATION COMMISSION

OF THE
STATE OF COLORADO
STEVE McNICHOLS, GOVERNOR
ROOM 312, STATE SERVICES BLDG.
1525 SHERMAN ST.
DENVER 3, COLORADO

WARWICK M. DOWNING
CHAIRMAN
H. C. BRETSCHNEIDER
VICE-CHAIRMAN
W. A. DILLON
HARVEY H. HOUSTON
CHARLES D. CONRADO
A. J. JERSIN
DIRECTOR
D. V. ROGERS
SECRETARY

August 2, 1961

Mr. Warwick M. Downing
824 Equitable Building
Denver 2, Colorado

Dear Mr. Downing:

The California Oil Company reported that the Weber reservoir of the Rangely Field Unit Area produced 1,279,968 barrels of oil, and 3,921,111 MCF of gas during the month of June 1961, from 353 producing wells, 12 of which were reported as flowing wells.

The following tabulation presents the breakdown of daily averages of oil produced, and the disposition of produced gas for the month of June 1961:

Oil:	42,666 Barrels
Gas:	94,166 MCF injected
	2,686 MCF flared
	33,852 MCF utilized
	<u>130,704</u> Total MCF produced

As of July 1, 1961, a cumulative total of 46,828,469 barrels of water was injected into the Weber reservoir, with 2,821,926 barrels of water injected during the month of June, utilizing 56 water injection wells. The daily average injection rate for June was 94,064 barrels of water.

Mr. Warwick M. Downing

Page 2

August 2, 1961

Attached please find graphs showing daily average figures of oil production, water injection, and gas production with disposition, for a period starting January 1960 and ending June 1961.

Very truly yours,

OIL AND GAS CONSERVATION COMMISSION



A. J. Jersin, Director

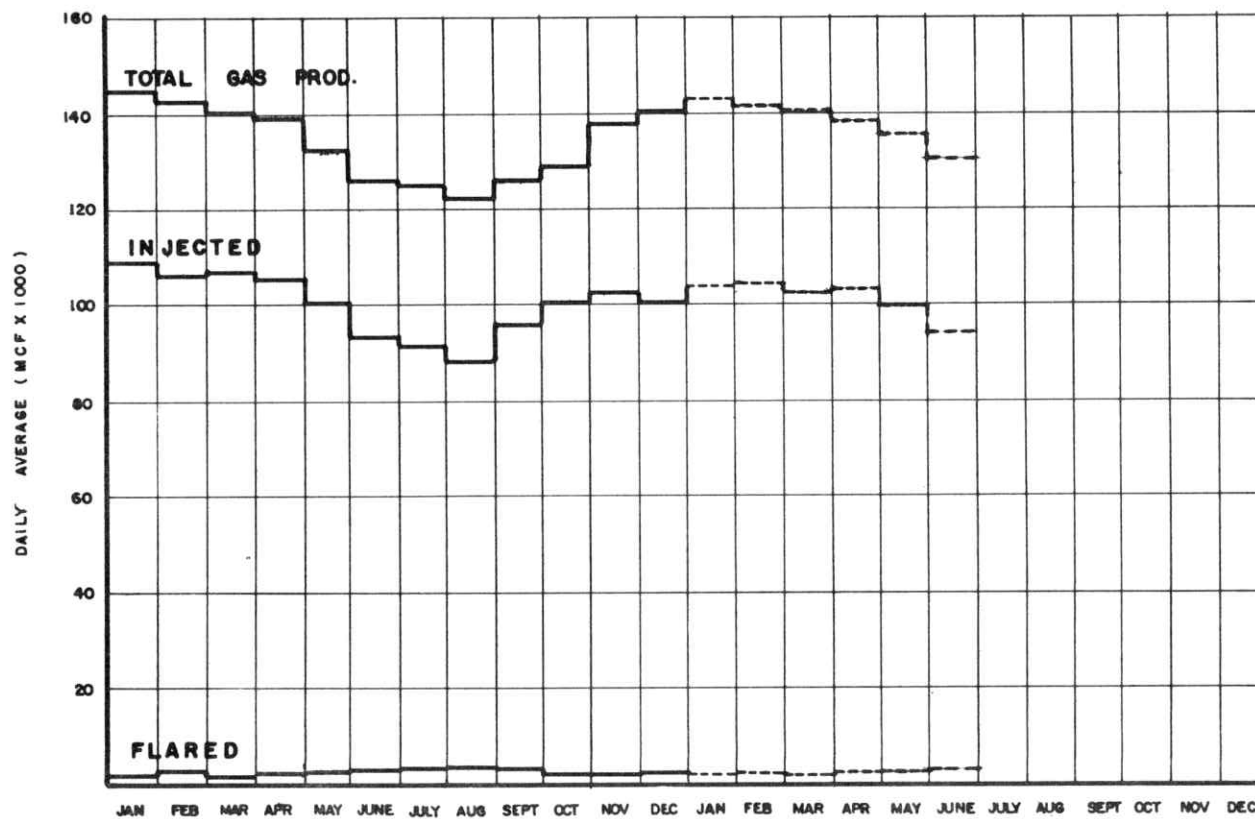
JAMcK:cm

cc:

Commissioners
Sam Freeman
Harold J. Duncan

GAS PRODUCTION & DISPOSITION

1960 — 1961 ----

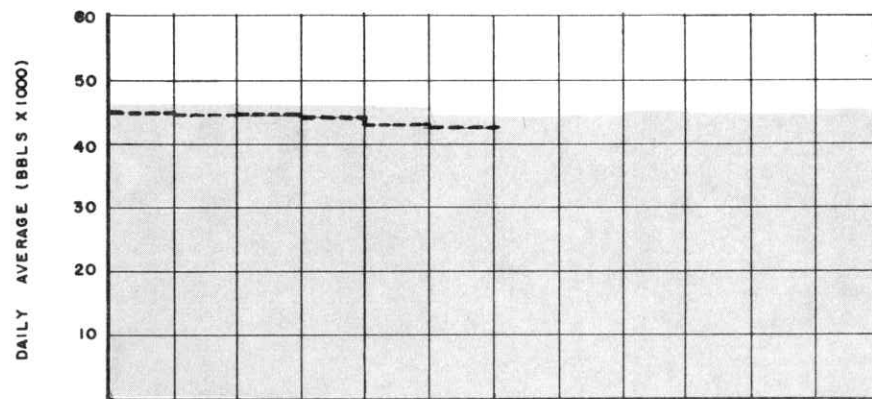


RANGELY FIELD

Weber Reservoir

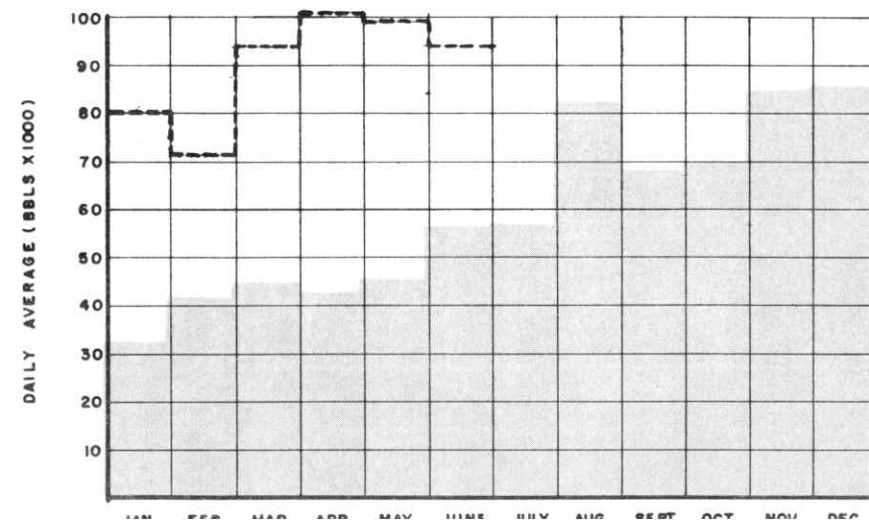
OIL PRODUCTION

1960 — 1961 ----



WATER INJECTION

1960 — 1961 ----



OIL AND GAS CONSERVATION COMMISSION

OF THE
STATE OF COLORADO

STEVE McNICHOLS, GOVERNOR
ROOM 312, STATE SERVICES BLDG.
1525 SHERMAN ST.
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W. A. DILLON
HARVEY H. HOUSTON
CHARLES D. CONRADO
A. J. JERSIN
DIRECTOR
D. V. ROGERS
SECRETARY

June 30, 1961

Mr. Warwick M. Downing
824 Equitable Building
Denver 2, Colorado

Dear Mr. Downing:

The California Oil Company reported that the Weber reservoir of the Rangely Field Unit Area produced 1,333,283 barrels of oil, and 4,205,045 MCF of gas during the month of May 1961, from 355 producing wells, 15 of which were reported as flowing wells.

The following tabulation presents the breakdown of daily averages of oil produced, and the disposition of produced gas for the month of May 1961:

Oil:	43,009 Barrels
Gas:	99,861 MCF injected
	2,471 MCF flared
	33,315 MCF utilized
	<u>135,647</u> Total MCF produced

As of June 1, 1961, a cumulative total of 44,006,543 barrels of water was injected into the Weber reservoir, with 3,077,652 barrels of water injected during the month of May, utilizing 56 water injection wells. The daily average injection rate for May was 99,279 barrels of water.

Mr. Warwick M. Downing

Page 2

June 30, 1961

Attached please find graphs showing daily average figures of oil production, water injection, and gas production with disposition, for a period starting January 1960 and ending May 1961.

Very truly yours,

OIL AND GAS CONSERVATION COMMISSION

A handwritten signature in dark ink, appearing to read 'A. J. Jersin', is written over the typed name. The signature is fluid and cursive, with a large loop at the beginning and a long horizontal stroke at the end.

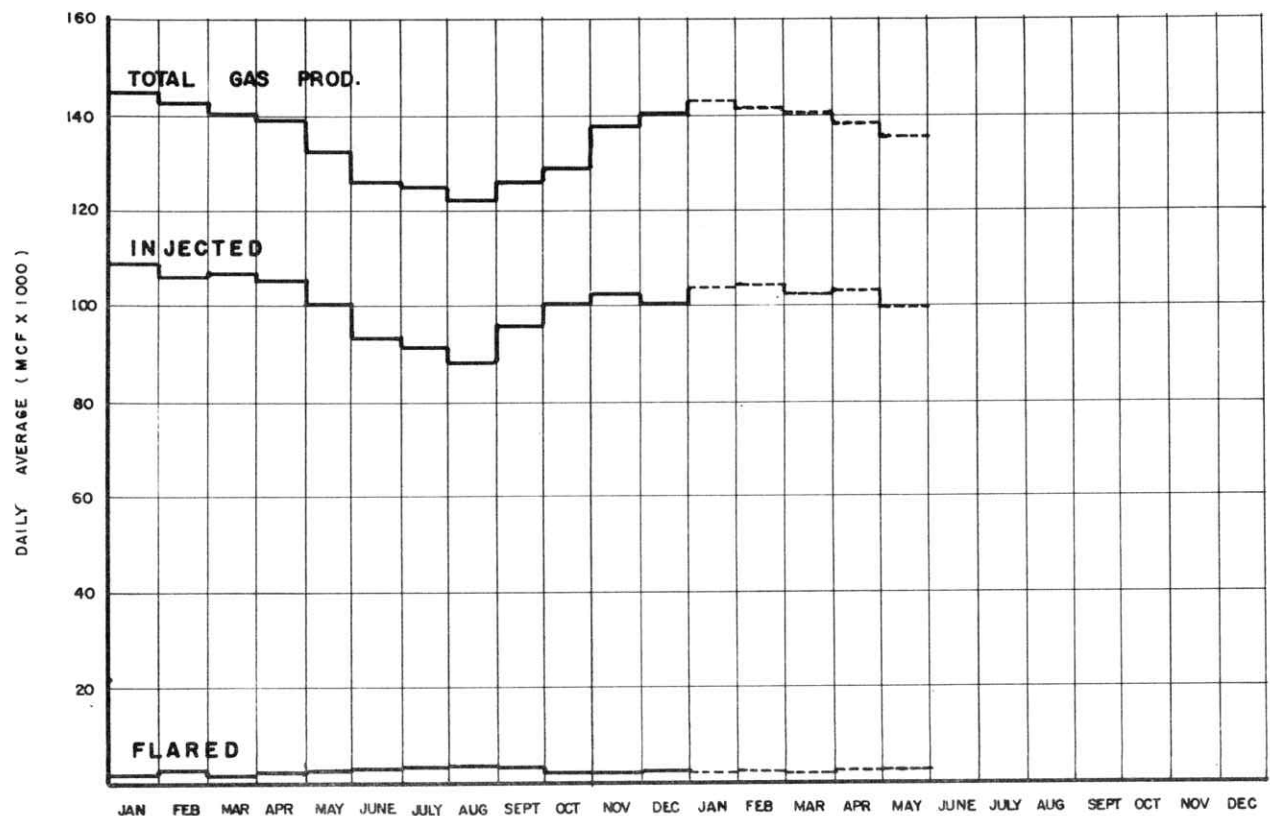
A. J. Jersin, Director

JAMcK:cm

Commissioners
Sam Freeman
Harold J. Duncan

GAS PRODUCTION & DISPOSITION

1960 — 1961 - - -

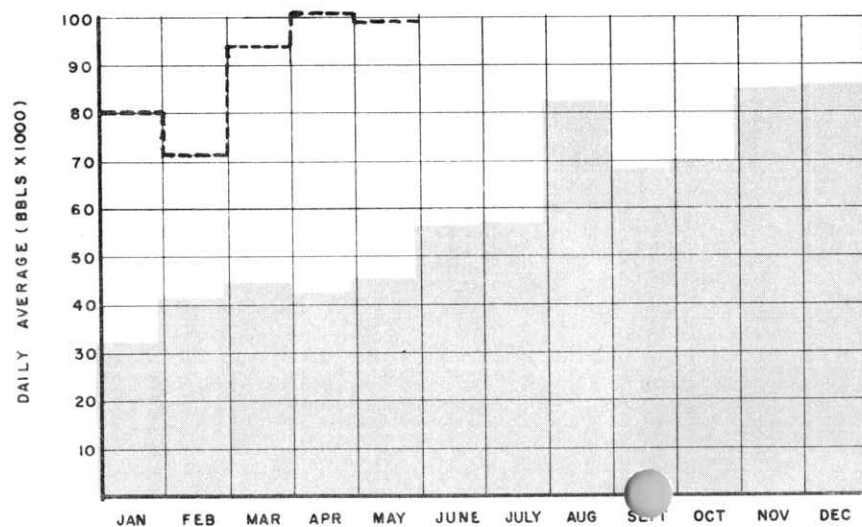


RANGELY FIELD

Weber Reservoir

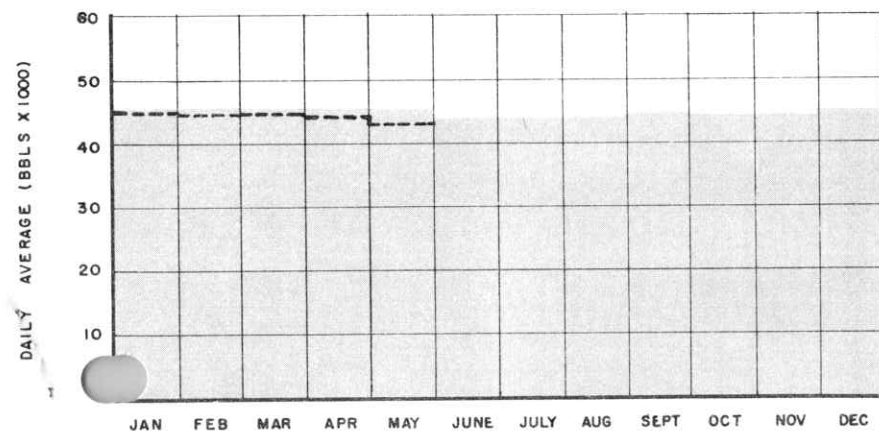
WATER INJECTION

1960 ■ 1961 - - -



OIL PRODUCTION

1960 ■ 1961 - - -



OIL AND GAS CONSERVATION COMMISSION

OF THE
STATE OF COLORADO
STEVE McNICHOLS, GOVERNOR
ROOM 312, STATE SERVICES BLDG.
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HARVEY H. HOUSTON
CHARLES D. CONRADO
A. J. JERSIN
DIRECTOR
D. V. ROGERS
SECRETARY

May 4, 1961

Mr. Warwick M. Downing
824 Equitable Building
Denver 2, Colorado

Dear Mr. Downing:

The California Oil Company reported that the Weber reservoir of the Rangely Field Unit Area produced 1,380,936 barrels of oil, and 4,364,710 MCF of gas during the month of March 1961, from 355 producing wells, 12 of which were reported as flowing wells.

The following tabulation presents the breakdown of daily averages of oil produced, and the disposition of produced gas for the month of March 1961:

Oil:	44,546 Barrels
Gas:	102,449 MCF injected
	2,150 MCF flared
	36,198 MCF utilized
	<u>140,797 Total MCF produced</u>

As of April 1, 1961, a cumulative total of 37,886,715 barrels of water was injected into the Weber reservoir, with 2,916,481 barrels of water injected during the month of March, utilizing 56 water injection wells. The daily average injection rate for March was 94,080 barrels of water.

Following is the Unit Operator's "Rangely Weber Sand Unit Plan of Operation, First Half 1961," which was approved by the United States Geological Survey on February 13, 1961:

Review of the Last Half of 1960

The primary objectives of the operation plan for the second half of 1960 were:

1. Further expand the water flood program by converting additional producing wells to water injection service in the south-east area of the field.
2. Increase water withdrawals from the Navajo and Entrada formations by the use of artificial lifting equipment. Continue testing the Navajo-Entrada source at selected locations in the field.
3. Install facilities to gather, treat and inject up to 3,000 BPD of produced water from wells along the western periphery of the field.
4. Install additional long stroke pumping units to offset water injection wells where needed.
5. Improve the injection profiles in both the water and gas injection wells by selectively plugging present "thief" zones, or by selectively stimulating zones not taking a proportionate share of water.

Water Injection

The peripheral flood was expanded by converting the following wells to water injection service: J.E. Purdy #1-6, L.N. Hagood "B" A-3, Chase Unit #1, Newton Government #1, M.E. Hefley #3, Gentry #4-D, Associated B-3, and Newton Associated Unit A-1.

Water Source

Turbine pumps were installed in nine water source wells. Rod Driven turbine pumps were run in wells Emerald #36, Union Pacific #16-27, Union Pacific #21-32, S.W. McLaughlin #1-33, Emerald #18, Emerald #10, and RWSUWS #1. The RWSUWS #1 well was gas lifted prior to the turbine pump installation, in order to evaluate this means of artificial lift. Also, submersible type pumps have been installed in Carney #12-5 and Union Pacific #60-31.

The subsurface water source was tested at four scattered locations in the field. Fee #5, Associated B-1, Levison #13 and M. C. Hagood A-7 were all perforated in the Entrada and Navajo sands. The Dakota

was also perforated in Hagood A-7. After testing, these wells were all completed in such a manner that bottom hole pressures may be obtained in the water source sands. Having these four observation wells will aid in evaluating the performance of the aquifer.

Long Stroke Pumping Units

Eleven 192" beam pumping units were installed.

Workovers

Fifteen workovers have been completed that include eight sand fracs, five cleanouts, four surfactant squeezes and two deepening jobs.

Miscellaneous

An unsuccessful attempt was made to improve the injection profile in water injection well F. V. Larson B-2 using an In Situ plugging method. Subsequent to this, the water thief zone was partially plugged off using regular lost circulation material.

Water slugs have been used to improve the injection profile in gas injection well L. N. Hagood A-6. It is still too early to evaluate this work.

The installation of facilities to gather, treat and return Weber water produced along the western periphery has been deferred until the first half of 1961.

Plan of Operation - First Half 1961

Water Injection

Facilities will be completed to increase the water injection rate at the main pump station from the present 87,000 BWPD to 145,000 BWPD. This will allow utilizing excess injection capacity now available in some of the present injection wells.

Any edge producers that water-out around the periphery of the field will be converted to water injection service.

Water Source

Due to the continuing drop in the bottom hole pressure in the water source wells, it may become necessary to convert one or two additional wells to water source service. If reservoir performance dictates a wider well spacing, the drilling of additional source wells may be warranted.

Since a supplemental source of water may be needed, a water plant will be designed and probably installed to utilize White River water. A hydrogeographic survey will be conducted early in 1961 as the initial step.

Water Gathering

Facilities will be installed early in 1961 to gather and treat produced water from three batteries in the west part of the field. As the need arises, these facilities will be expanded to handle additional water from batteries along the north side of the field.

Careful testing and chemical analysis indicate that produced water is not compatible with the present injection water; therefore, produced water will be handled and injected in a separate system isolated from the main injection system.

Long Stroke Pumping Units

Depending on the performance of the flood, large pumping units may be installed on offsets to water injection wells.

Workovers

Plans are to continue an active program of stimulation. It is anticipated that the cleanouts and deepening jobs will progress at a normal rate. There will be some surfactant squeezes performed on selected wells.

Miscellaneous

Various types of special jobs will be performed to improve the injection profiles in both the water and gas injection wells by selectively plugging present "thief" zones, or by selectively stimulating zones not taking a proportionate share of water.


Estimated Production - First Half 1961

January	45,400
February	46,000
March	46,700
April	47,200
May	47,000
June	46,800

Attached please find graphs showing daily average figures of oil production, water injection, and gas production with disposition, for a period starting January 1960 and ending March 1961.

Very truly yours,

OIL AND GAS CONSERVATION COMMISSION



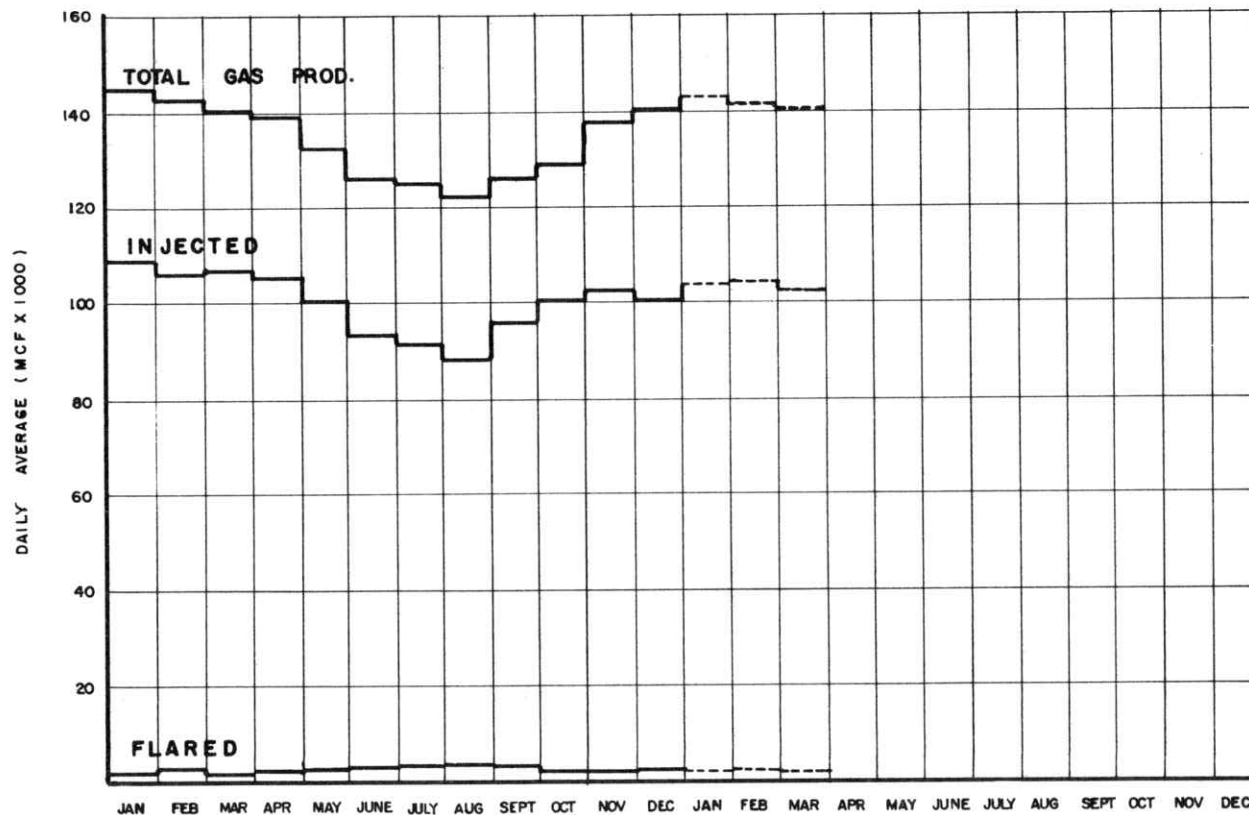
A. J. Jersin, Director

JAMcK:cm

cc: Commissioners
Sam Freeman
Harold J. Duncan

GAS PRODUCTION & DISPOSITION

1960 — 1961 ----

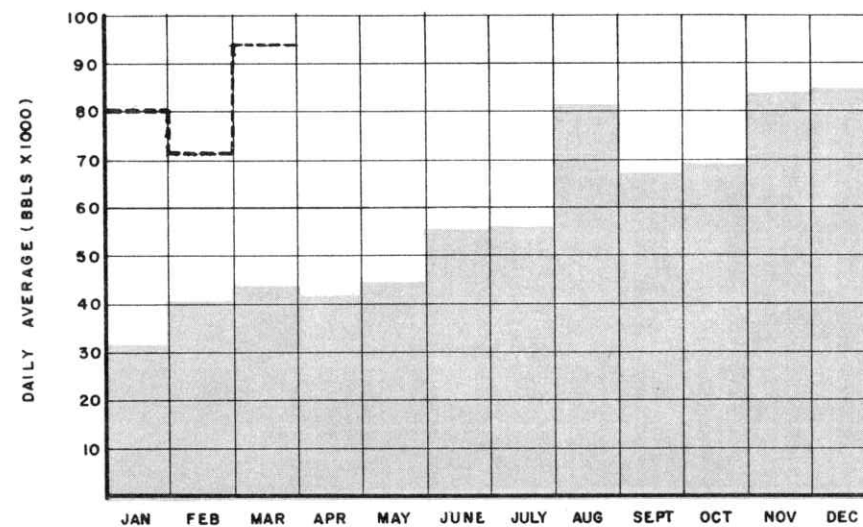


RANGELY FIELD

Weber Reservoir

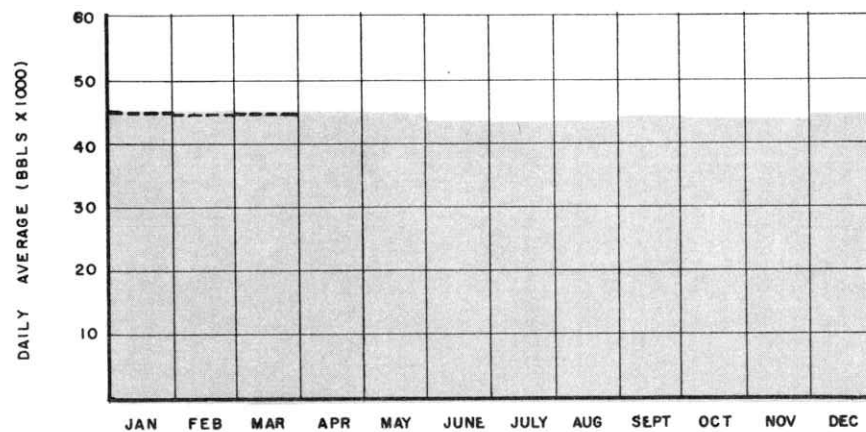
WATER INJECTION

1960 ■ 1961 ----



OIL PRODUCTION

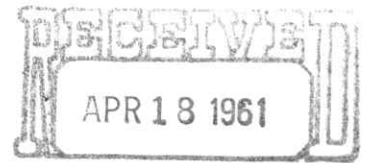
1960 ■ 1961 ----





CALIFORNIA OIL COMPANY

WESTERN DIVISION
1700 BROADWAY • P. O. BOX 780 • DENVER 1 • COLORADO



April 17, 1961

OIL & GAS
CONSERVATION COMMISSION

RANGELY WEBER SAND UNIT
PLAN OF OPERATION
FIRST HALF, 1961


Mr. A. J. Jersin
Oil and Gas Conservation Commission
1162-1/2 Elati Street
Denver 4, Colorado

Dear Mr. Jersin:

A review of our files indicates that we may have failed to send you a copy of the U.S.G.S. approved First Half 1961 Plan of Operation for the Rangely Unit. In the event that we did overlook forwarding you a copy, we have attached a conformed copy of the Plan which was approved by the Regional Supervisor on February 13, 1961.

It is regrettable that this has occurred but, as you know, we have been going through the convulsions of re-organization and merger of Standard of California subsidiaries with new personnel, including myself, who have not been too familiar with the various routings required in each instance.

Very truly yours,



A. W. Dickey
Unitization Coordinator

AWD:nld

Encl.

*Submitted to but not yet approved by USGS
1-24-62*

*approved
(per Caloil
2/6/62 agg
by cm)*

December 20, 1961

**RANGELY WEBER SAND UNIT
PLAN OF OPERATION FOR
FIRST HALF OF 1962**

United States Geological Survey
P. O. Box 400
Casper, Wyoming

Attention: Mr. J. R. Schwabrow,
Regional Oil and Gas Supervisor

Gentlemen:

In accordance with Section 9 of the Unit Agreement for the Development and Operation of the Rangely Weber Sand Unit, California Oil Company, Western Division, Unit Operator, herewith submits for your approval the plan of operations for the unitized land for the first half of 1962. It is intended that this plan become effective January 1, 1962. This plan has been approved by the Working Interest Owners of the Unit.

REVIEW OF THE SECOND HALF OF 1961

Water Injection

The following wells were converted from producing to water injection status: L. N. Hagood B-1, L. N. Hagood B-2, U.P.R.R. 64-22, Newton Associated D-1 and Newton Associated B-1. These are all peripheral wells in the east end of the field where the reservoir is relatively tight. This work has increased the injection capacity and should help accelerate the flood front in this area.

Water Source

In order to maintain the producing capacity from the Navajo-Entrada source, the turbine pump in U.P.R.R. 21-32 was lowered 190' and the shallow set turbine in Fee 11 has been replaced with a deeper setting submersible pump.

A test of the infiltration method of utilizing White River water was conducted by completing twelve wells in the gravel beds adjacent to the river. Results indicated that this method of obtaining river water would be unsatisfactory as the wells exhibited a very rapid decline in producing potential.

On the basis of these tests it was decided that a water treating plant will be necessary to assure a reliable supply of suitable water from the river. The treating plant has been approved for construction and is now in the early planning stages.

Water Gathering

Facilities have been installed to gather, treat, filter and inject into K. Fairfield A-3 all produced water from Collection Stations #10 and #15.

Gas Injection

Two wells, A. C. McLaughlin #19 and Caloil Fee #6 have been converted from producers to gas injection service. In line with this shift in injection areas, the injection rates in A. C. McLaughlin #38 and #40 have been reduced and injection wells Caloil Fee #4 and #65 have been shut-in.

Large Volume Pumping

Four 192" and one 120" beam pumping units were transferred to, and installed on, producing offsets to water injection wells. There were also four submersible type electric turbine pumps installed in wells stimulated by the water flood.

Workovers

Twenty workovers have been completed consisting of four cleanouts, seven fracs, one acid job, one oil squeeze, one deepening, one perforating job, four water locator and plug back jobs and one conversion from water source well to oil producer.

Miscellaneous

A variety of work has been performed in the water injection wells to increase injection capacity or improve the injection profile.

J. W. Pepper A-1 was cleaned out.

F. V. Larson B-4, Caloil Fee 71 and C. R. Stoffer A-2 were acidized. Fee 71, only, was considered beneficial.

M. B. Larson C 1-25 was treated with a low pressure cement squeeze to reduce water channeling to the offset producers. This work is considered successful in that the injection profile has been improved and the water cut in the offsets has been reduced.

Purdy 1-6 was treated with liquid carbon dioxide which improved the injectivity slightly.

M. B. Larson A 2-26 was treated with liquid propane which did not improve the injectivity.

The original oil zone in W. P. Mellen 3 was squeezed with tertiary butyl alcohol in an effort to stimulate water injection in this interval. The job was not successful so a packer has been set at the oil-water contact which will allow selective injection. This work is now being evaluated.

PLAN OF OPERATION - FIRST HALF 1962

Water Injection

In anticipation of having more water available for injection soon after mid 1962 due to completion of the water treating plant, expansion of the five-spot flood in the eastern part of the field will likely be inaugurated. At the same time, crestal water injection may be started if studies now being conducted indicate the timing is right.

Suitable edge wells that water-out around the periphery of the field will be converted to water injection.

Water Source

Construction of a 150,000 BHPD treating plant will be started in early 1962. This plant should be ready for operation in August, 1962.

It will be necessary to replace several turbine pumps with deeper set submersible pumps in the present source wells in order to maintain the present injection rate until the treating plant is ready for operation.

Water Gathering

Facilities will be installed, as needed, to gather, treat, filter and inject produced water.

Gas Injection

If crestal water injection is inaugurated, one or possibly two gas injection wells will be relocated.

Large Volume Pumping

Large volume pumps will be installed on producing offsets to water injection wells as the need arises.

Workovers

Plans are to continue an active program of well stimulation by fracturing and oil-surfactant squeezing. Wells with excessive water cuts will be surveyed to determine the zone of water entry and plugged back if feasible.

Miscellaneous

A variety of special jobs will be performed to improve the injection profiles in both water and gas injection wells by selectively plugging present "thief" zones, or by selectively stimulating zones not taking a proportionate share of fluid.

U. S. Geological Survey
December 20, 1961
Page 4

Revised by phone - (e)

Estimated Production - First Half 1962

January	45,000	43,500
February	45,200	43,700
March	45,500	44,500
April	45,700	44,700
May	46,000	45,250
June	46,100	45,350

Your early approval of this plan of operation for the first half of 1962 will be appreciated.

Very truly yours,

CALIFORNIA OIL COMPANY
Western Division
Unit Operator

By _____

Approved _____

J. R. Schwabrow
Regional Oil & Gas Supervisor
U. S. Geological Survey
Casper, Wyoming