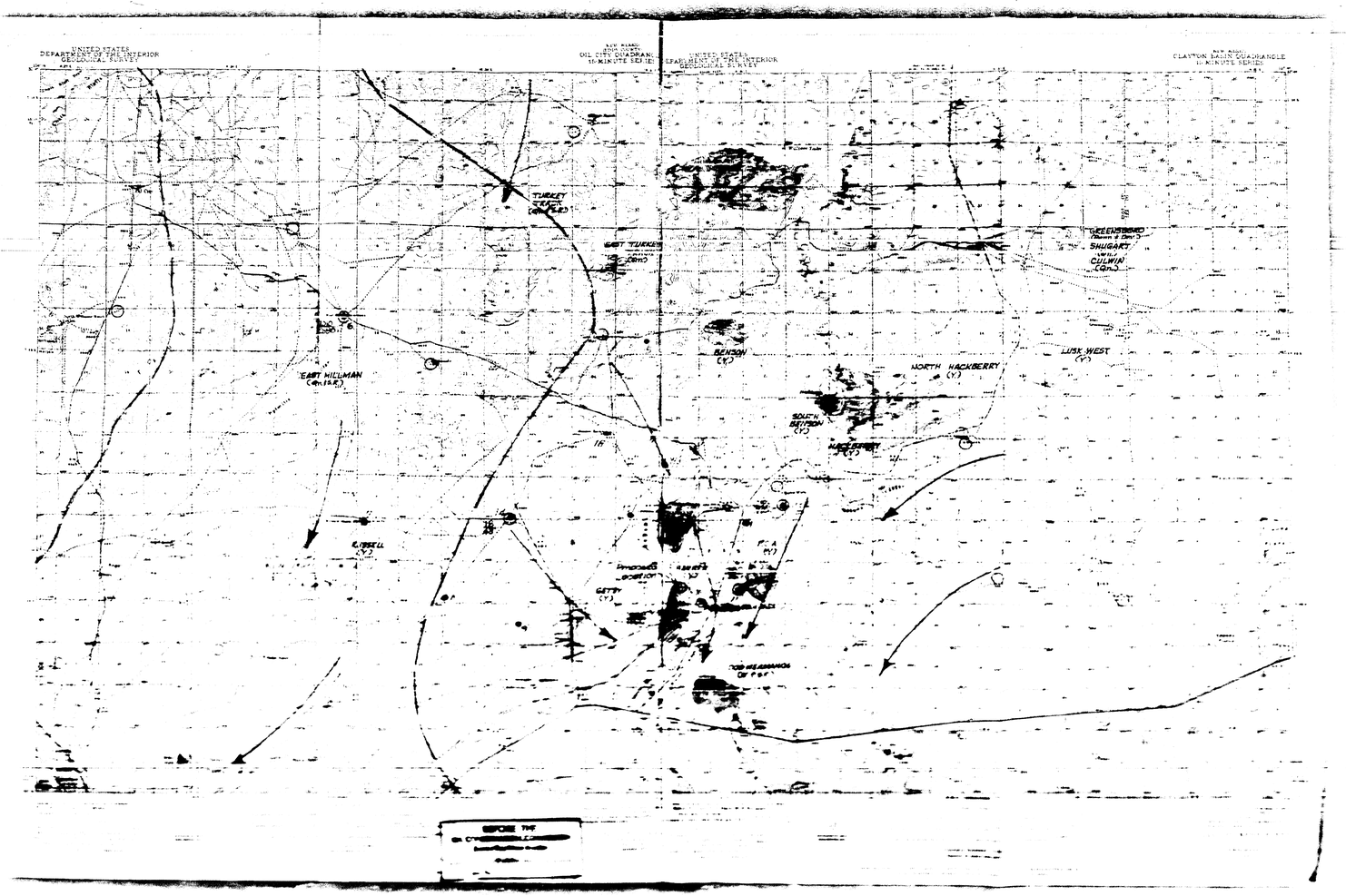
Case No.

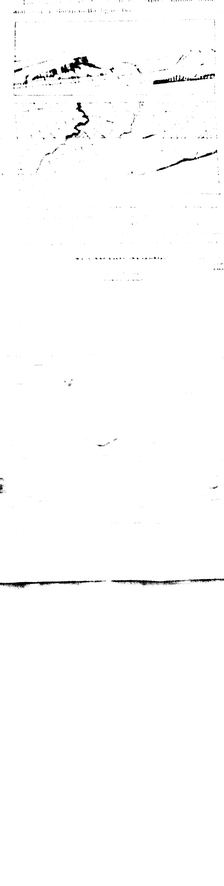
3029

Large Exhibit


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
N.W. QUAD.
OIL CITY QUADRANGLE
15-MINUTE SERIES
TURKEY CREEK (Cm.)
EAST TURKEY (Cm.)
EAST HILLMAN (Cm.)
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
N.W. QUAD.
CLAYTON BASIN QUADRANGLE
15-MINUTE SERIES
BENSON (Y.)
NORTH HACKBERRY (Y.)
LUSK WEST (Y.)
SHUGART (Cm.)
CULWIN (Cm.)

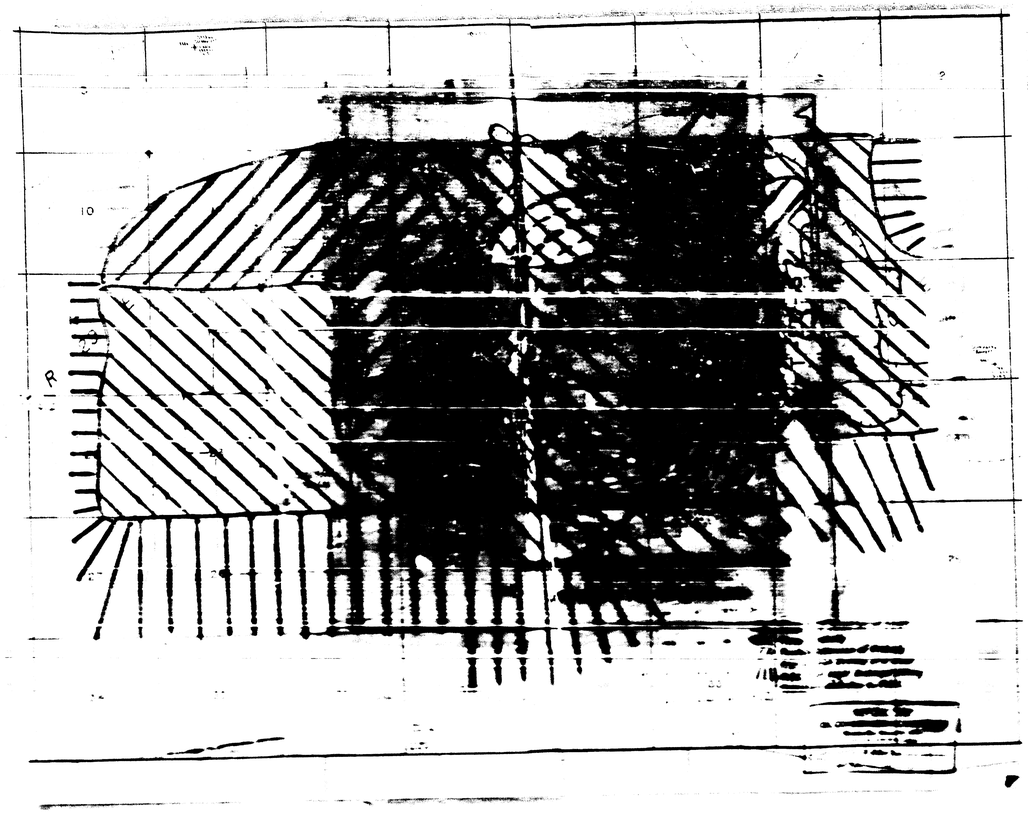
Smithsonian 24-3

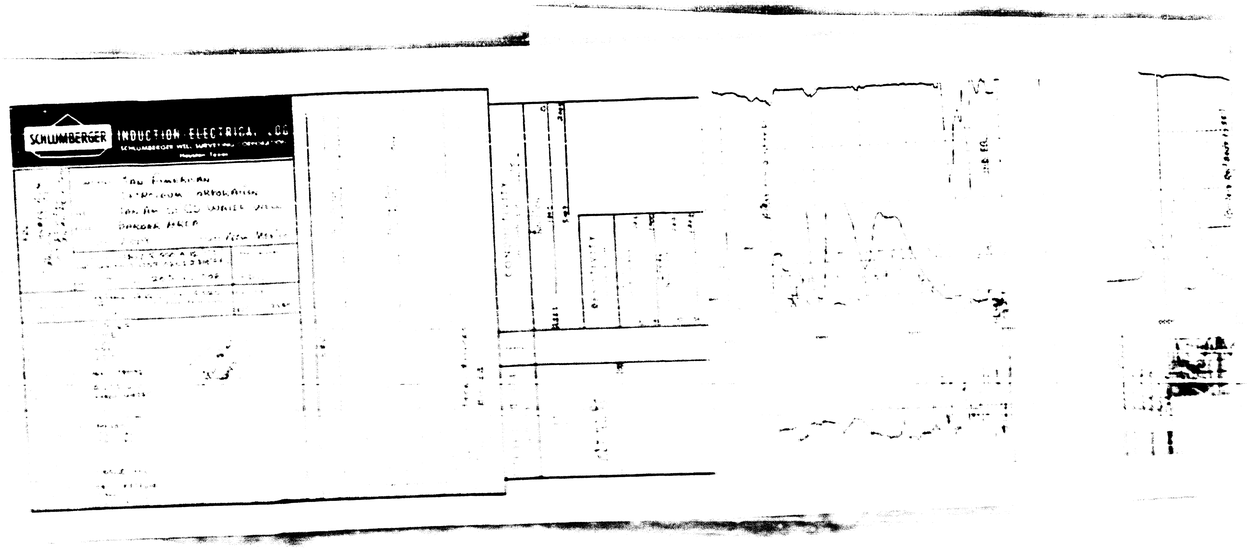
THE TOPOGRAPHIC MAPS OF THE UNITED STATES

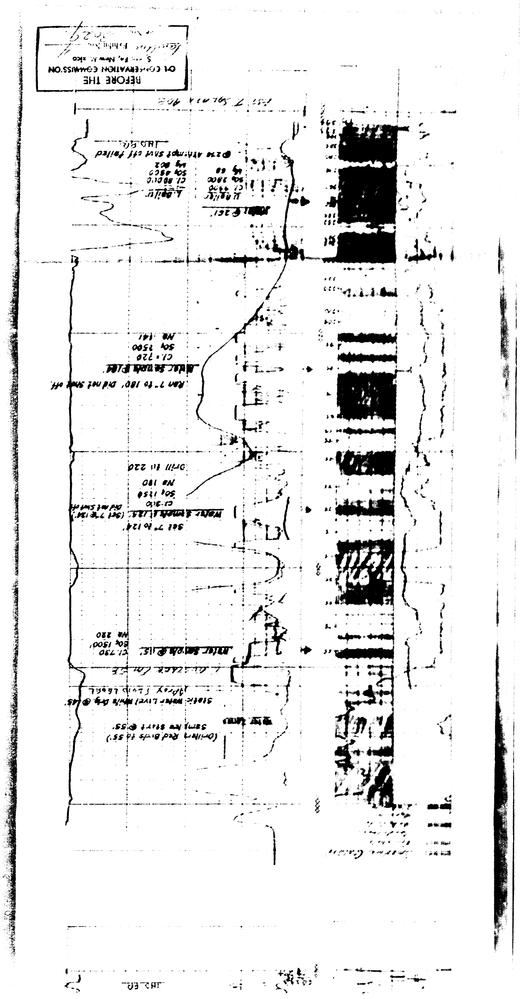


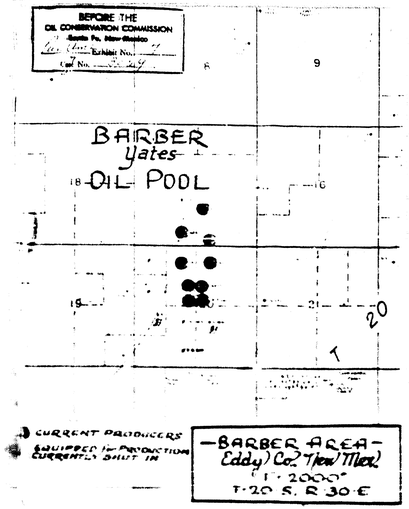
R 29 E
R 30 E
T 20 S
PROPOSED LOCATION
EXISTING

2-03-T

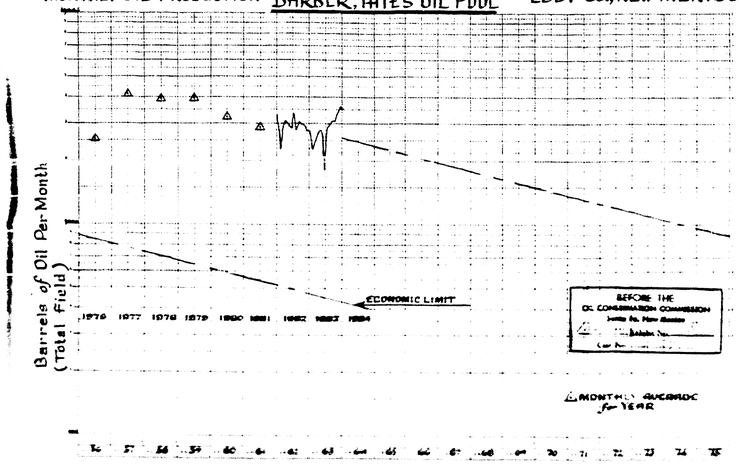



SCHLUMBERGER
INDUCTION ELECTRICA. LOG

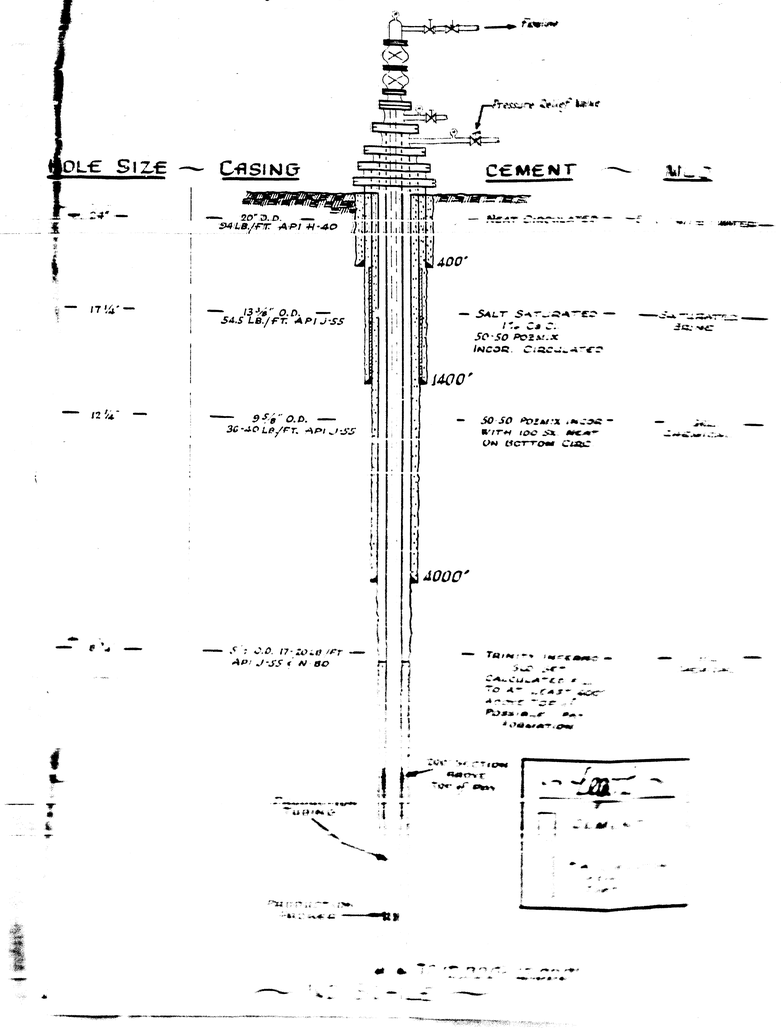


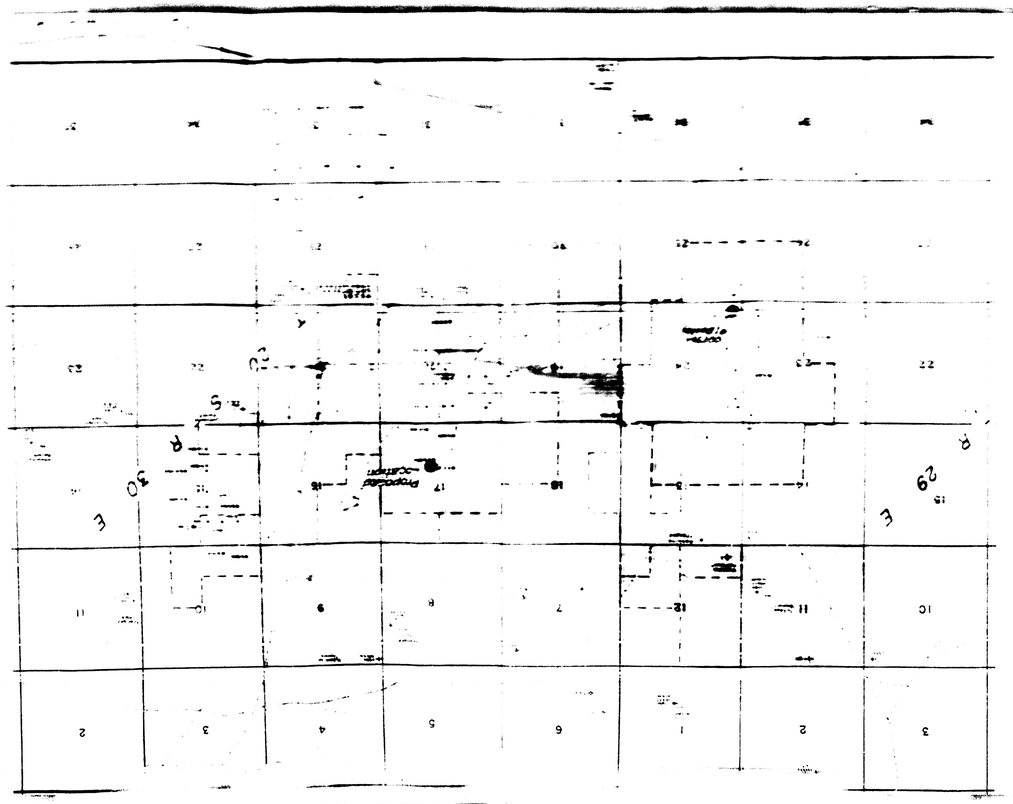

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Exhibit No.
Case No.
8
9
BARBER
Yates
OIL POOL
18
16
19
21
20
CURRENT PRODUCERS
EQUIPPED for PRODUCTION CURRENTLY SHUT IN
-BARBER AREA-
Eddy Co. New Mex.
1" = 2000'
T-20 S. R 30 E

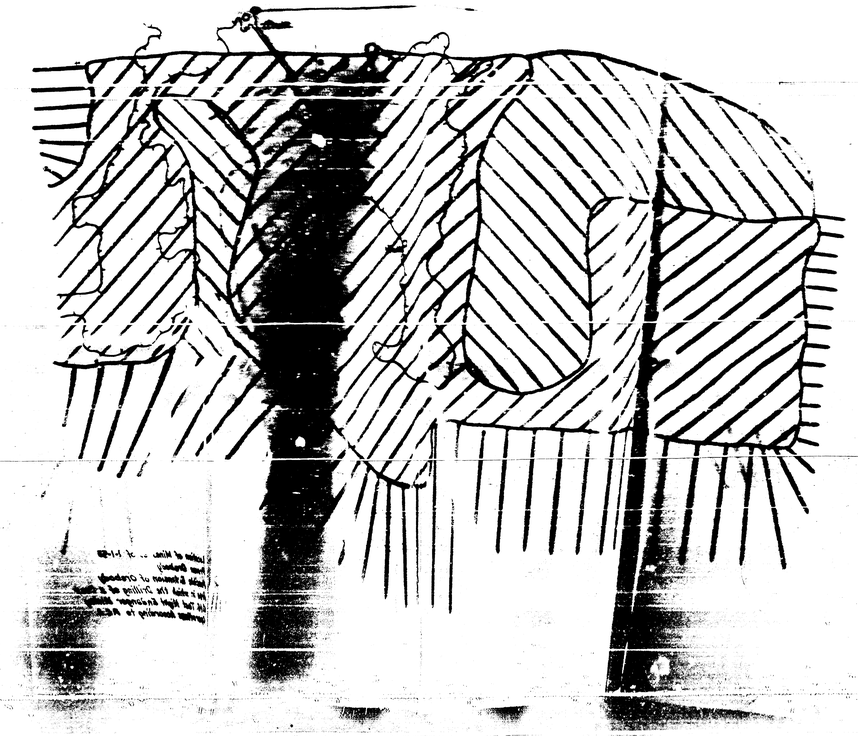
MONTHLY OIL PRODUCTION BARBER, YATES OIL POOL EDDY CO., NEW MEXICO



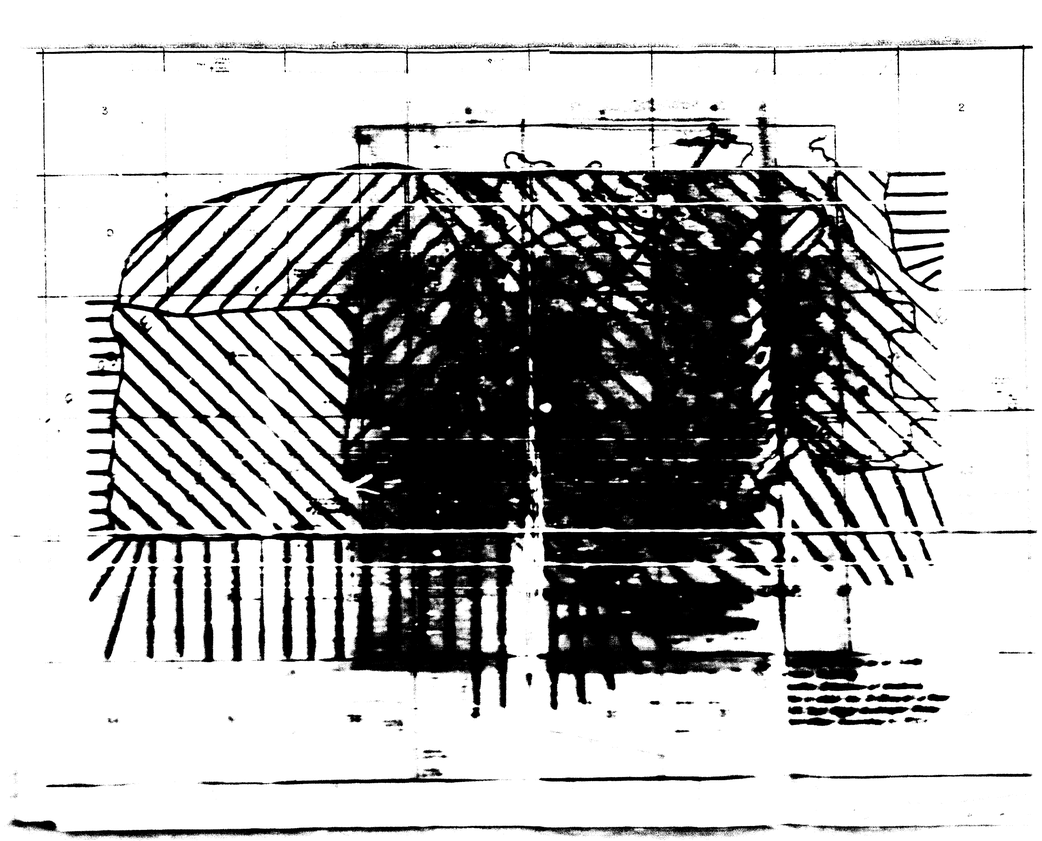
PAN AMERICAN PETR.— State "CS" No 1
SEC. 17, T-20-S, R-30-E Eddy County, New Mexico
(PROPOSED LOCATION)



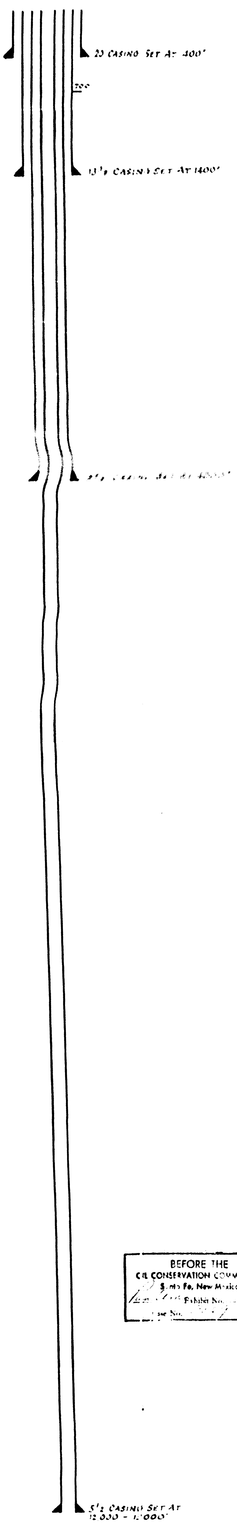




4-30-E
2-OS-T

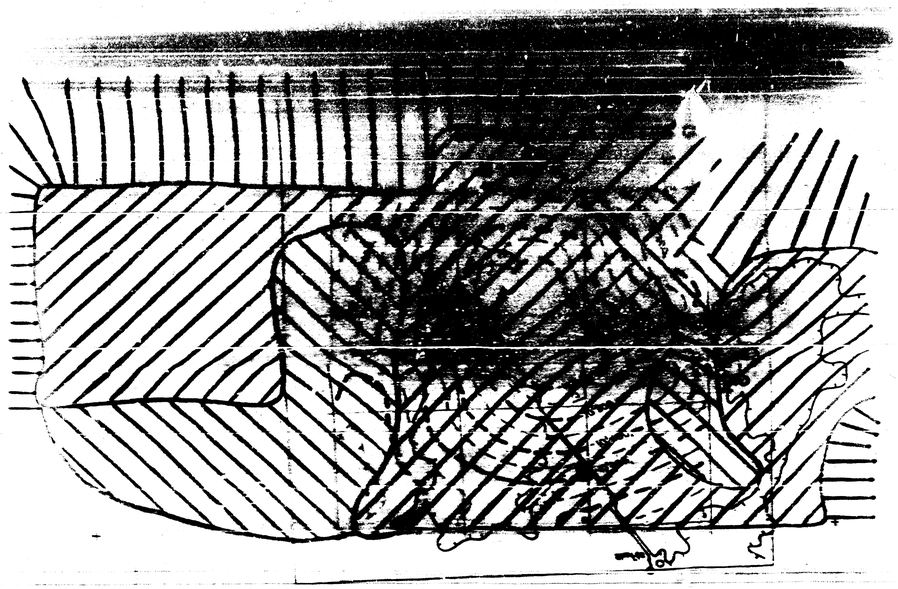


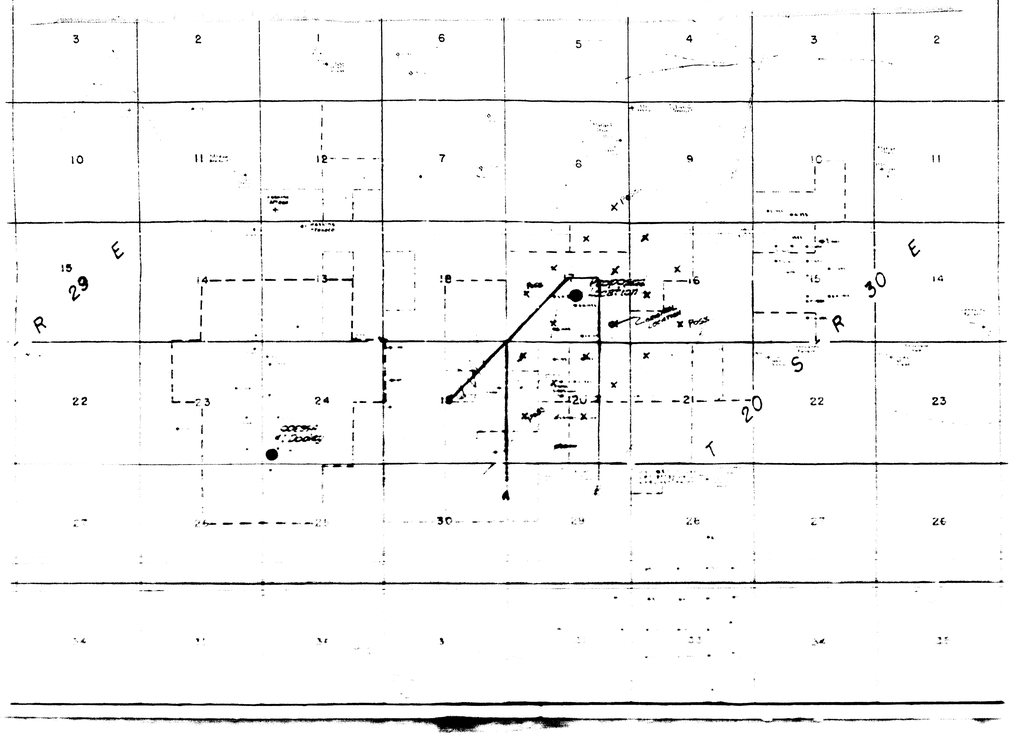
PAN AMERICAN PETR.
State "CS" No. 1
SECTION 17, T-20-S, R-30-E
(PROPOSED LOCATION)
Eddy Co., New Mexico

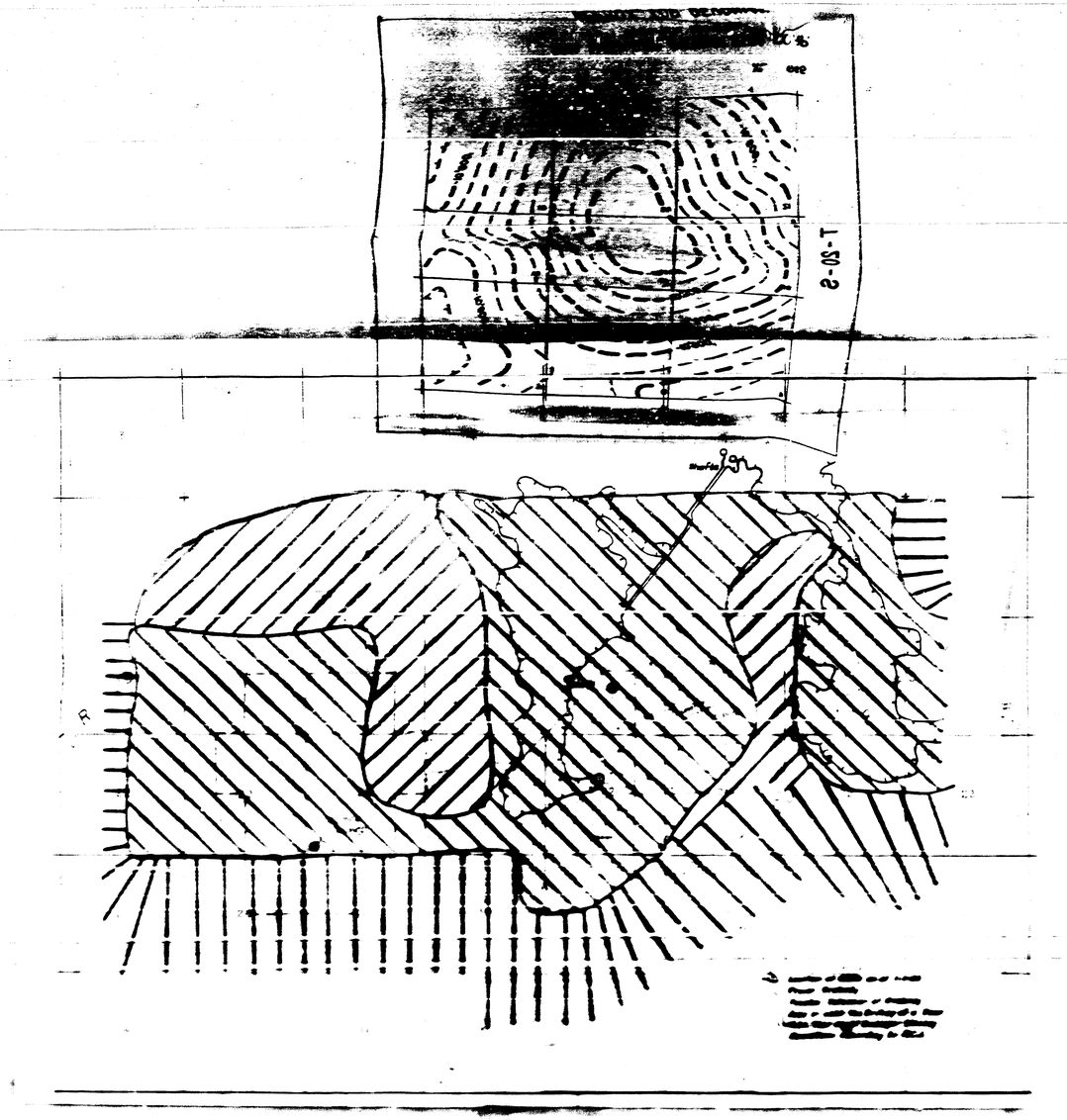


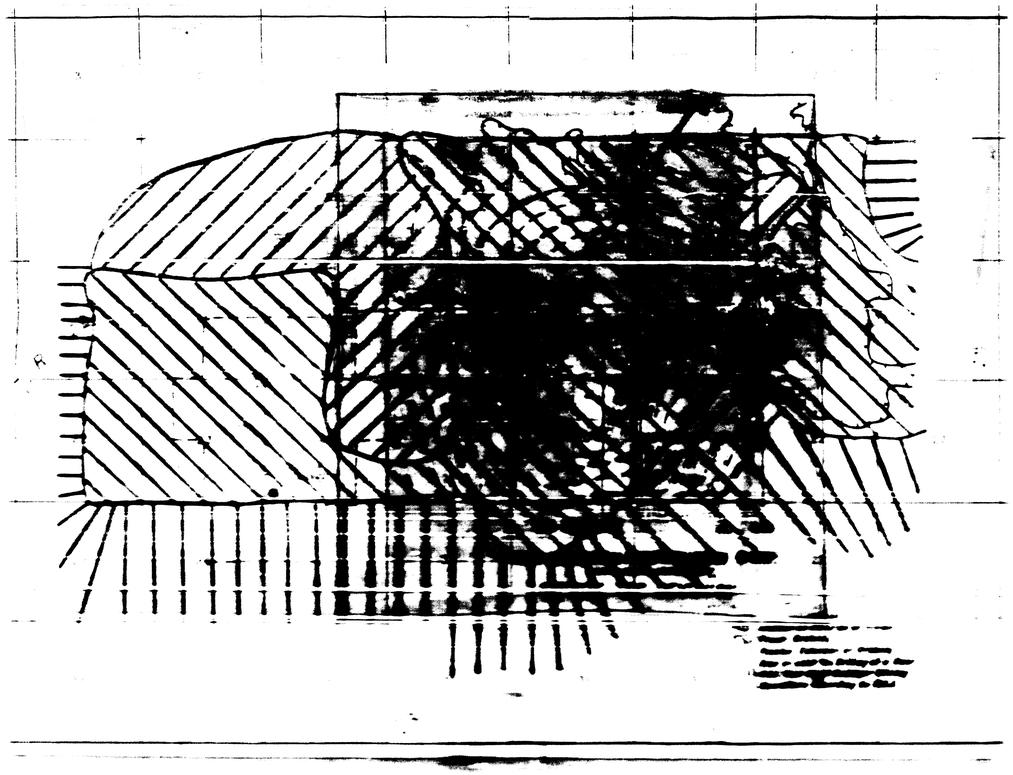
BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Exhibit No.
Case No.

VERTICAL SCALE 1" = 400'
NO HORIZONTAL SCALE




R 29 E
R 30 E
T 20 S


T-20-S



TURKEY CITY (Bch., S.L.)
EAST TURKEY TRACK (Bch.)
EAST MILLMAN (Bch. & S.R.)
BENSON (T.)
NORTH HACKBERRY (T.)
SOUTH BENSON (T.)
HACKBERRY (T.)
LUSK WEST (T.)
GREENSBORO (Petrol. Dist.)
SHUG EAST (Bch.)
CULBEAN (Bch.)
RUSSELL (T.)
P.C.A. (T.)

Pre-Permian Pays
Northeastern Eddy Co. New Mexico

Stratigraphic Column

Pay Zones

Permian
- Leonard
- Wolfcamp

Pennsylvanian
- Strawn
- Atoka
- Morrow

Mississippian
- Barnett

Devonian

EMPIRE

GRAYBURG

RED LAKE

Eddy County

Lea County

PRE-PERMIAN PRODUCTION
Northeastern Eddy Co. New Mexico

Pre~Permian Pays
Northeastern Eddy Co. New Mexico

Stratigraphic Column | Pay Zones

Permian
- Leonard
- Wolfcamp

Pennsylvanian
- Strawn
- Atoka
- Morrow

Mississippian

Devonian

Ellenburger

EMPIRE

GRAYBURG

RED LAKE

FREN

MALJAMAR

SAMMAL

LEAMEX

Eddy County

Lea County

Approximate Limits

Eddy County
Lea County

PRE~PERMIAN PRODUCTION
Northeastern Eddy Co. New Mexico

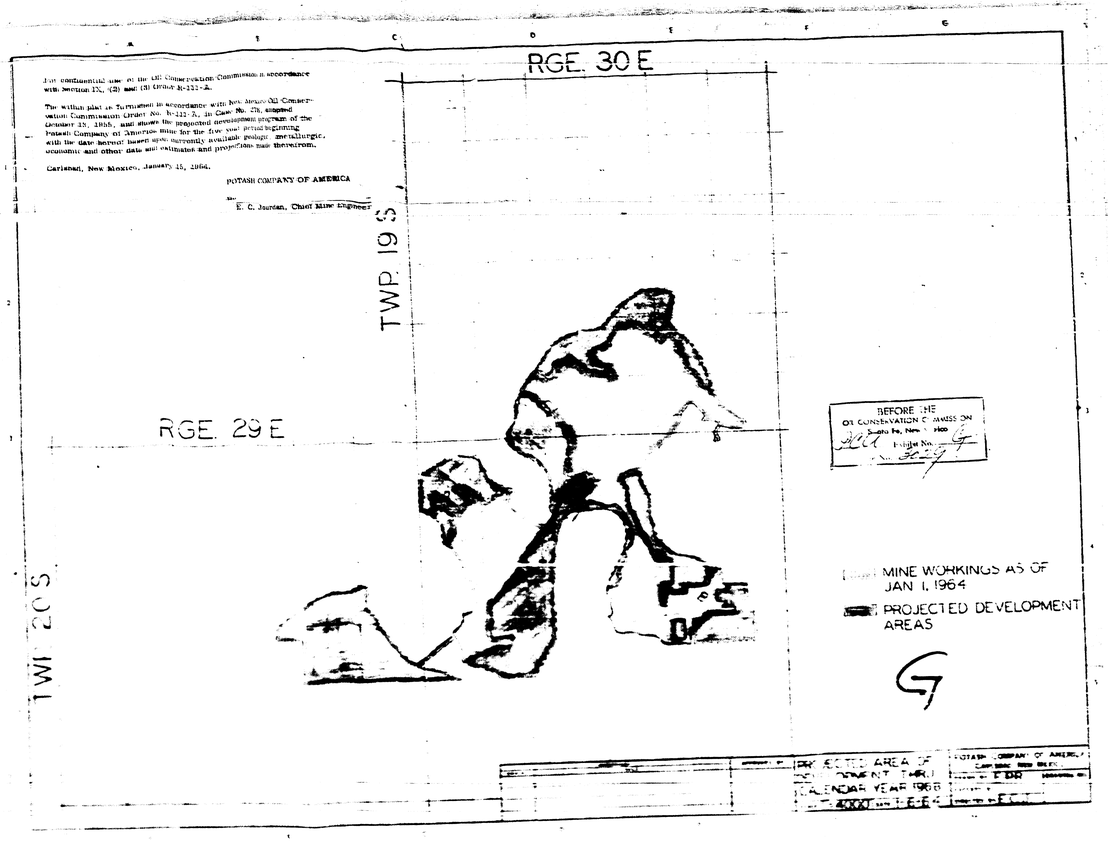
For confidential use of the Oil Conservation Commission in accordance with Section IX, (2) and (3) Order R-111-A.

The within plat is furnished in accordance with New Mexico Oil Conservation Commission Order No. R-111-A, in Case No. 28, adopted December 15, 1955, and shows the projected development program of the Potash Company of America mine for the five year period beginning with the date hereof based upon currently available geologic, metallurgic, economic and other data and estimates and projections made thereform.

Carlsbad, New Mexico, January 15, 1964.

POTASH COMPANY OF AMERICA

E. C. Jordan, Chief Mine Engineer



BEFORE THE OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Exhibit No. 4
Case No. 3279

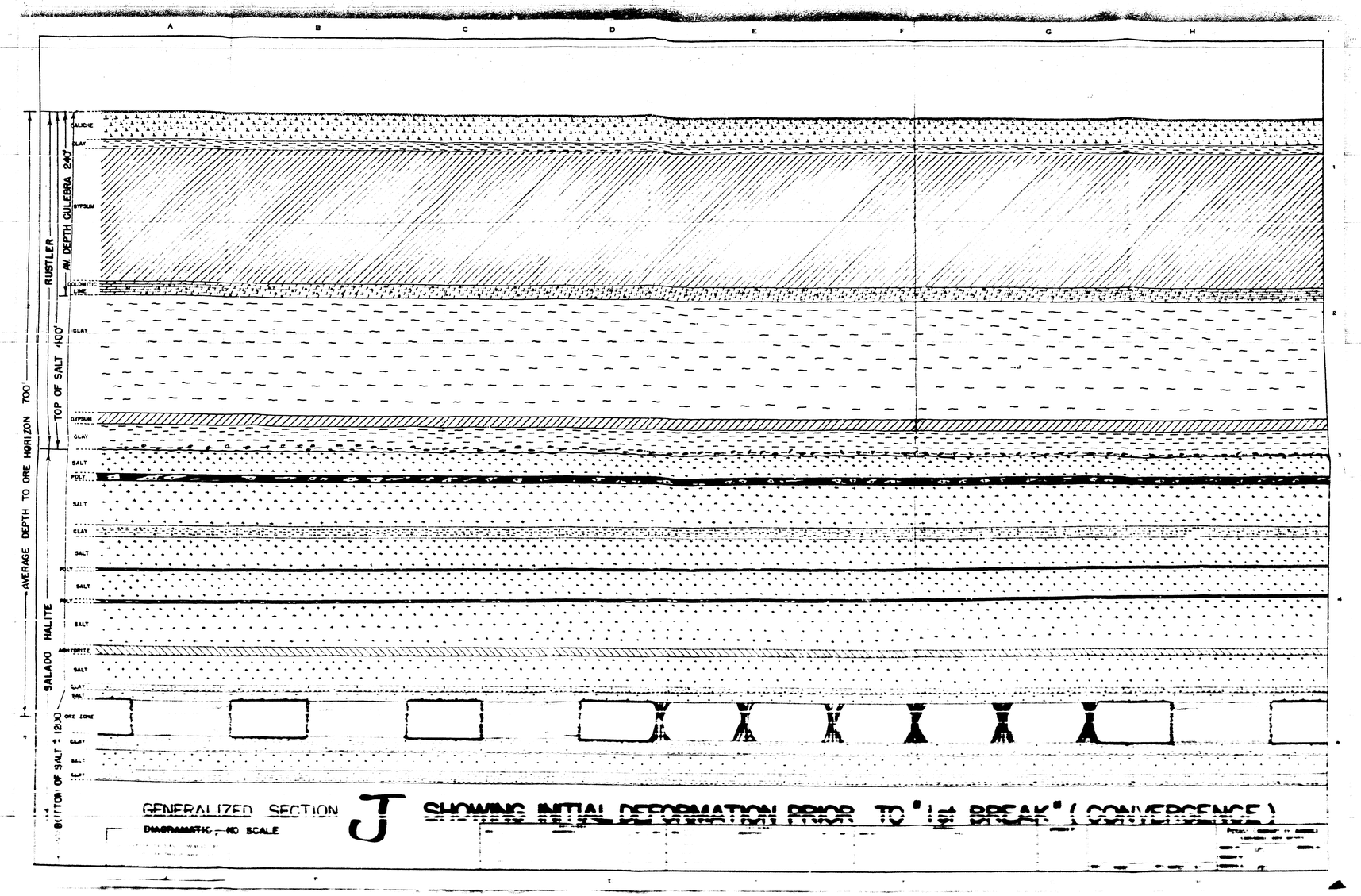
PROJECTED AREA OF DEVELOPMENT THRU CALENDAR YEAR 1968
40000 TONS PER DAY

POTASH COMPANY OF AMERICA
CARLSBAD, NEW MEXICO
DATE 1-15-64
DRAWING NO.

SCALE 1" = 1000'

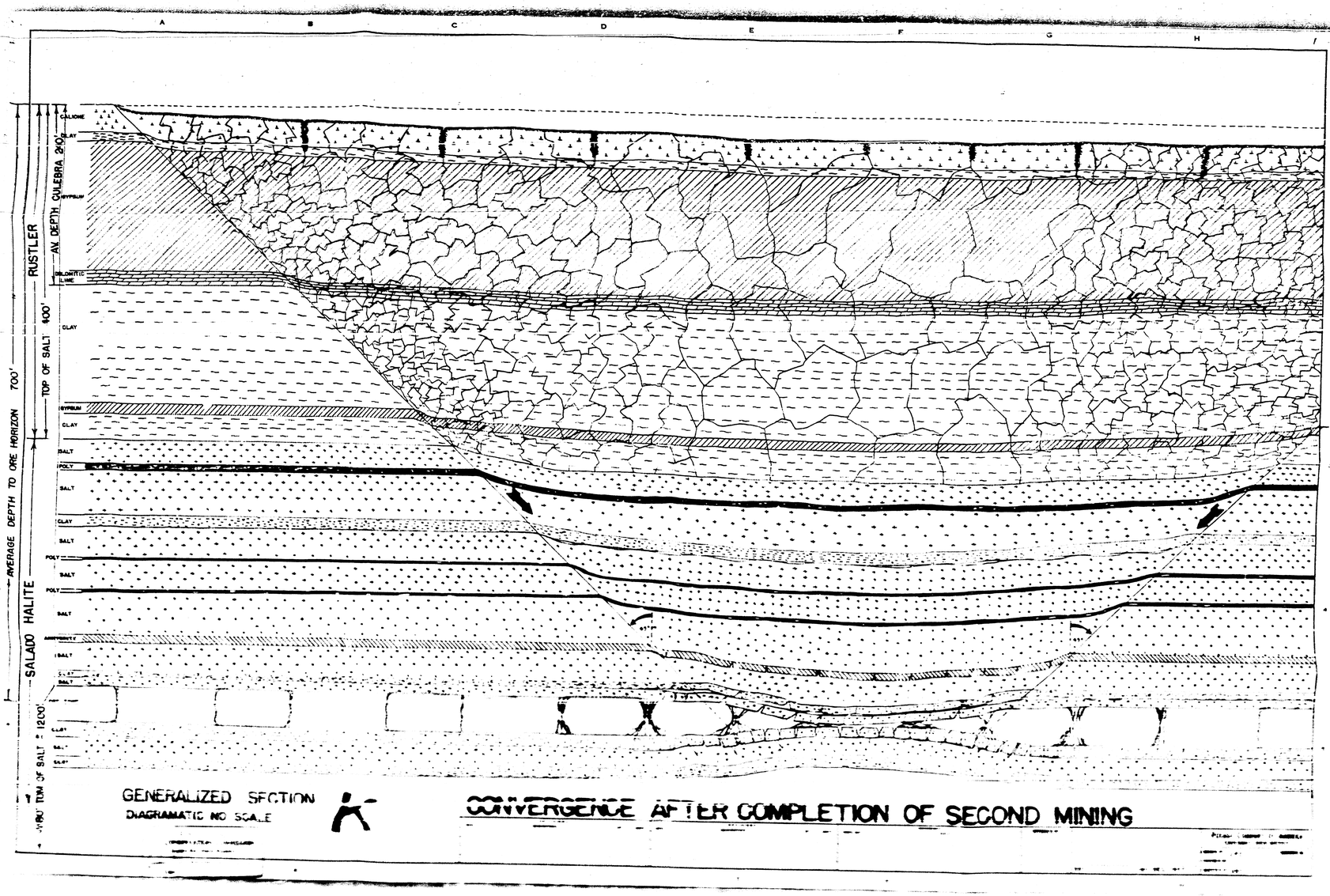
NORTH

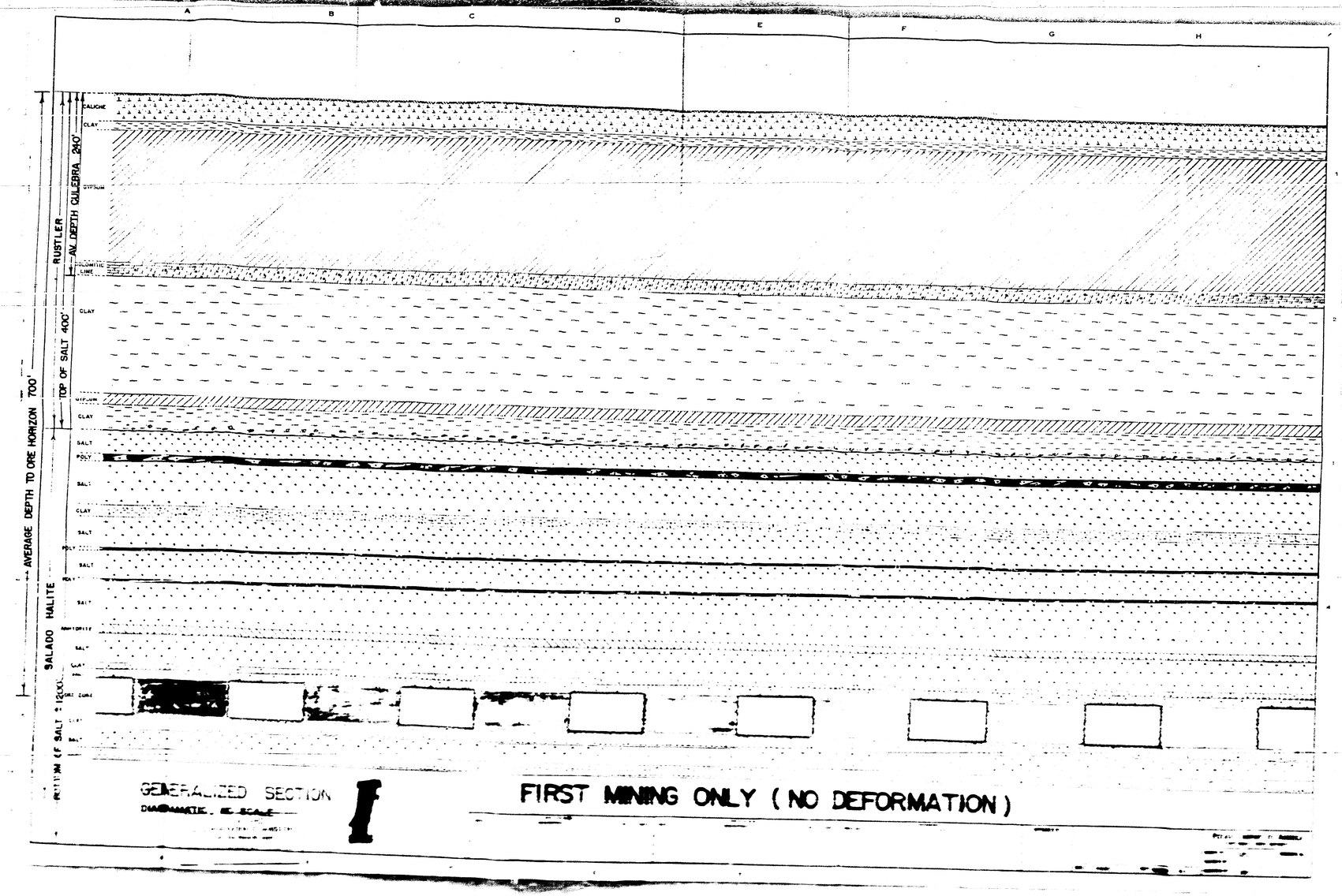
SCALE 1" = 1000'
R 30 E
T 20 S
21
28
29
32
5
A
B
C
D
E
F
G
H



GENERALIZED SECTION J SHOWING INITIAL DEFORMATION PRIOR TO "1st BREAK" (CONVERGENCE)

DIAGRAMMATIC, - NO SCALE


A
B
C
D
E
F
G
H
I
GYPSUM
CLAY
SALT
POLY
RUSTLER
TOP OF SALT 400'
AV. DEPTH CULEBRA 210'
AVERAGE DEPTH TO ORE HORIZON 700'
SALADO HALITE
BOTTOM OF SALT ± 1200'
GENERALIZED SECTION
DIAGRAMATIC NO SCALE
CONVERGENCE AFTER COMPLETION OF SECOND MINING



GENERALIZED SECTION

DIAGRAMATIC, NO SCALE

1

FIRST MINING ONLY (NO DEFORMATION)

T
20
S

6 5 4 3 2 1

7 8 9 10 11 12

18 17 16 15 14 13

19 20 21 22 23 24

Water Damaged Documents

Case No. 3029

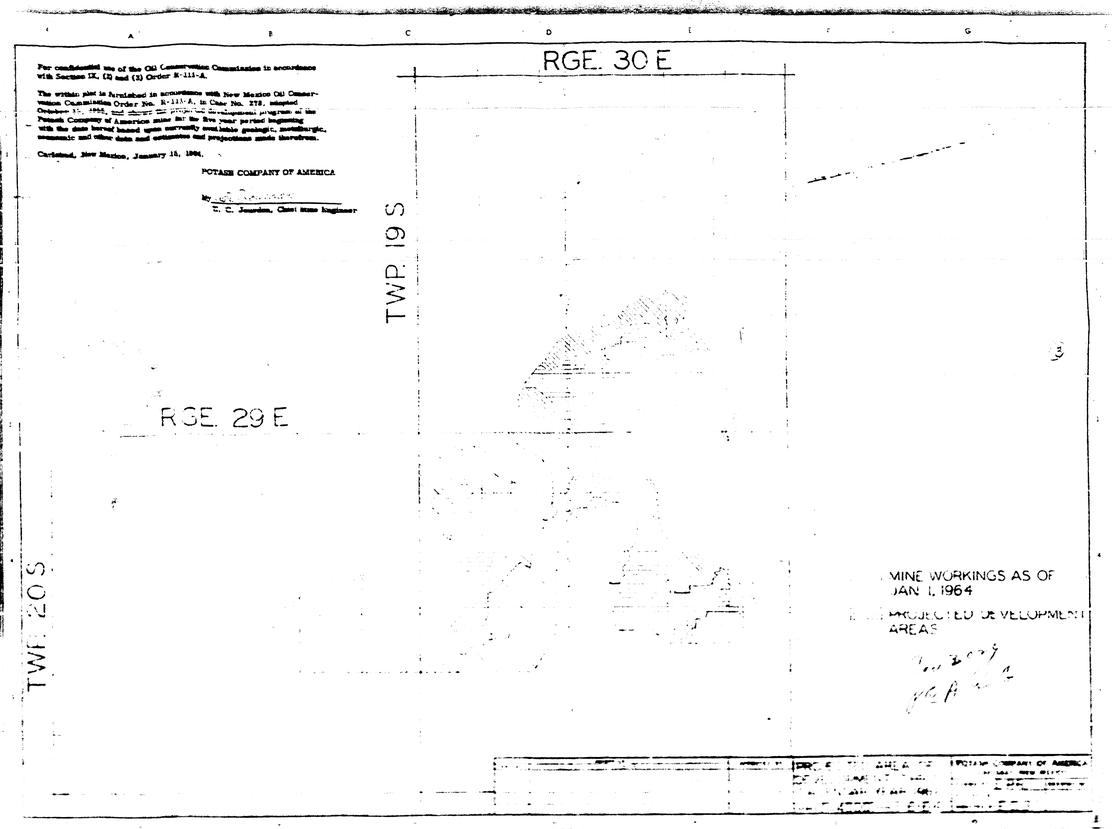
For confidential use of the Oil Conservation Commission in accordance with Section IX, (2) and (3) Order R-111-A.

The within plat is furnished in accordance with New Mexico Oil Conservation Commission Order No. R-111-A, in Case No. 378, adopted October 31, 1956, and shows the principal development projected by the Potash Company of America zone for the five year period beginning with the date hereof based upon currently available geologic, metallurgic, economic and other data and estimates and projections made therefrom.

Carlsbad, New Mexico, January 15, 1964.

POTASH COMPANY OF AMERICA

By _____
C. C. Jourdan, Chief State Engineer



Waters
Damaged
Documents

Case No.
3029

For confidential use of the Oil Conservation Commission in accordance with Section IX, (3) and (5) Order R-111-A.

The within plat is furnished in accordance with New Mexico Oil Conservation Commission Order No. R-111-A, in Case No. 778, adopted October 13, 1953, and shows the projected development program of the Potash Company of America mine for the five year period beginning with the date hereof based upon currently available geologic, mechanical and other data and information and postulations made thereabout.

Carlsbad, New Mexico, January 15, 1954.

POTASH COMPANY OF AMERICA

By E. C. Jourdan
E. C. Jourdan, Chief Mine Engineer

RGE. 30 E

RGE. 29 E

TWP. 19 S

TWP. 20 S

MINE WORKINGS AS OF JAN. 1, 1954

PROJECTED DEVELOPMENT AREA

POTASH COMPANY OF AMERICA

Water Damaged Documents

Case No. 3029

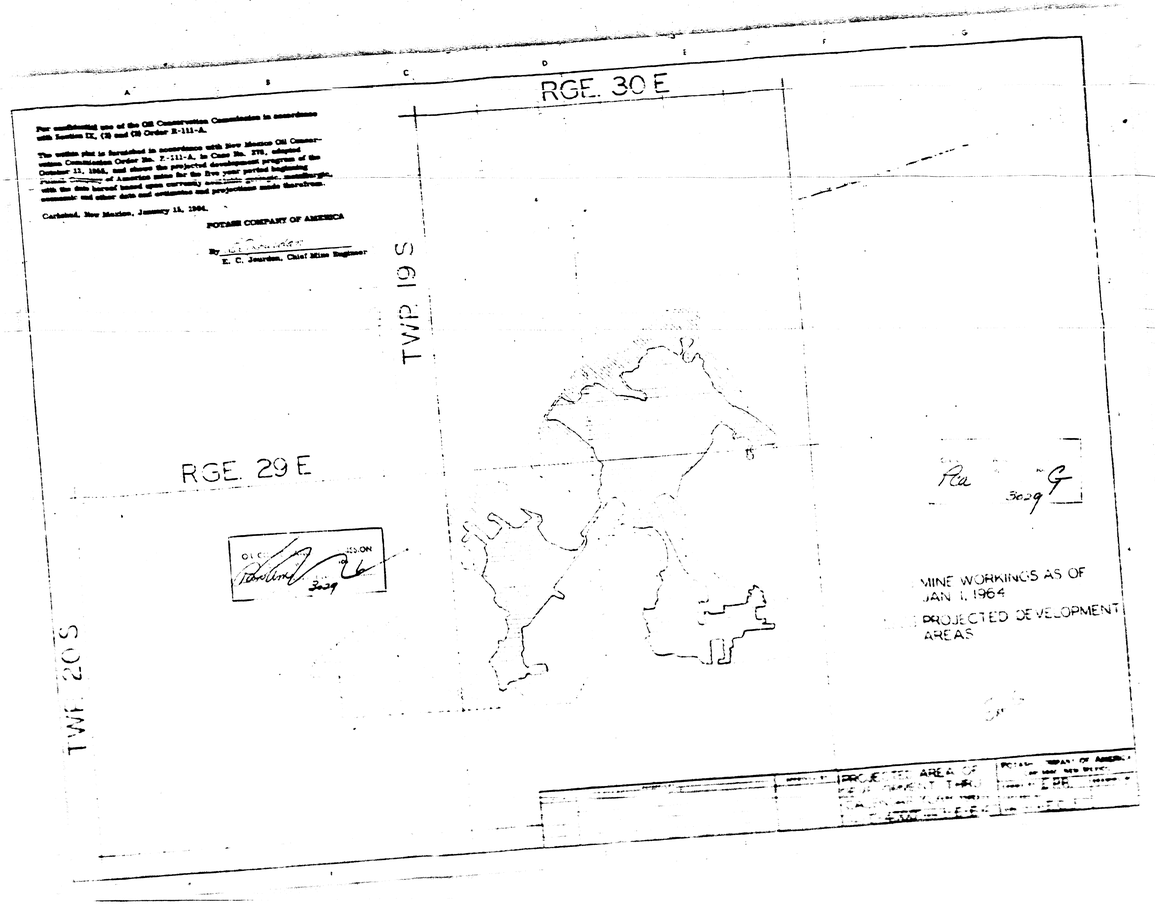
For confidential use of the Oil Conservation Commission in accordance with Section IX, Oil and Oil Order R-111-A.

The written plat is furnished in accordance with New Mexico Oil Conservation Commission Order No. R-111-A, in Case No. 370, adopted October 15, 1964, and shows the projected development program of the Potash Company of America mines for the five year period beginning with the date hereof based upon currently available geologic, engineering, economic and other data and contingencies and projections made therefrom.

Carlsbad, New Mexico, January 15, 1964.

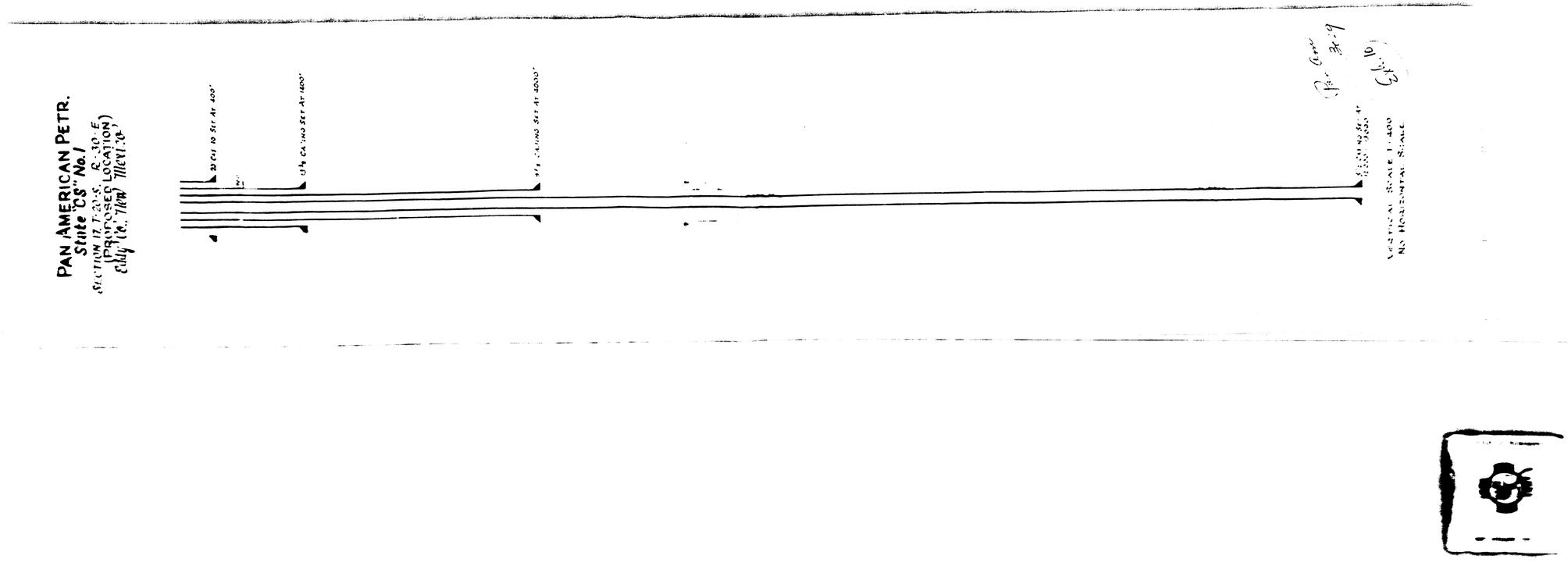
POTASH COMPANY OF AMERICA

By _____
E. C. Jourdan, Chief Mine Engineer



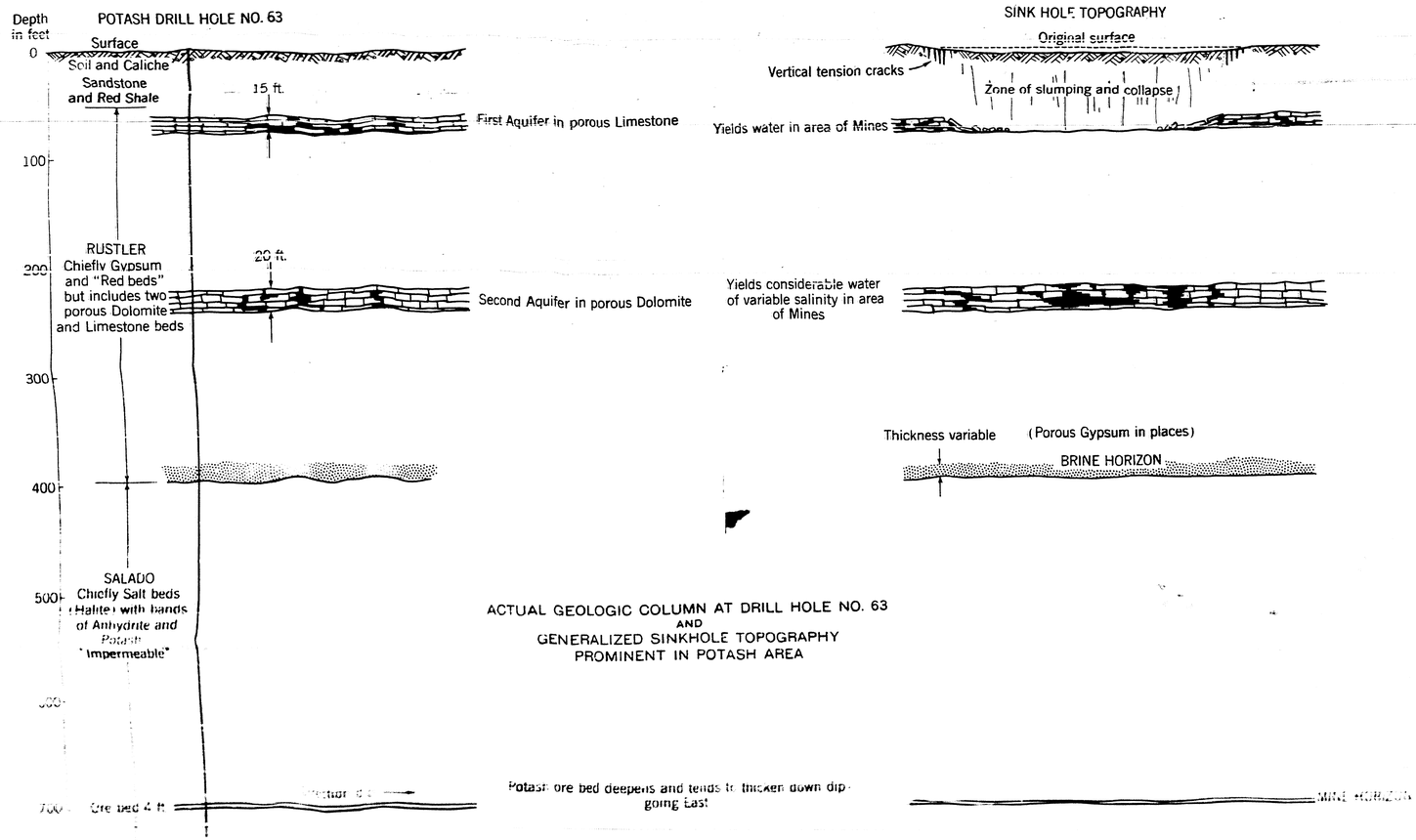
Water
Damaged
Documents

Case No.
3029



BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Exhibit No. 4
Case No. 3029

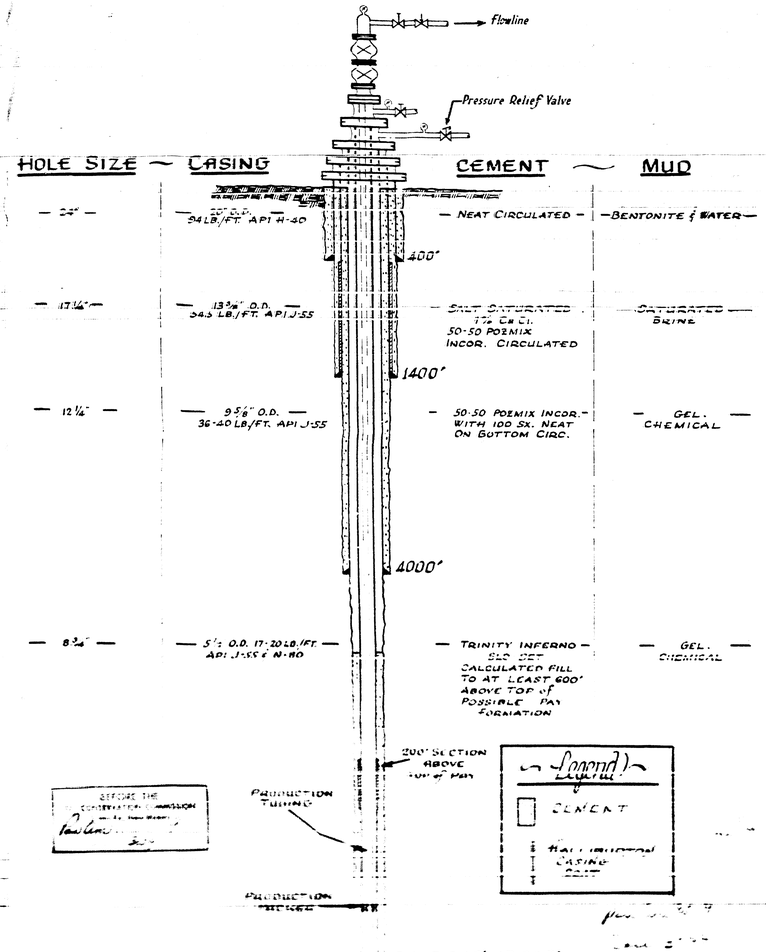
EXHIBIT NO. 1



ACTUAL GEOLOGIC COLUMN AT DRILL HOLE NO. 63
AND
GENERALIZED SINKHOLE TOPOGRAPHY
PROMINENT IN POTASH AREA

Water Damaged Documents
Case No. 3029

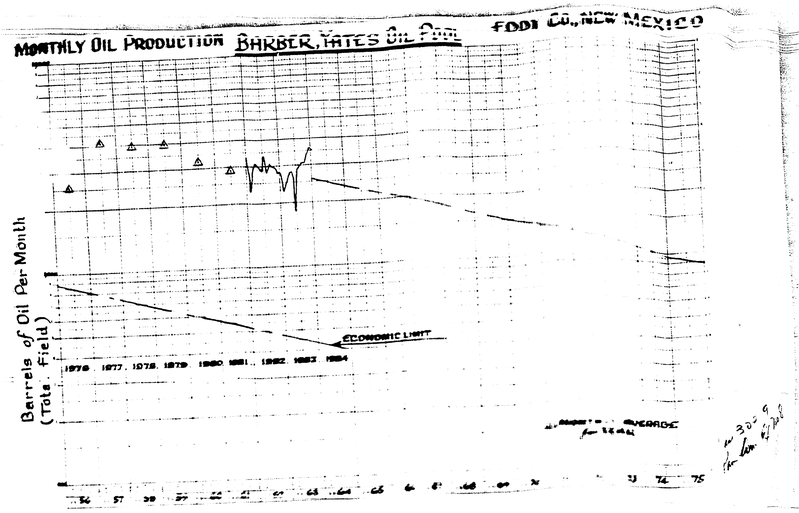
PAN AMERICAN PETR. — State "CS" No. 1
SEC. 17, T-20-S, R-30-E Eddy County, New Mexico
(PROPOSED LOCATION)



— NO SCALE —

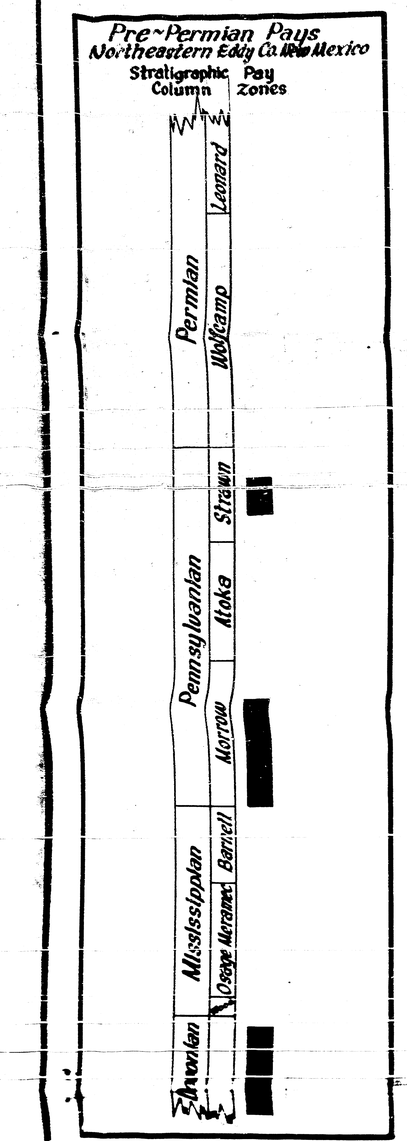
Water Damaged Documents

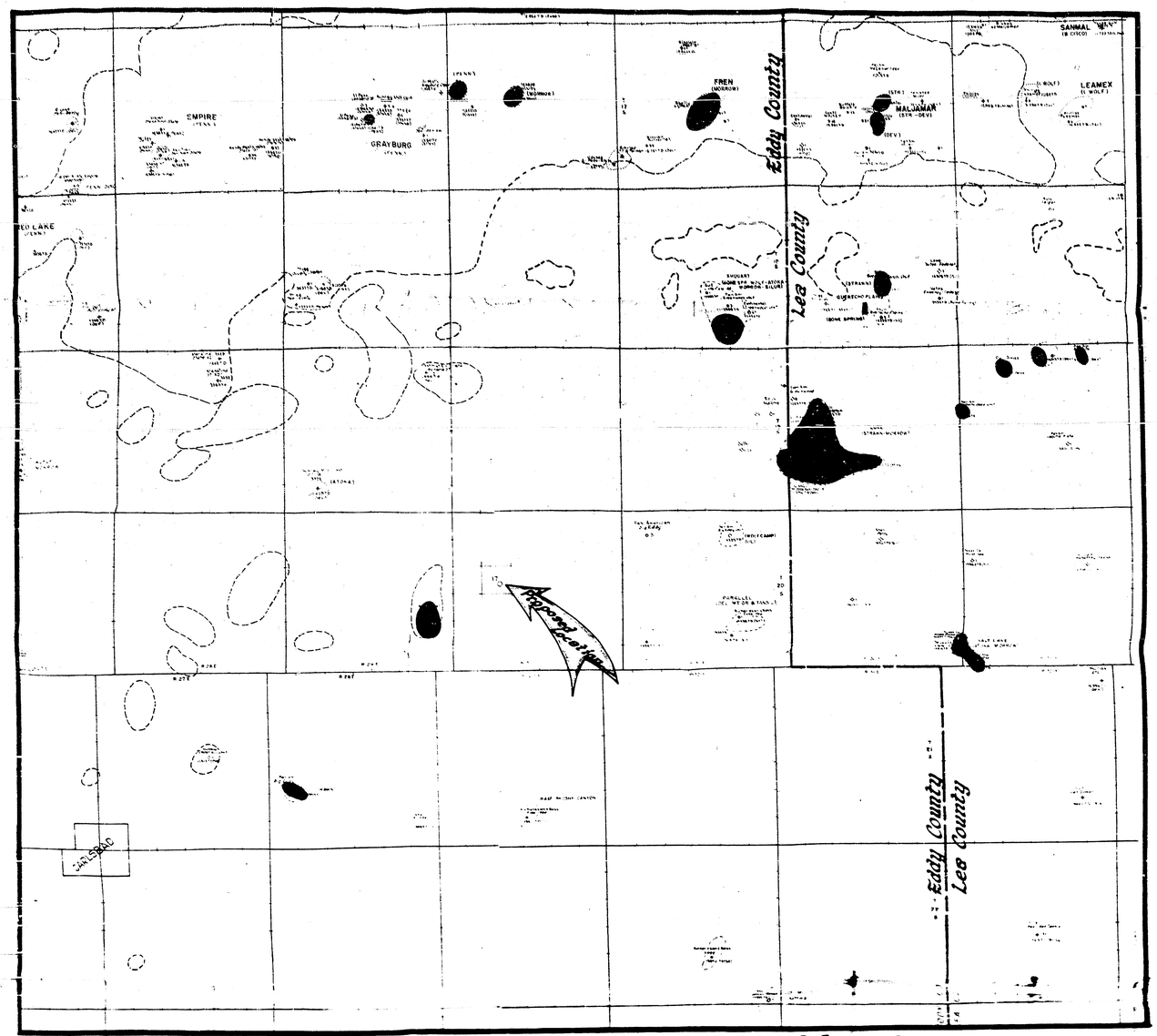
Case No. 3029



Water Damaged Documents

Case No. 3029

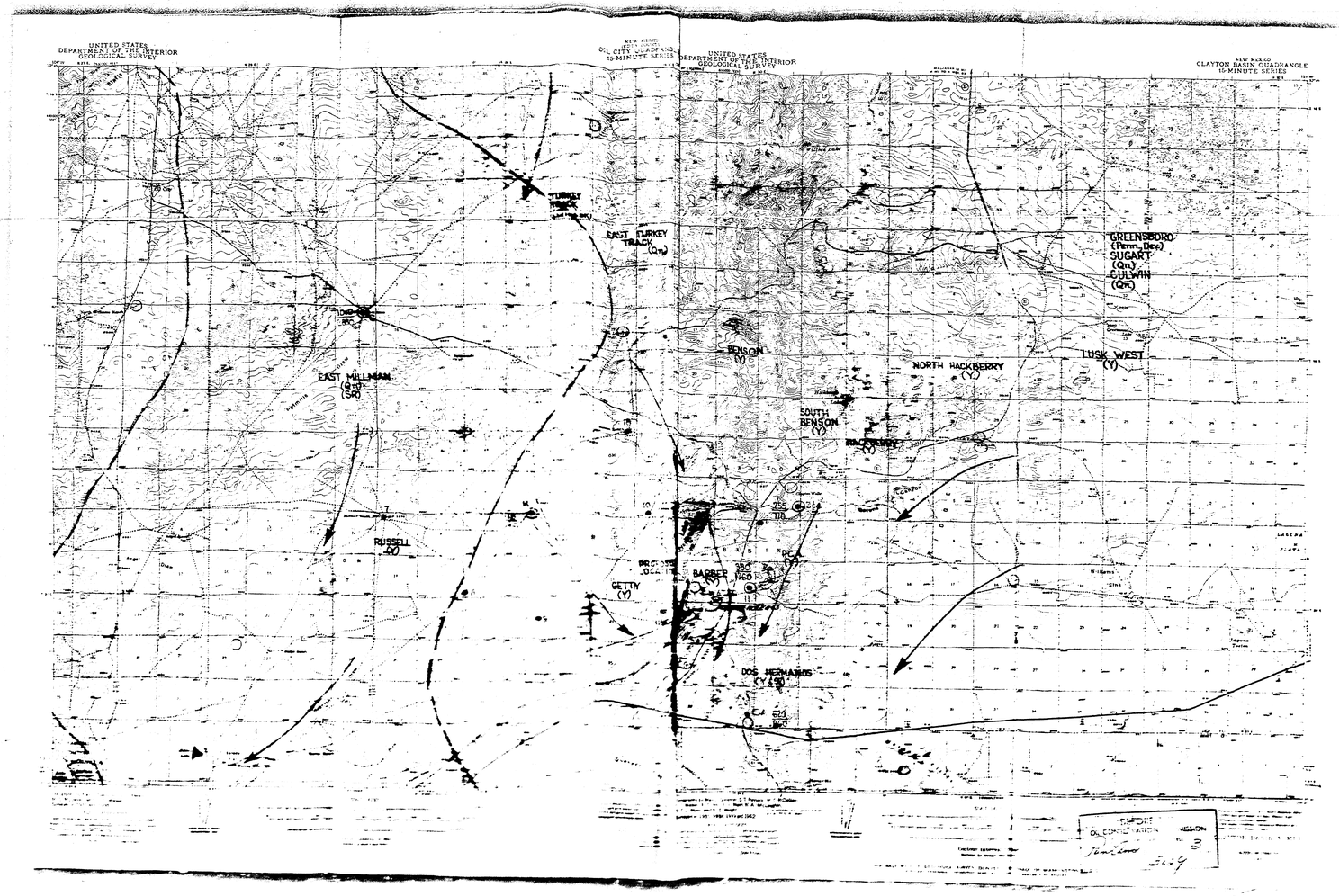




PRE~PERMIAN PRODUCTION
Northeastern Eddy Co. New Mexico

Water Damaged Documents

Case No. 3029



Water Damaged Documents

Case No. 3029

THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a series of standard topographic maps to cover the United States. This work has been in progress since 1882, and the published maps cover more than 17 percent of the country, exclusive of outlying possessions.

The maps are published on sheets about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles, bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for each map being that which is best adapted to general use in the development of the country, and consequently, though the standard maps are of nearly uniform size, the areas that they represent are of different sizes. On the lower margin of each map are printed graphic scales showing distances in feet, miles, and kilometers. In addition, the scale of the map is shown by a fraction expressing a fixed ratio between linear measurements on the map and corresponding distances on the ground. For example, the fraction $\frac{1}{62500}$ means that 1 unit on the map, such as 1 inch, 1 foot, or 1 meter, represents 62,500 of the same units on the earth's surface.

Although some areas are surveyed and some maps are compiled and published on special scales for special purposes, the standard topographic surveys and the resulting maps have for many years been of three types, differentiated as follows:

1. Surveys of areas in which there are problems of great public importance—relating, for example, to mineral development, irrigation, or reclamation of swamp areas—are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{31680}$, or 1 inch = nearly 1 mile, with a contour interval of 10 to 100 feet.

2. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, and the high mountain areas of the northwest, are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{62500}$, or 1 inch = nearly 1 mile, with a contour interval of 20 to 200 feet.

3. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, and the high mountain areas of the northwest, are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{125000}$, or 1 inch = nearly 2 miles, with a contour interval of 50 to 250 feet.

Barrier reefs cannot be seen living and in mapping. From the information revealed on the photographic, planimetric maps, which show only drainage and culture, have been made for some areas in the United States. By the use of stereoscopic plotting apparatus, aerial photographs are utilized also in the making of the regular topographic maps, which show relief as well as drainage and culture.

A topographic survey of Alaska has been in progress since 1898, and nearly 11 percent of it has now been mapped. About 15 percent of the Territory has been covered by reconnaissance surveys, and much valuable information has been published in the form of progress maps on the scale of 1 inch = nearly 8 miles. For most of the remainder of the area surveyed the maps published are on a scale of 1 inch = nearly 4 miles. For some areas of particularly great importance, covering about 1,500 square miles, there are published maps on a scale of 1 inch = nearly 2 miles. In addition to the areas covered by topographic maps, about 11,300 square miles of mountainous Alaska has been covered by planimetric maps on scales of $\frac{1}{125000}$ and $\frac{1}{250000}$.

The Hawaiian Islands have been surveyed, and the resulting maps are published on a scale of 1

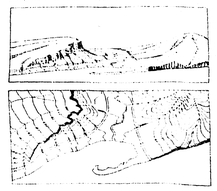
A survey of Porto Rico [illegible] the published maps is—

The forms shown on these maps [illegible] three groups. All water bodies, [illegible] swamps, and other features of [illegible] mountains, hills, valleys, and [illegible] (3) culture works, as roads, railroads, and boundaries. The [illegible] Governments are shown, and all [illegible] some earlier maps, and [illegible] some special map.

All the relief features in [illegible] mountains and hills by [illegible] by double lines. The lines [illegible] are formed by blue water lines [illegible] streams—those which hold water [illegible] are shown in blue of the same [illegible]

Relief is shown by contour lines [illegible] which on a few maps are supplemented by [illegible] shown from the northwest [illegible] purpose of giving the appearance [illegible] and thus aiding in the interpretation of the contour lines. [illegible] contour line represents an imaginary line on the ground [illegible] contour map put out, of which is at the same altitude above the [illegible] lated. Such a line could be shown at any altitude, but [illegible] portion only the contours at certain regular intervals of [illegible] are shown. The distance or interval of the contours [illegible] map is known as the contour interval. [illegible] map is given on the map. Thus, if the contour interval is 20 feet, every fifth contour line, or every one hundred feet of altitude, is [illegible] heavier than the others. Contour lines show the shape of the hills, mountains, and valleys, as well as their altitudes. Successive contour lines [illegible] are so close together on the map indicate a gentle slope; [illegible] are close together [illegible] a steep slope, and [illegible] together indicate a cliff.

The manner in which [illegible] and grade is shown in the figure below:



The block upon which the [illegible] hill. In the foreground is the [illegible] marked by a hooked end bar. Above is one of the valleys in a canyon into which small streams [illegible] flow. The hill on the right has a rounded summit and nearly flat

The scale of [illegible] ing space separated by various. The spurs are truncated at their lower ends by a sea cliff. The hill at the left terminates abruptly at the valley in a [illegible] scarp, from which it slopes gradually away and forms an inclined tableland that is traversed by a few shallow gullies. On the map each of these features is represented directly beneath it position in the [illegible] by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. The interval differs according to the topography of the country mapped. In a flat country it may be as small as 5 feet; in a mountainous region it may be as great as 250 feet. In order that the contours may be read more easily certain contour lines, every fourth or fifth, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road intersections, summit, surface of lakes, and benchmarks—are given on the map in figures, which show altitudes to the nearest foot only. More precise figures for the altitudes of benchmarks are given in the Geological Survey's bulletins on spirit leveling. The geographic coordinates of triangulation and transit traverse stations are also published in bulletins.

Lettering and the names of areas are shown in black. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by a combination of broken lines of different kinds and weights. Public land surveys for most of the western part of the area mapped are shown by solid double lines; post roads and private roads by dashed double lines; trails by dashed single lines. Additional public land subdivision if available is shown by red overprint.

Each quadrangle is designated by the name of a city, town, or prominent natural feature within it, and on the margin of the map are printed the names of adjoining quadrangles of which maps have been published. More than 2,000 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

Geologic maps of some of the areas shown on the topographic maps have been published in the form of folios. Each folio includes maps showing the topography, geology, underground structure, and mineral deposits of the area mapped, and several pages of descriptive text. The text explains the maps and describes the topographic and geologic features of the area and its mineral products. Two hundred twenty-six folios have been published.

Index maps of each State and of Alaska and Hawaii, showing the areas covered by topographic maps and geologic folios published by the United States Geological Survey, may be obtained free. Copies of the standard topographic maps may be obtained for 10 cents each; some special maps are sold at different prices. A discount of 40 percent is allowed on an order amounting to $5 or more at the retail price. The Survey's offices [illegible] orders can be sent; [illegible] of over $5 [illegible] a discount of 40 per cent, [illegible] to be sent [illegible] with geologic folios. The geologic folios are sold for 25 cents a copy, each the price depending on the size of the folio. Cash is required in remitting the folio will be sent as required.

Applications for maps or folios should be accompanied by cash, check, or money order and be sent [illegible] addressed to

THE DIRECTOR,
United States Geological Survey,
Washington, D. C.

November, 1907

STANDARD SIGNS

CULTURE

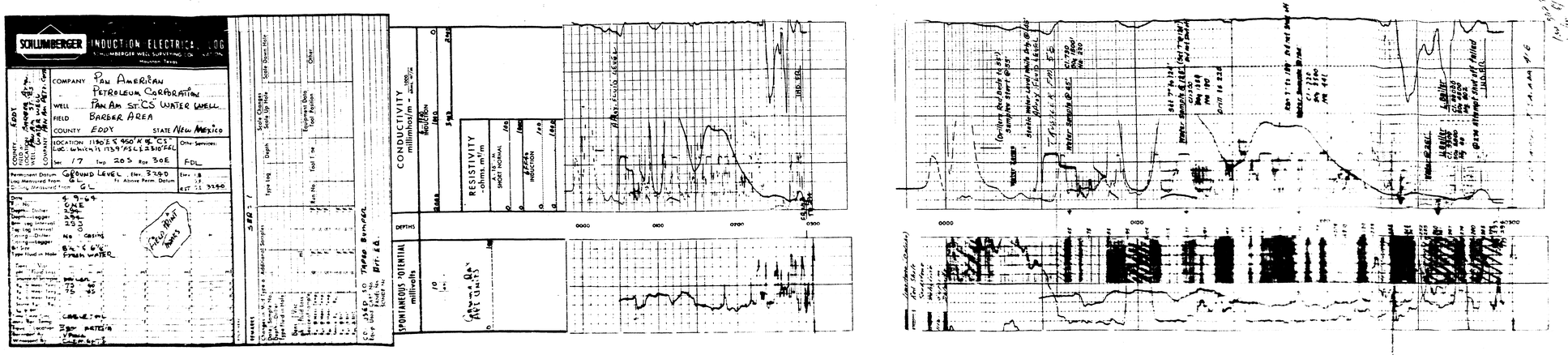
WATER

NOTE.—On and after January 1, 1908, the price of standard topographic quadrangle maps will be 5 cents each, with a discount of 25 percent to dealers, amounting to $3.75 a hundred for retail sale.

Water Damaged Documents Case No. 3029

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Documents

Case No.
3029



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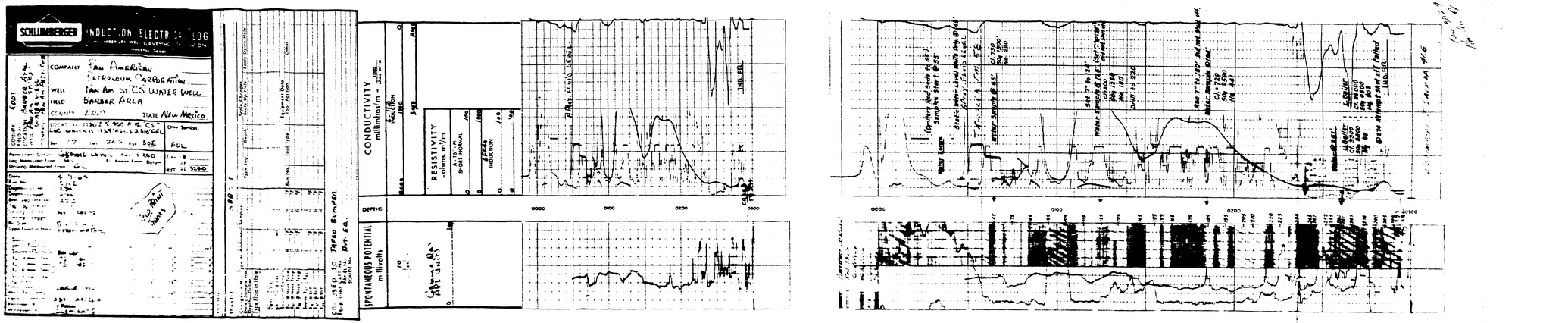


EXHIBIT 3

Calculated Profit on Ore in Place Based on Statements in Annual Report of Potash Company of America

	1963		3-Year Average (1961 through 1963)	
Net Sales		$20,897,387		$20,419,558
Costs				
Cost of Sales	$12,392,150		$12,152,840	
Depreciation	910,868		817,078	
Selling, Administrative and General Expense	1,604,205	14,907,223*	1,601,060	14,570,978*
Profit from Operations before Taxes		$ 5,990,164		$ 5,848,580
Tax Estimate (Federal and State)		1,902,476		1,896,110
Net Profit after Taxes		$ 4,087,688		$ 3,952,470
Tons of Ore at Capacity		2,750,000		2,750,000
Indicated Profit per Ton of Ore		$ 1.49		$ 1.44

Use $1.45 per ton of Ore

(*) Exclusive of exploration and research, and depletion.

Estimated Value of Ore Denied in Well Pillar

	Tons		Tons Ore Denied
Total Ore in Solid Pillar (100 ft radius)	8,050		
Less:			
1. Already denied by well - (none assumed due to uncertain location)	-		
2. Unrecoverable (15%)	1,210		6,840
Total Ore in Room and Pillar Outer Circle (maximum 300 ft radius less inner solid pillar)	64,400		
Less:			
1. Unrecoverable (15%)	9,660		
2. Recoverable (60%)	38,640	48,300	16,100
TOTAL			22,940

Note: 22,940 tons of ore is equivalent to less than 3 days mining.

Value of Ore in Place

22,940 tons @ $1.45 = $33,263

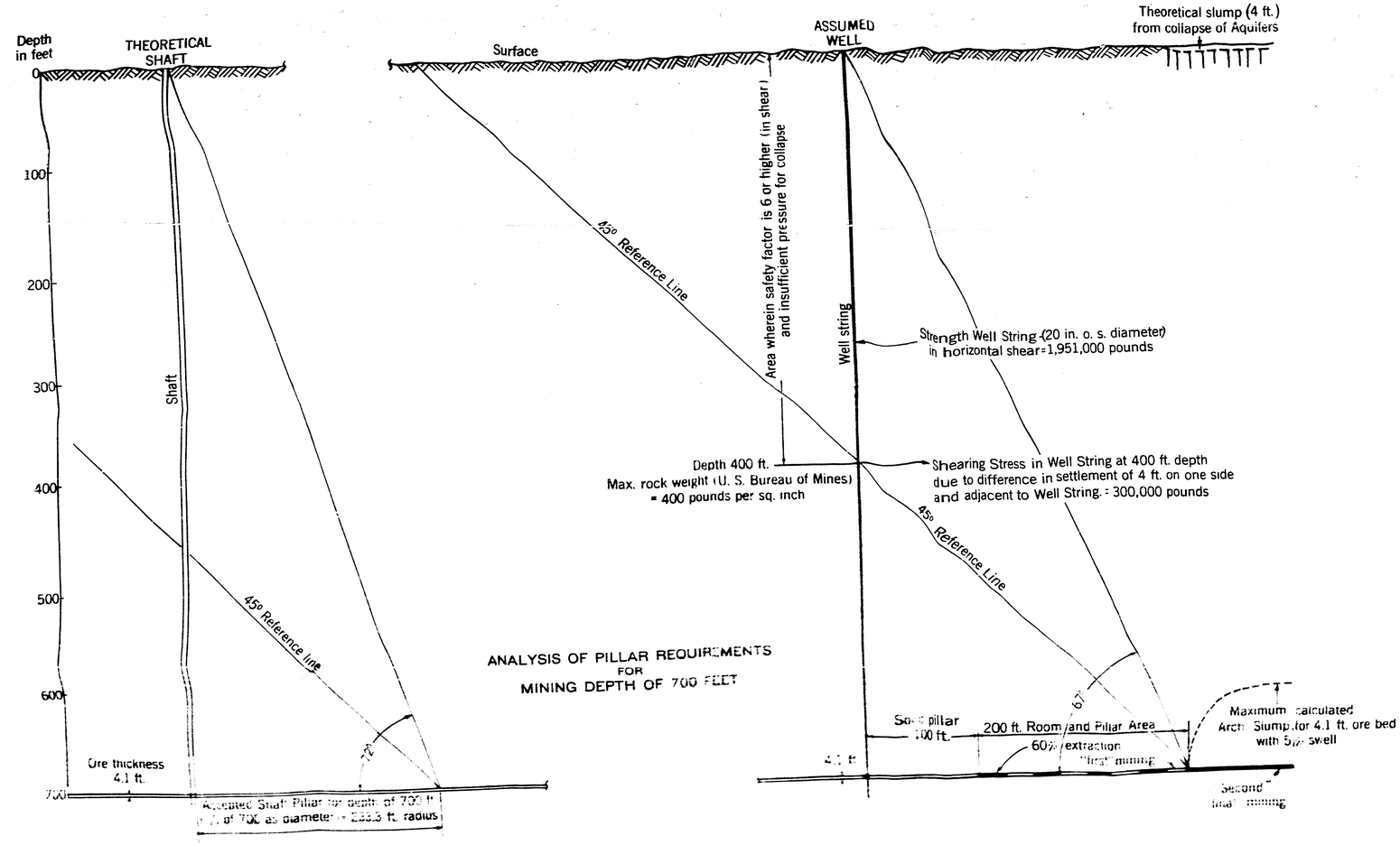
Discounted 8 years @ 10% interest compounded (factor .46651) = $15,520

Water Damaged Documents

Case No. 3029

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Exhibit No. 15
Case No.

EXHIBIT NO. 2



ANALYSIS OF PILLAR REQUIREMENTS
FOR
MINING DEPTH OF 700 FEET

Water Damaged Documents
Case No. 3029

Pre~Permian Pays
Northeastern Eddy Co. New Mexico

Stratigraphic Column | Pay Zones

Permian
- Leonard
- Wolfcamp

Pennsylvanian
- Strawn
- Atoka
- Morrow

Mississippian
- Barnett

Devonian

EMPIRE
GRAYBURG
PENN
MALJAMAR (STR-DEV)
LEAMEX (L. WOLF.)
SANMAL (U. CISCO)
Eddy County
Lea County

PRE~PERMIAN PRODUCTION
Northeastern Eddy Co. New Mexico

Water Damaged Documents
Case No. 3029