

CASE 6844: ARROWHEAD OIL CORPORATION
FOR TWO EXCEPTIONS TO ORDER NO. 8-111-A
AND UNORTHODOX WELL LOCATION, TERRY
COUNTY, NEW MEXICO

CASE NO.

6844

APPLICATION,
Transcripts,
Small Exhibits,

ETC.

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STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
26 March 1980

EXAMINER HENNING

IN THE MATTER OF:

Application of Arrowhead Oil Corpora-
tion for two exceptions to Order
No. 8-111-A and an unorthodox well
location, Eddy County, New Mexico.

CASE
6844

REPORT: Richard A. Stancich

TRANSCRIPTS OF DEPOSITION

APPEARANCES

For the Oil Conservation
Division: Frank J. Padilla, Esq.
Assistant Attorney General
State Land Office Bldg.
Santa Fe, New Mexico 87401

For the Applicant:
William F. Carr, Esq.
Attorney at Law
P.O. Box 100
Santa Fe, New Mexico 87401

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ORDER

JAMES A. KNAUF

Direct Examination by Mr. Carr

Cross Examination by Mr. Stancich

EXHIBITS

Applicant Exhibit A, Map

Applicant Exhibit B, Map

Applicant Exhibit C, Map

Applicant Exhibit D, Map

Applicant Exhibit E, Diagrammatic Sketch

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MR. STANCICH: We'll call next Case 6844.

MR. PADILLA: Application of Arrowhead

Oil Corporation for two exceptions to Order Number 8-111-A,
and an unorthodox well location, Eddy County, New Mexico.

MR. CARR: May it please the Examiner,

I am William F. Carr, Counsel and Clerk, P. O. Box 100,
appearing on behalf of the applicant.

I have one witness.

MR. STANCICH: Any other appearances in

this case?

MR. CARR: I'd like to have the witness stand and be

sworn, please.

(Witness sworn.)

JAMES A. KNAUF

being called as a witness and having been duly sworn upon
his oath, testified as follows, to wit:

EXHIBIT A, Map

MR. CARR:

Direct Examination by Mr. Carr

Cross Examination by Mr. Stancich

Re-direct Examination by Mr. Carr

Re-cross Examination by Mr. Stancich

3 Mr. Knaut, by whom are you employed and
4 currently?

5 I am employed to handle the drilling of
6 wells in here by Arrowhead Oil Corporation of Artesia,
7 Cal.

8 Have you previously testified before this
9 court?

10 No, I never have.

11 Will you summarize for the Examiner your
12 educational background and work experience?

13 I have -- I graduated from Oklahoma State
14 in January of 1944 with a BS in mechanical engineering
15 and then after serving two years in the Navy I worked
16 as a production engineer for Continental Oil Com-
17 pany in Poncha City, Oklahoma, and then four years as a
18 engineer for Sinclair Oil and Gas Company at Sandusky, Ohio
19 and then 23 years as a petroleum engineer for the
20 Shell Company in southeastern New Mexico.

21 How long have you been with Arrowhead Oil
22 Corporation?

23 I have been with Arrowhead Oil Corporation
24 since 1967.

25 How long have you been with Arrowhead Oil
26 Corporation?

27 I have been with Arrowhead Oil Corporation
28 since 1967.

1 Arrowhead seeks with this application?

2 Well, in a nutshell, Arrowhead is seeking
3 to get an exception from the casing programs set out by
4 R-111-A.

5 As we will show in these exhibits, it's
6 Federal land around here but R-111-A sets out a rigid
7 casing-cementing program, and we cannot bend from it without
8 getting an exception, so we would like to have a more real-
9 istic casing program for drilling in this abandoned mine
10 area.

11 I think, as Rule R-111-A was set up to
12 protect virgin potash lands, and from oil and gas drilling,
13 and it did not anticipate drilling in an area that had
14 been completely mined out, where there is subsidence going
15 on.

16 Now, Mr. Knaut, will you refer to what
17 has been marked for identification as Appendix Exhibit A,
18 and explain to the Examiner what it is and what it shows?

19 Exhibit A is a map
20 showing an oil well location of the abandoned Harvey's Oil
21 well area. This well was drilled in 1914 and it was
22 is here just to show that the well was drilled in the
23 oil-bearing area.

24 Now, the well was drilled in the
25 oil-bearing area.

1 30?

2 A Right. That is also R-111-A. I might
3 point out that the outer dark line is the new Federal oil/
4 potash area, and the heavy solid line is the old Federal
5 oil/potash area, and the light dashed is the State R-111-A
6 potash area.

7 And what do the orange squares show?

8 The orange squares are the two spacing
9 units which we propose to drill these wells.

10 And this exhibit shows that the proposed
11 wells are in an isolated potash island?

12 Right.

13 Will you now refer to what has been
14 marked Exhibit B and explain this for Mr. Starnes?

15 Exhibit B is just an oil and gas lease
16 map showing R-111-A in the area and also that these are
17 Federal lands. In fact, all the land in this isolated is-
18 land are Federal lands.

19 Now, Mr. Knaut, will you refer to what
20 has been marked for identification as Appendix Exhibit C?

21 Exhibit C is a map
22 showing an oil well location of the abandoned Harvey's Oil
23 well area. This well was drilled in 1914 and it was
24 is here just to show that the well was drilled in the
25 oil-bearing area.

26 Now, the well was drilled in the
27 oil-bearing area.

1 Harvey Wells, which are due west of these drill sites, and
2 then there is also two wells up to the north owned by Ray
3 Estate.

4 Were these wells drilled prior to the
5 discovery of potash in this area?

6 Yes. The wells shown on the exhibit were
7 drilled prior to knowing that there was potash here.

8 Mr. Knaut, have exceptions to R-111-A
9 been obtained for other wells in the area?

10 Yes, there has been one in Section 14
11 and one in Section 15, and I believe one over in Section 22
12 that has not been drilled yet.

13 Are these wells shown on Exhibit B?

14 I don't believe they're shown on Exhibit B.

15 Do they show on your Exhibit C?

16 Yes, they are shown on Exhibit C.

17 Now, Mr. Knaut, will you refer to what
18 has been marked for identification as Appendix Exhibit D?

19 Exhibit D is a map
20 showing an oil well location of the abandoned Harvey's Oil
21 well area. This well was drilled in 1914 and it was
22 is here just to show that the well was drilled in the
23 oil-bearing area.

24 Now, the well was drilled in the
25 oil-bearing area.

1 Will you now refer to what has been
2 marked Exhibit E and review this for Mr. Starnes?

3 Let's see, we were going over -- if ever
4 Exhibit E has -- actually it shows the wells which were
5 area that has been mined out, and it just depicts how we
6 have located the wells to try to -- on all these. I might
7 point out up in this area -- that is why we wanted to go
8 the northwest to get away from open mines, is why we're
9 applying for an unorthodox location for Well No. 2.

10 Mr. Knaut, is this more clearly shown
11 on Exhibit D?

12 Yes. Exhibit D is a blow-up of the
13 two spacing units, and on it I point out, in yellow, the
14 outlined a 10-acre area in the center of the 10 that is
15 300 feet from the outer perimeter of the 10-acre spacing
16 unit.

17 Are wells drilled within those yellow
18 units?

19 Yes, wells drilled within those yellow
20 units.

21 Now, Mr. Knaut, will you refer to what
22 has been marked for identification as Appendix Exhibit F?

23 Exhibit F is a map
24 showing an oil well location of the abandoned Harvey's Oil
25 well area. This well was drilled in 1914 and it was
26 is here just to show that the well was drilled in the
27 oil-bearing area.

28 Now, the well was drilled in the
29 oil-bearing area.

30 Now, the well was drilled in the
31 oil-bearing area.

1 How far from open mining are these pro-
2 posed locations?

3 Well, they have -- we have just located
4 the wells from -- these are -- this is a picture, a Xerox
5 copy of a Duval mine and we've just tried to center them.
6 The Well No. 2 down there, we did have a northward and just
7 centered it to try to get away from open mines.

8 And Well No. 3 up in Unit B, we have
9 moved that 80 feet north of the open mine, and then we did
10 move it 40 feet to the east, trying to get the most ideal
11 place to drill without encroaching the 40 acres to the north
12 too much.

13 Do you believe drilling wells at the
14 proposed locations will enable you to avoid any problems
15 with subsidence of the surface?

16 Well, there still might be problems, but
17 we believe it will lessen them by drilling in the safe-
18 harbor.

19 Now, Mr. Knaut, will you refer to what
20 has been marked for identification as Appendix Exhibit G?

21 Exhibit G is a map
22 showing an oil well location of the abandoned Harvey's Oil
23 well area. This well was drilled in 1914 and it was
24 is here just to show that the well was drilled in the
25 oil-bearing area.

A. Yes, I believe it is.

Q. In your opinion will this method of caving the well protect fresh water in the area?

A. Yes, fresh water will be protected with 3-5/8ths surface casing.

Q. And will this method of completion endanger any potash deposits?

A. No, it will not endanger them. In fact, this is an abandoned mine area where mines have been abandoned since November of '71.

Q. Has David received notice of this hearing today?

A. Well, I have talked to them a couple times about our plans.

Q. And they have expressed objections?

A. No, they've expressed no objections.

Q. And have you reviewed this proposed action of completion with the State?

A. I have in writing with the State, with the State and Federal.

Q. And the State and Federal have approved this proposed action?

A. Yes, they have approved the proposed action.

Q. And the State and Federal have approved this proposed action?

R-111-A.

Q. Mr. Smith, in your opinion will granting this application be in the interest of conservation, the prevention of waste, and the protection of correlative rights?

A. Yes.

Q. Do you have anything further to add to your testimony?

A. No, I believe that that's all I have, really, to testify.

MR. CAMP: Mr. Examiner, at this time we will admit Applicant's Exhibit A through D.

MR. STAMPER: Those exhibits will be admitted.

MR. CAMP: I have nothing further to direct.

THE COURT: ORDER GRANTED.

MR. CAMP: The State and Federal have approved this proposed action.

MR. STAMPER: The State and Federal have approved this proposed action.

MR. CAMP: The State and Federal have approved this proposed action.

MR. STAMPER: The State and Federal have approved this proposed action.

Q. On the production string.

A. On the production string, and when the Commission approved those, they said that in case it didn't, that the Commission or the Survey may require the operator.

Q. Yes, when -- to get during that the Commission will approve this where we could control the Survey and we hope that we will not have any cement above the potash zone in this well, so that even though we're in a saltwater, there is a little subsidence or disturbance.

Q. And if there is -- this casing program here is normal for potashwater and water, and if there would be a little subsidence in the area, why is the overburden, which is roughly 1800 feet that would just settle down around the casing, and there would be no harm to the well. Subsidence would not disturb it in any way.

Q. Because you expose the well casing.

A. Because we've exposed this well and put in the casing.

Q. And the casing will settle down around the casing.

A. Yes, the casing will settle down around the casing.

Q. And the casing will settle down around the casing.

A. Yes, the casing will settle down around the casing.

Q. And the casing will settle down around the casing.

A. Yes, the casing will settle down around the casing.

Q. And the casing will settle down around the casing.

Q. Has this area been second mined?

A. It has -- well, David calls it a little bit. They did not actually go in there to do what they call secondary mining, except their mining machine, which cuts

oh, six or eight feet of the remaining pillar. They just all around the pillar with the distance of the mine, then with the rich ore, and rock that, reduced the pillar by

that method, which I'm not real familiar, except that it's referred to as nibbling.

Q. Rather than, I think under secondary mining you would normally -- you normally get about 60, 65 percent on primary, and then get up to 80 percent on secondary.

A. If you were required to use cement all the way through to the top of the salt water, on this production casing, would that cause any problem?

A. Well, I don't -- we would -- whatever is required, we would have to put in the cement after we cut the casing.

Q. And the casing will settle down around the casing.

A. Yes, the casing will settle down around the casing.

Q. And the casing will settle down around the casing.

A. Yes, the casing will settle down around the casing.

Q. And the casing will settle down around the casing.

A. Yes, the casing will settle down around the casing.

Q. And the casing will settle down around the casing.

Q. Not full, we're just coming in now for these two -- two wells.

A. I see your surface casing is not about 25 feet above the top of the salt. Why would it be -- you don't you project it to the salt?

A. Well, all R-111-A says is that you should set it in the anhydrite or the red beds immediately above the salt, and it's usually, even with cable tool, it's just preferred that you set it before you drill into a salt section.

Q. Should that put you through all the water zones?

A. Yes, sir.

MR. STAMPER: Okay. Any other questions of the witnesses? He may be excused.

Anything further in this case?

MR. STAMPER: I would like to be ruled a

discovery is my conservation.

MR. CAMP: The State and Federal have approved this proposed action.

MR. STAMPER: The State and Federal have approved this proposed action.

MR. CAMP: The State and Federal have approved this proposed action.

MR. STAMPER: The State and Federal have approved this proposed action.

MR. CAMP: The State and Federal have approved this proposed action.

will be carefully examined prior to approval of the application for permit to drill, in light of the unknown disposition of this potash mine.

Thank you.

MR. STAMPER: Thank you. Anything further in this case? The witness may be excused.

MR. CAMP: The case will be taken under advisement.

(Hearing concluded.)

MR. CAMP: The State and Federal have approved this proposed action.

MR. STAMPER: The State and Federal have approved this proposed action.

MR. CAMP: The State and Federal have approved this proposed action.

MR. STAMPER: The State and Federal have approved this proposed action.

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MR. CAMP: The State and Federal have approved this proposed action.

MR. STAMPER: The State and Federal have approved this proposed action.

MR. CAMP: The State and Federal have approved this proposed action.

REPORTER'S CERTIFICATE:

I, SAUL W. BOND, C.B.E., DO HEREBY CERTIFY that the foregoing Transcript of Hearings before the Oil Conservation Division was reviewed by me and that the said transcript is a full, true, and correct record of the hearings, produced by me to the best of my ability.

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STATE OF NEW MEXICO
DEPARTMENT OF ENERGY AND MINERALS
DIVISION OF OIL CONSERVATION

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STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

April 17, 1980

Re: CASE NO. 1244
ORDER NO. 11108

Applicant:
see above 511-100-10000

Dear Sir:

Enclosed herewith are two copies of the above-referenced
Division order recently entered in the subject case.

Very truly yours,

JOE D. RAMPY
Director

cc: Mr. [illegible]

cc: Mr. [illegible]

cc: Mr. [illegible]

cc: Mr. [illegible]

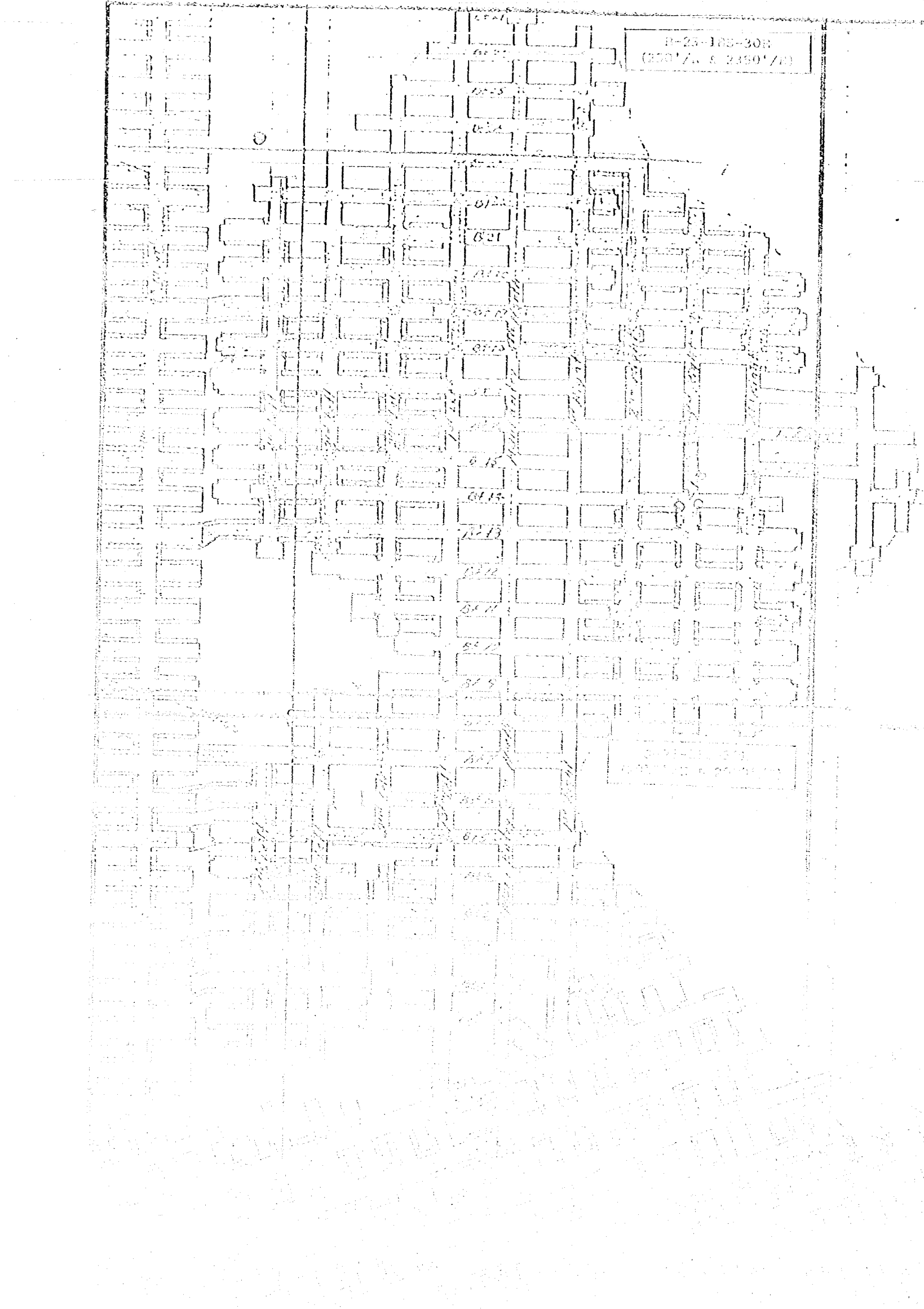
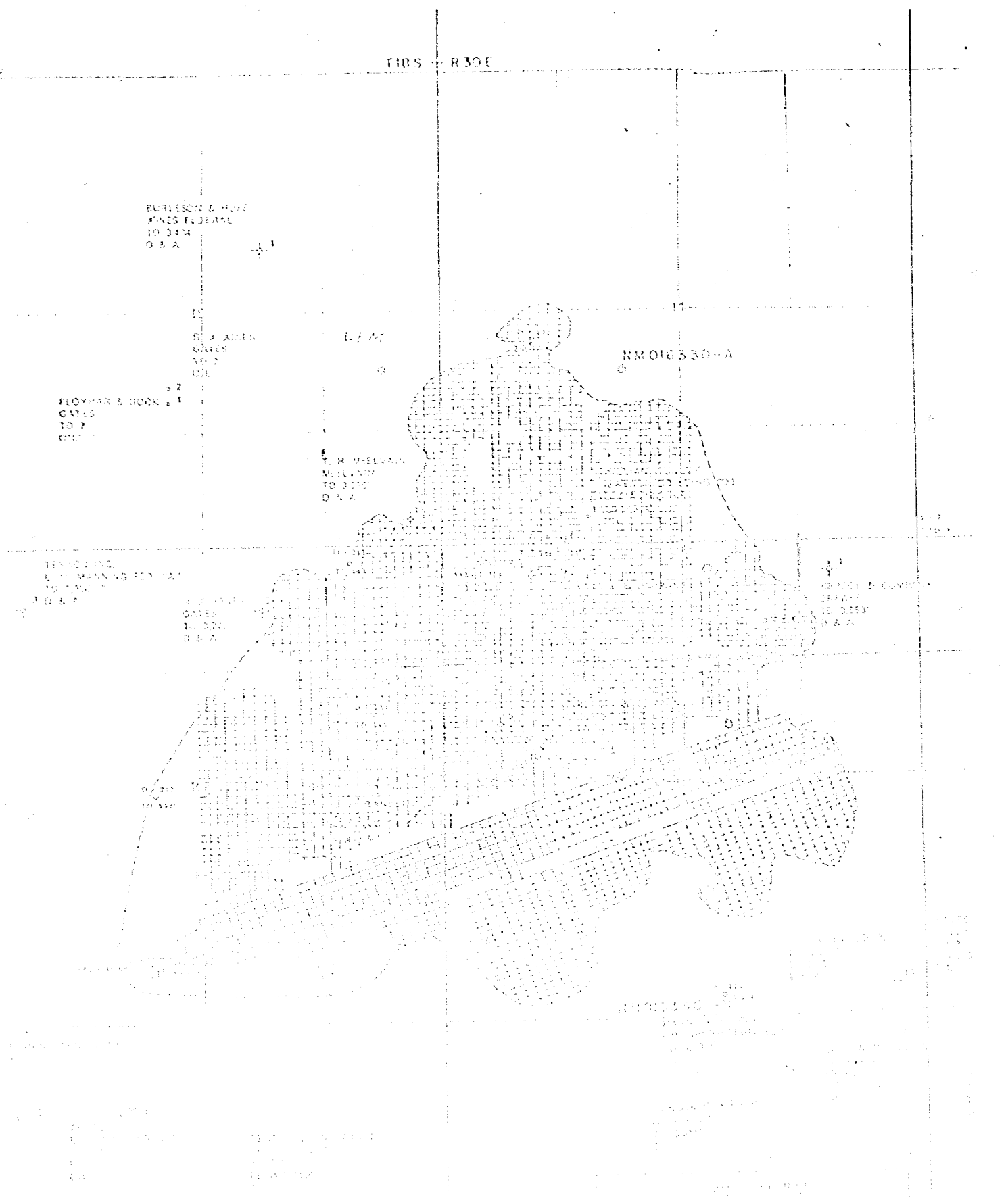
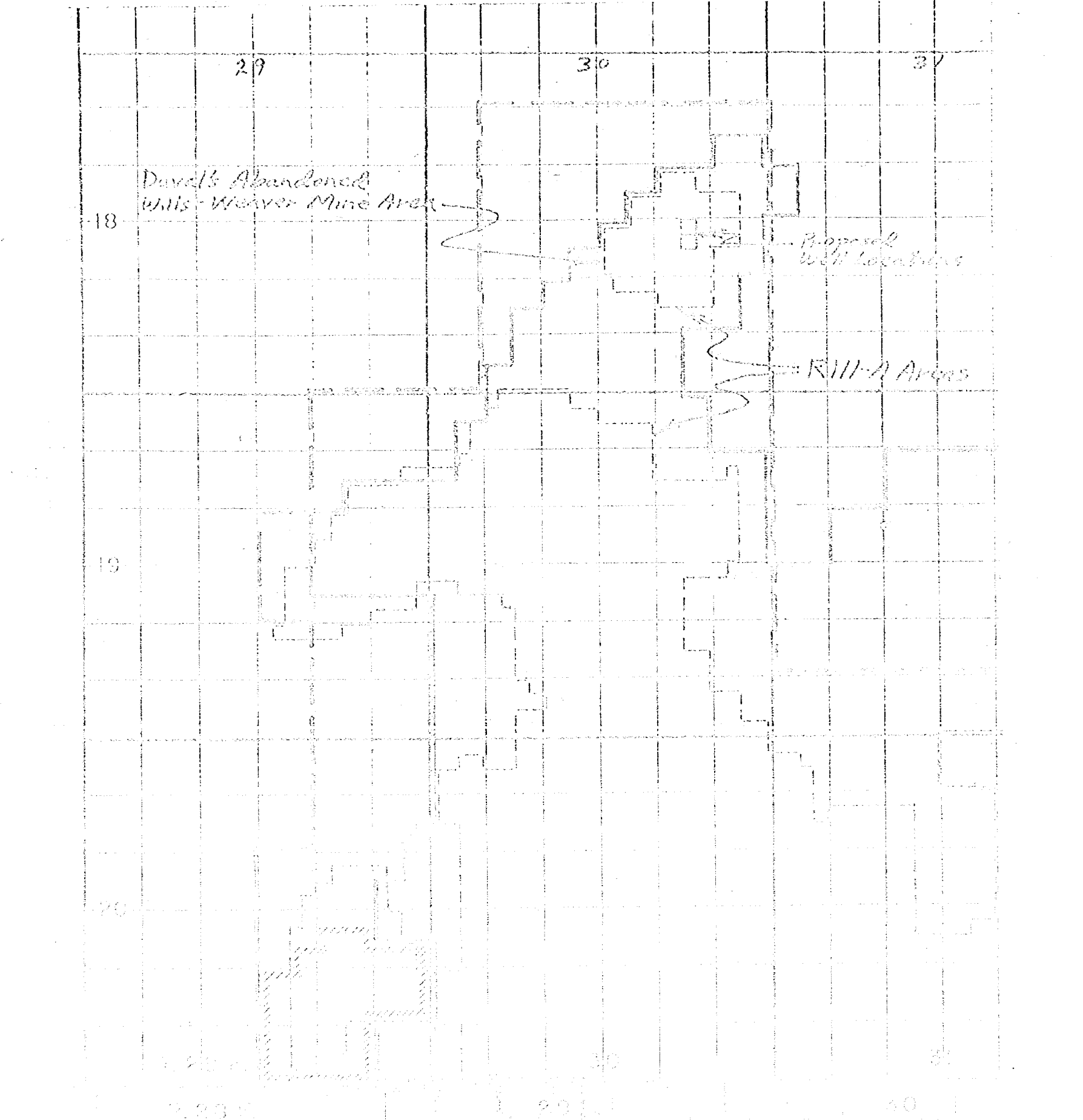
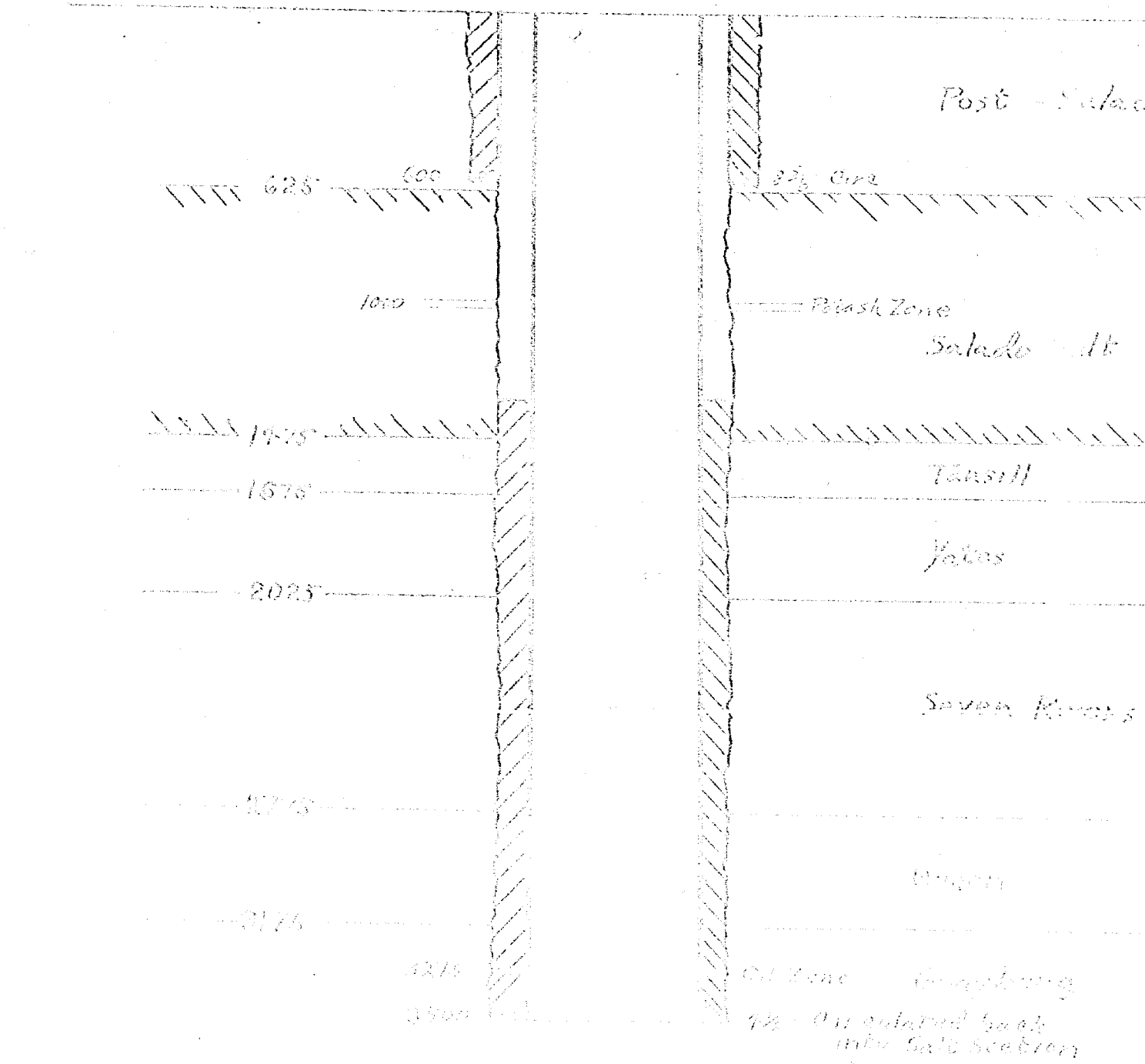
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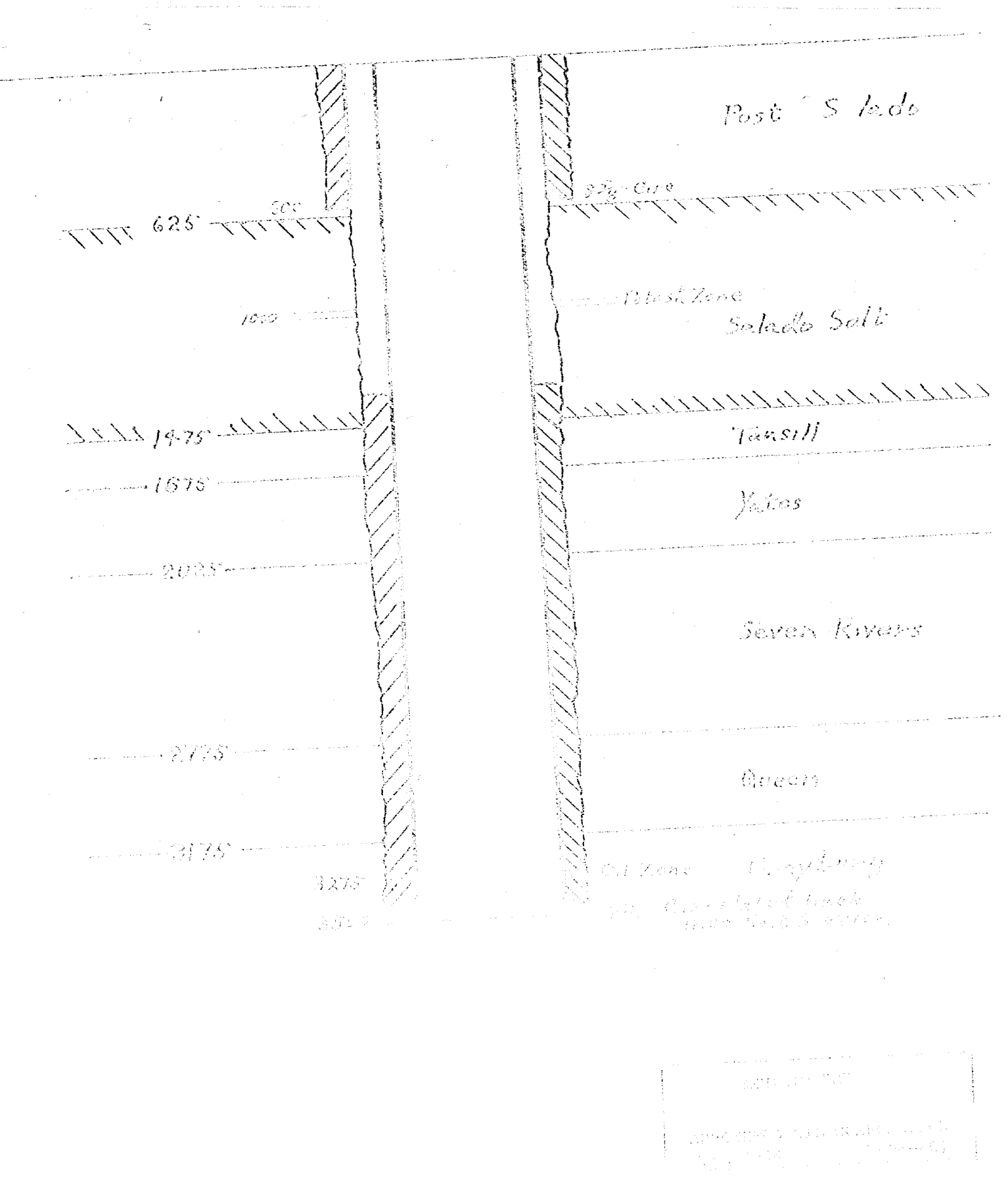
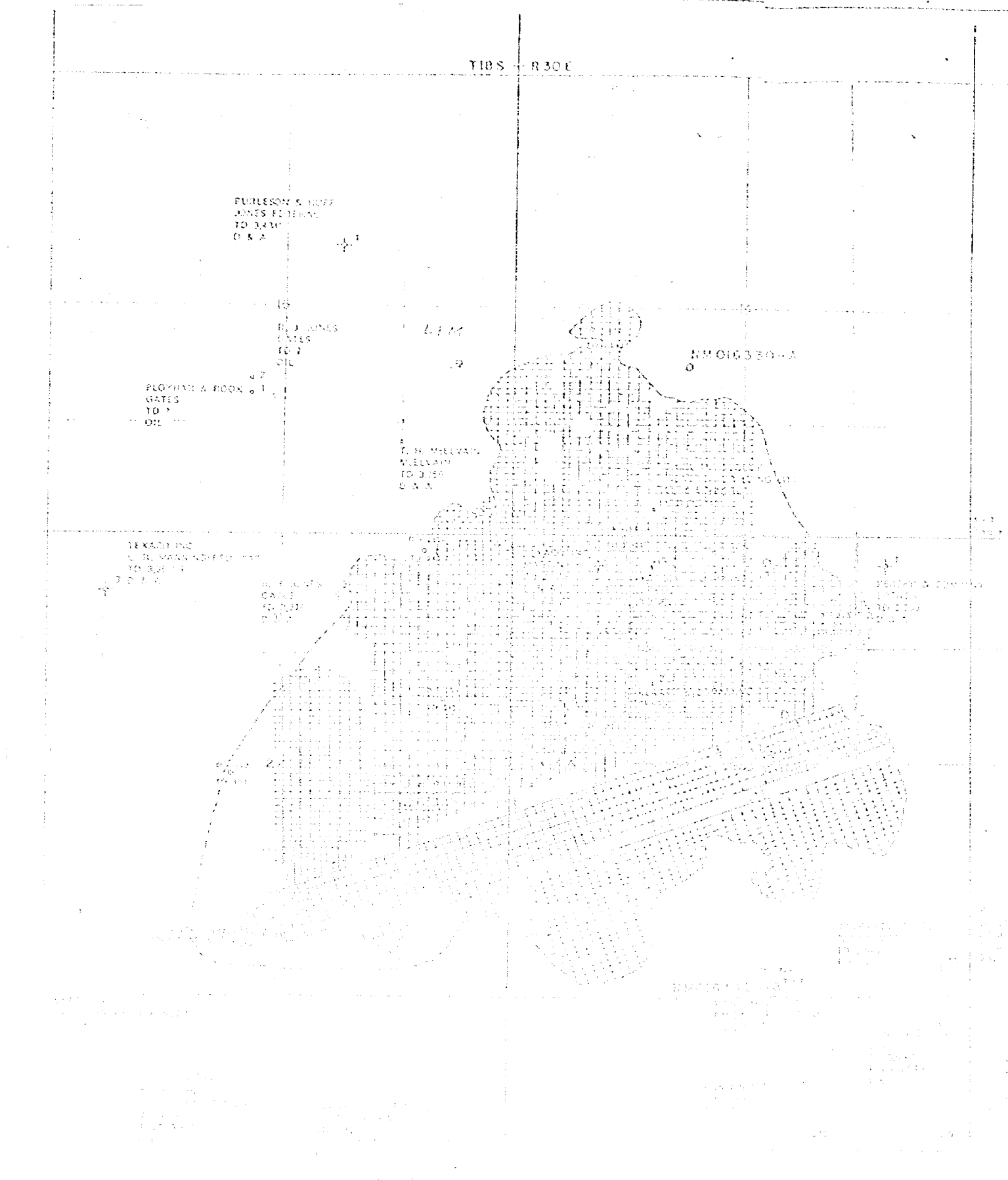
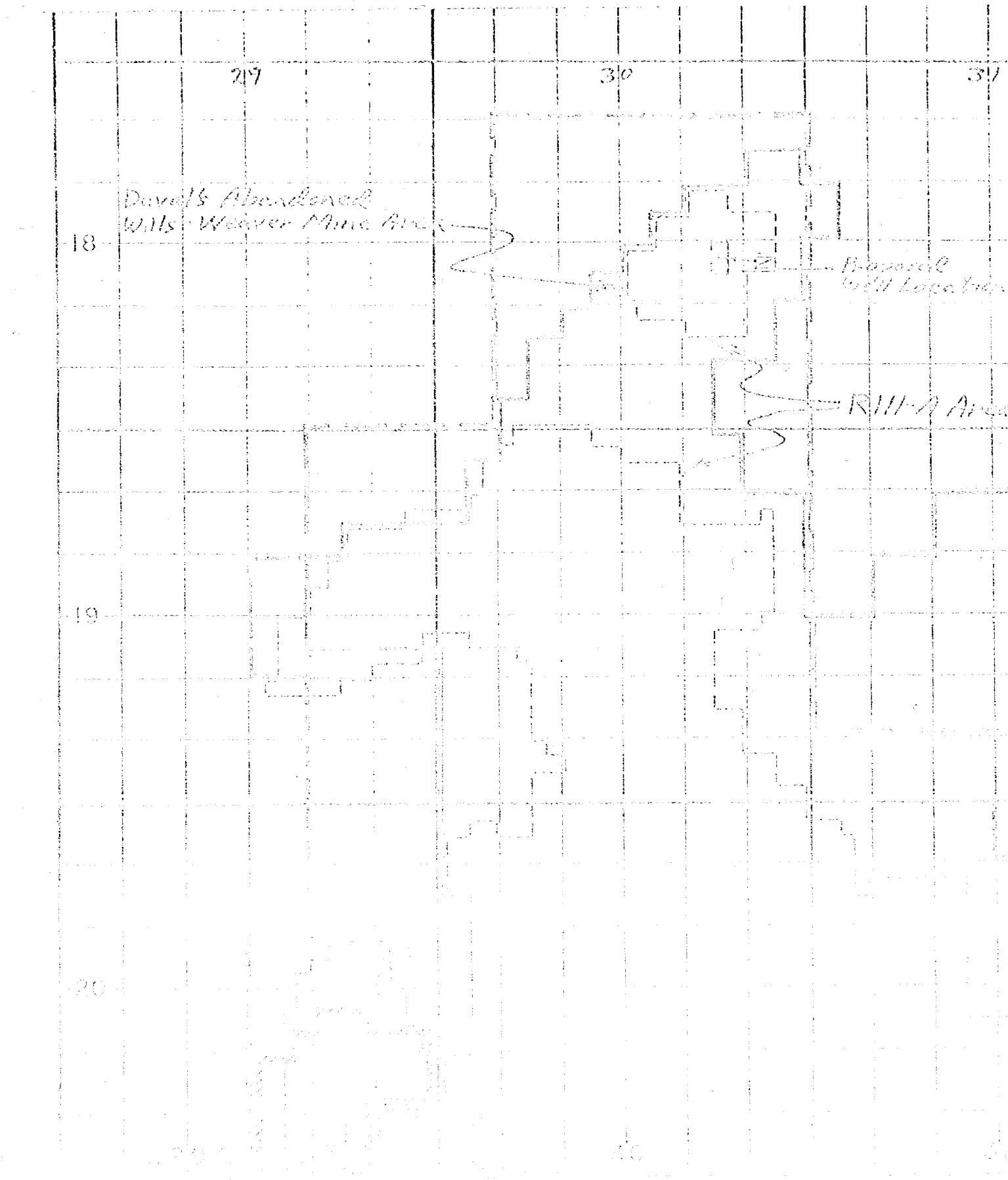
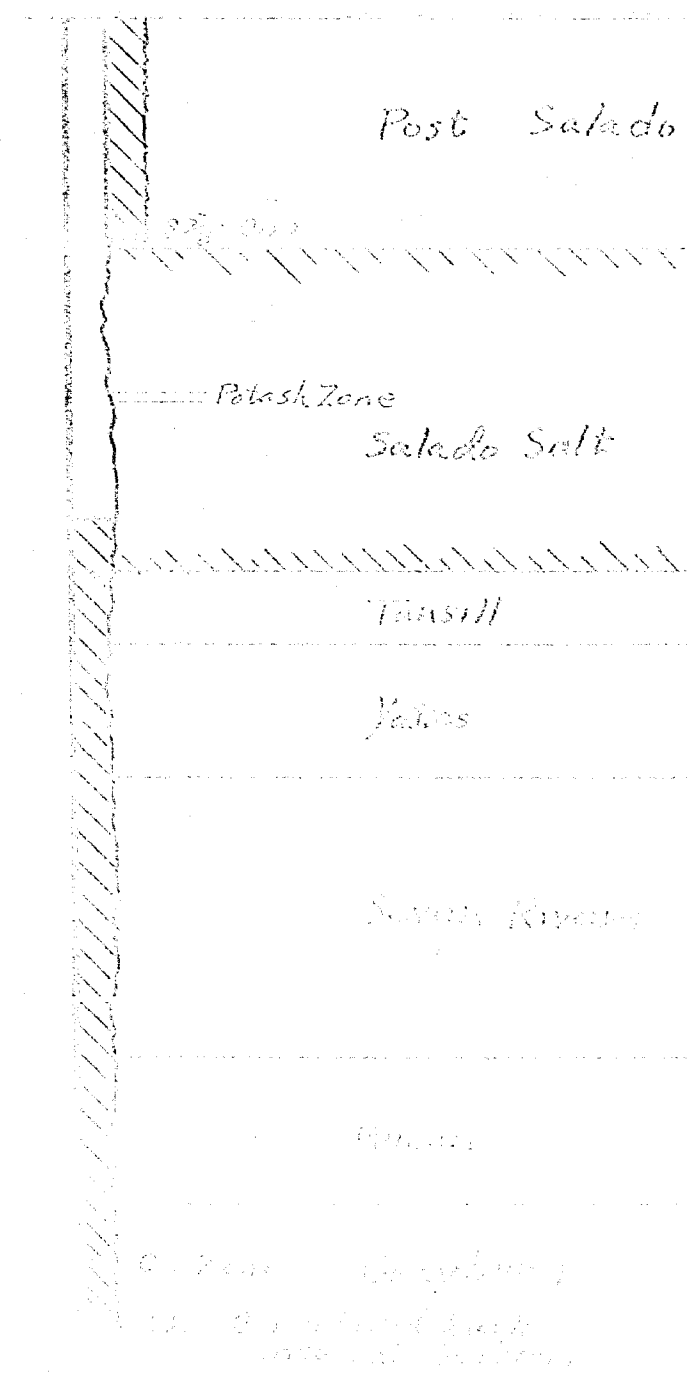
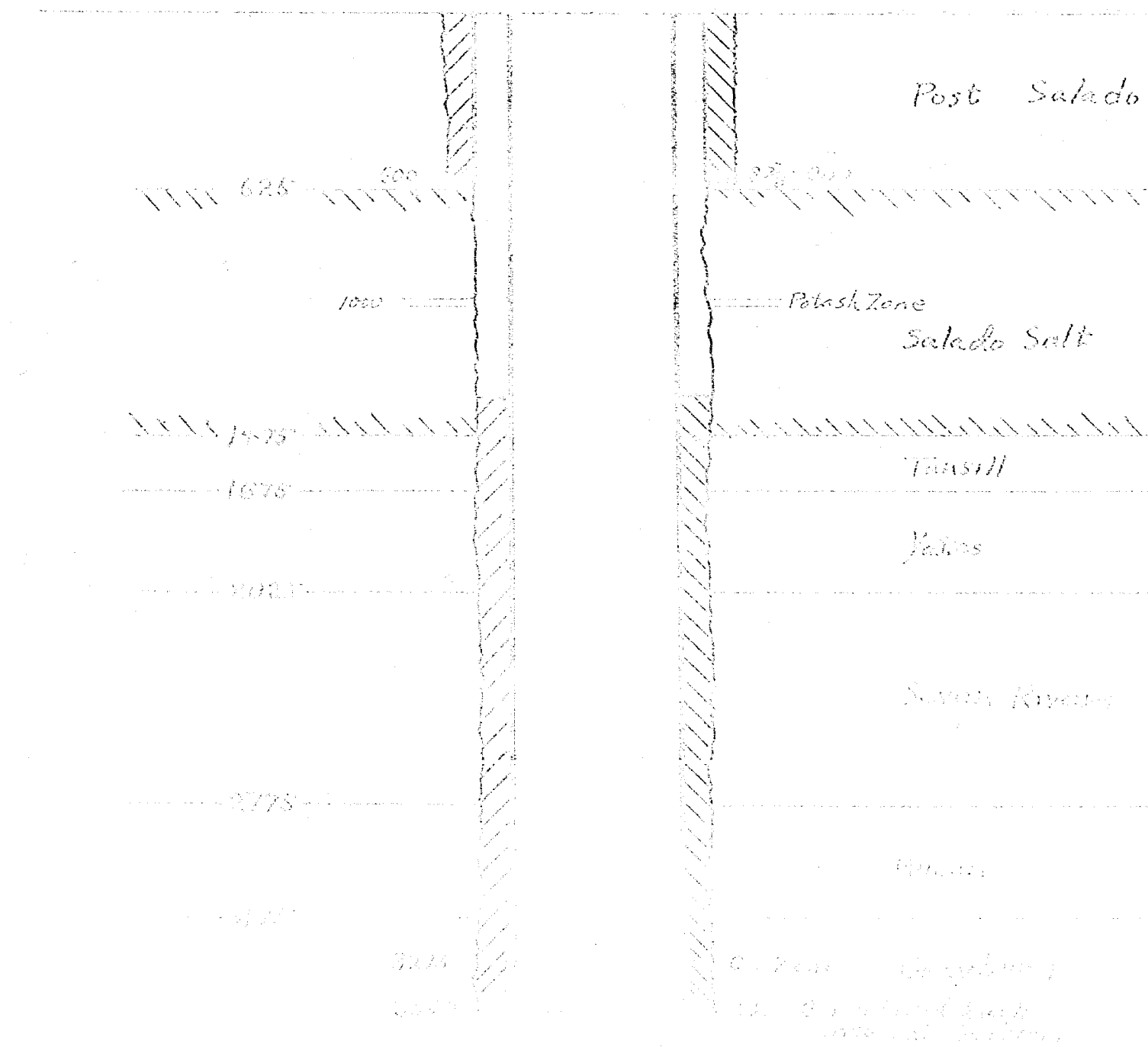
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cc: Mr. [illegible]





THE MATTER OF THE APPLICATION
BROOKHEAD OIL CORPORATION FOR
EXCEPTION TO ORDER NO. R-111-A,
COUNTY, NEW MEXICO.

Case

Comec now ARROWHEAD OIL CORPORATION, by and through its designated attorneys, and hereby makes application for an order granting an exception to certain requirements of Oil Conservation Division Order No. R-111-A, hereinafter referred to as the "Potash Order", and in support thereof, would show the following:

4. Applicant believes that the proposed wells will not endanger potash deposits for they lie in close proximity to Duval's Hill Weaver mine in an isolated potash area where such mine operations have been exhausted and the mines are currently being abandoned. Therefore, no new and valid reason appears for seeking additional strings of casing as provided for by the Potash Order.

3. By granting the requested exemption, the Commission stated objective of preventing waste, protecting non-renewable resources and maintaining the economic recovery of oil and gas from the period covered by paragraph 2 of the schedule, for conservation of New Mexico's natural resources will be assured.

hearing as required by law, the Division enter its Order granting an exception to the Potash Order as herein requested and for such other and further relief as may be proper.

Respectfully submitted,
CAMPBELL AND BLACK, P.A.

By William F. Carr
 William F. Carr
 Attorneys for Applicant
 Post Office Box 2208
 Santa Fe, New Mexico 87501
 Telephone: (505) 988-4421

MATTER OF THE APPLICATION
OWHEAD OIL CORPORATION FOR
EPTION TO ORDER NO. R-111-A,
OUNTY, NEW MEXICO.

Comes now ARROGHEAD OIL CORPORATION, by and through the undersigned attorneys, and hereby makes application to the Environmental Protection Division Order No. R-111-A, hereinafter referred to as the "Potash Order", and in support thereof states the following:

1. Applicant is the owner of the well and gas leases covering the W/2 NE/4 of ship 18 South, Range 30 East, N.E.P.M., New Mexico, encompassing 80 acres, more or less.
2. Applicant proposes to drill its Horizontal well at an unorthodox location 250 feet East and 2,350 feet from the East line of the NE/4 NE/4 of said Section 23 with the NE/4 NE/4 of said Section 23 as the well and the NE/4 NE/4 of said Section 23 as the well and the NE/4 NE/4 of said Section 23 as the well and the NE/4 NE/4 of said Section 23 as the well.
3. Applicant certifies to the following:
- a. The well is proposed to be drilled at the NE/4 NE/4 of said Section 23 as the well and the NE/4 NE/4 of said Section 23 as the well and the NE/4 NE/4 of said Section 23 as the well and the NE/4 NE/4 of said Section 23 as the well.

Potash Order as these provisions would effect the drilling of the above-mentioned wells. Applicant proposes to complete said wells with surface casing set and circulated near the top of the salt at a depth of approximately 600 feet in the "Red Bed" Section or anhydrite with the production string set at the base of the Grayburg formation at a depth of approximately 3,500 feet. Said completion casing will be set and cemented with a sufficient volume of cement calculated to circulate back into the Salado Salt Section. Attached hereto and incorporated herein is Arrowhead Oil Corporation Exhibit No. 1 which further describes the casing program.

4. Applicant believes that the proposed wells will not endanger potash deposits for they lie in close proximity to Duval's Mill Weaver mine in an isolated potash area where such mine operations have been exhausted and the mines are currently being abandoned. Therefore, no good and valid reason appears for setting additional strings of casing as provided for by the Potash Order.

5. By granting the requested exception, the Commission's stated objective of preventing waste, protecting correlative rights and promoting the economic recovery of oil and gas from the subject area will be promoted and at the same time, the conservation of New Mexico's potash deposits will be assured.

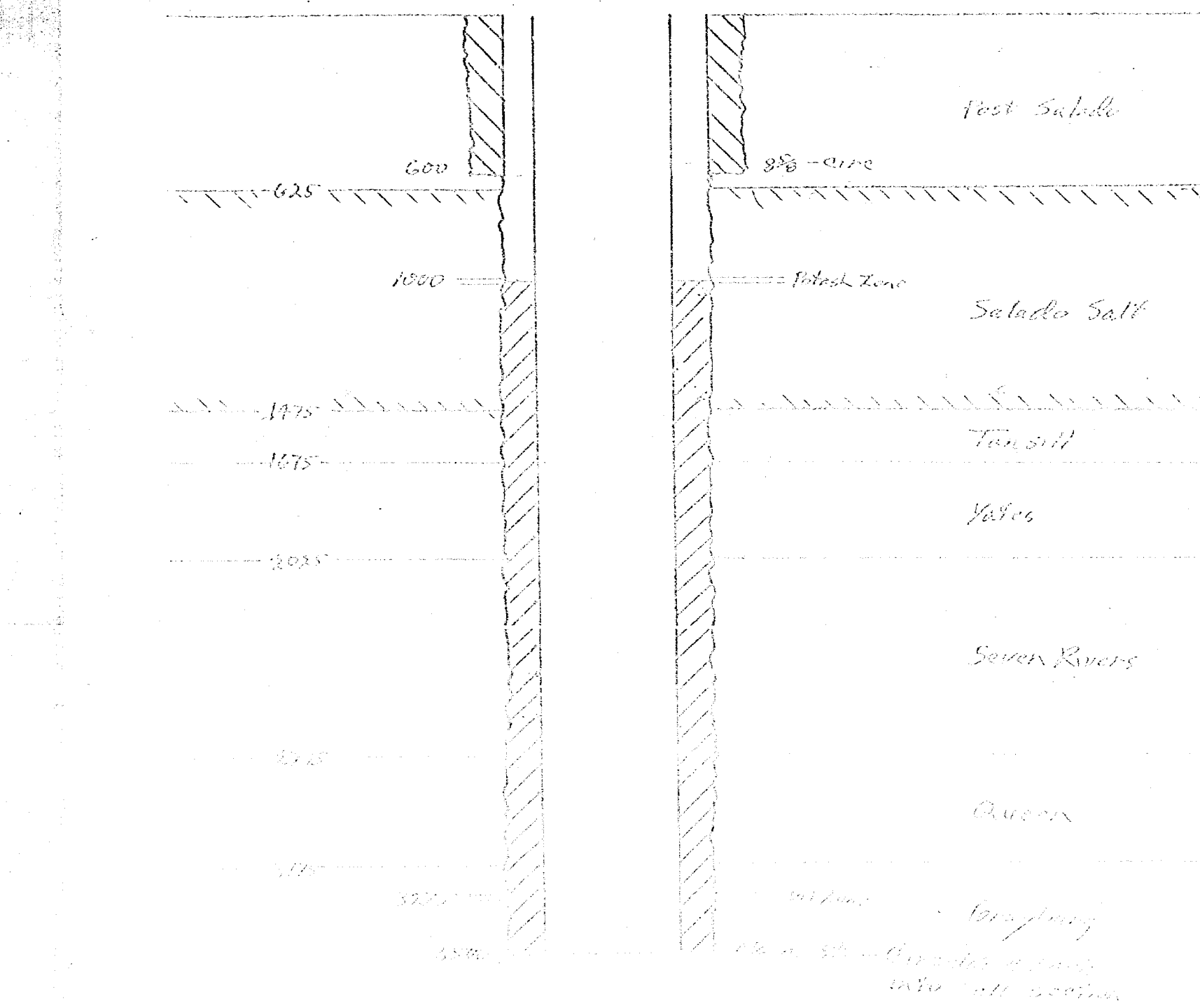
WHEREFORE, Arrowhead Oil Corporation prays that the application be set for hearing before the Division's duly appointed examiner on March 26, 1935 and that after notice and

hearing as required by law, the Division enter its Order granting an exception to the Potash Order as herein requested, and for such other and further relief as may be proper.

Respectfully submitted,
CAMPBELL AND BLACK, P.A.

By *[Signature]*
WILLIAM P. CAMP
Attorneys for Applicant
Post Office Box 2208
Santa Fe, New Mexico 87501
Telephone: (505) 988-4621

Diagrammatic Well Sketch
Arrowhead Oil Co. - Creek Lease
W 1/2 NE 1/4 Sec. 23-18N-30E
Elddy County, N.M.



Application of Arrowhead Oil Corporation for an exception to Order No. R-111-A and an exception to the casing program rules of Order No. R-111-A to complete W 1/2 NE 1/4 Sec. 23-18N-30E in Elddy County, New Mexico. The well is to be drilled in Unit G, both North and South, to a depth of approximately 3,500 feet. The completion casing will be set and cemented with a sufficient volume of cement calculated to circulate back into the Salado Salt Section. Attached hereto and incorporated herein is Arrowhead Oil Corporation Exhibit No. 1 which further describes the casing program.

Placed 30' below surface into all workings

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 6844
ORDER NO. 6844
APPLICATION OF ARROWHEAD OIL
CORPORATION FOR TWO EXCEPTIONS TO
ORDER NO. R-111-A AND AN EXCEPTION
WELL LOCATION, EDDY COUNTY, NEW MEXICO.

ORDER OF THE DIVISION
BY THE DIVISION:

This case came on for hearing at 9 a.m. on March 26, 1935, at Santa Fe, New Mexico, before Examiner Richard F. Sigman, who on this day of 1935, the Division Director, having considered the testimony, the record, and the recommendations of the examiner, and being fully advised in the premises,

FINDS:

- (1) That the public policy, health, safety and economic interest of the State of New Mexico are promoted by the granting of the exceptions requested.
- (2) That the granting of the exceptions requested will not result in the waste of oil and gas from the subject area.

as promulgated by Order No. R-111-A to complete Federal Well No. 3 at an unorthodox location North line and 2350 feet from the East line of Well No. 4 to be drilled in Unit G, both North and South, to a depth of approximately 3,500 feet. The completion casing will be set and cemented with a sufficient volume of cement calculated to circulate back into the Salado Salt Section.

- (3) That the evidence presented in support of the application for the exceptions requested is sufficient to warrant the granting of the exceptions requested.
- (4) That the applicant should pay the cost of the hearing and the cost of the examination of the well.

- (5) That approval of the subject application by the Division will not result in the waste of oil and gas from the subject area.

WHEREFORE, the Division hereby orders that the exceptions requested be granted and that the applicant pay the cost of the hearing and the cost of the examination of the well.