Case No. 15654

DE NOVO APPLICATION OF MESQUITE SWD, INC.

Hearing Notebook

November 2, 2017

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STATE OF NEW MEXICO
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES
OIL CONSERVATION DIVISION

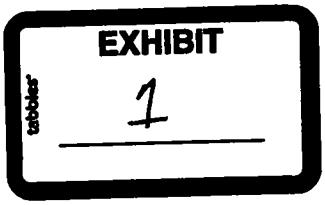
APPLICATION OF MESQUITE SWD, INC.
TO AMEND APPROVALS FOR
SALT WATER DISPOSAL WELLS IN
LEA AND EDDY COUNTIES.

APPLICATION

Mesquite SWD, Inc. ("Mesquite"), OGRID No. 161968, through its undersigned attorneys, hereby makes this application to the Oil Conservation Division pursuant to the provisions of N.M. Stat. Ann. § 70-2-12, for an order amending the size of tubing approved by the Division for certain Salt Water Disposal Wells approved by the Division to be drilled in Lea and Eddy Counties. All of the relevant Salt Water Disposal Wells are scheduled to be drilled, as approved by the Division, for injection into the Devonian Formation. In support of this application, Mesquite states as follows:

1. Mesquite is the operator of the below-listed Salt Water Disposal Wells and has received approval from the Division to drill these wells. The wells and related administrative orders are as follows:

NMOCD Order Number	Order Date	Well Name	Legal Description
SWD-1667	2/23/2017	San Dunes SWD #2	Unit K, Sec. 8, T24S-R31E, Eddy County, N.M.
SWD-1642	8/5/2016	Scott B SWD #1	Unit N, Sec. 23, T24S-R28E, Eddy County, N.M.
SWD-1638	7/26/2016	VL SWD #1	Unit I, Sec. 14, T24S-R28E, Eddy County, N.M.
SWD-1558	6/26/2015	Station SWD #1	Unit F, Sec. 7, T24S-R32E, Lea County, N.M.
SWD-1636	7/15/2016	Cypress SWD #1	Unit L, Sec. 34, T23S, R29E, Eddy County, N.M.



SWD-1610	1/13/2016	Gnome East SWD #1	Unit D, Sec. 35, T23S, R30E, Eddy County, N.M.
SWD-1602	12/1/2015	Uber East SWD #1	Unit I, Sec. 24, T23S, R31E, Eddy County, N.M.
SWD-1600	11/20/2015	Uber North SWD #1	Unit B, Sec. 15, T23S, R31E, Eddy County, N.M.

2. All of the above-listed wells are scheduled to be drilled into the Devonian Formation at the locations specified in the above-listed orders issued by the Division.

3. The orders issued by the Division approving the drilling of each well states that injection will occur through 4 1/2 inch or smaller tubing.

4. Mesquite seeks an amendment to each of these orders, allowing it to use 5 1/2 inch tubing. The tubing will be placed inside cemented casing.

5. The granting of this application will prevent waste and protect correlative rights.

WHEREFORE, Mesquite requests that this application be set for hearing before an Examiner of the Oil Conservation Division on March 30, 2017; and that after notice and hearing, the Division enter its order approving this application.

Respectfully submitted,

MODRALL, SPERLING, ROEHL, HARRIS
& SISK, P.A.

By: _____

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Attorneys for Applicant

CASE NO. _____: Application of Mesquite SWD, Inc. to Amend Approvals for Salt Water Disposal Wells in Lea and Eddy Counties. Applicant seeks an order from the Division: Amending Order Numbers SWD-1667 for the San Dunes SWD #2 well, SWD-1642 for the Scott B SWD #1 well, SWD-1638 for the VL SWD #1 well, SWD-1558 for the Station SWD #1 well, SWD-1636 for the Cypress SWD #1 well, SWD-1610 for the Gnome East SWD #1 well, SWD-1602 for the Uber East SWD #1 well, and SWD-1600 for the Uber North SWD #1 well, to allow for injection to occur through internally-coated, 5 ½ inch or smaller tubing. The orders issued by the Division currently only allow for tubing to be used if its 4 ½ inches or smaller. The Station SWD #1 well is located approximately 31.7 miles Northwest of Jal, New Mexico. The San Dunes SWD #2, Scott B SWD #1, and Scott B SWD #1 are located within 17 miles of Malaga, New Mexico. The Cypress SWD #1, Gnome East SWD #1, Uber East SWD #1, and Uber North SWD #1 are located approximately 21 - 37 miles southeast of Carlsbad, New Mexico.

Chevron USA
Attn: Permitting Team
6301 Deauville Blvd.
Midland, TX 79706

Oxy Oil Gas Corporation
5 Greenway Plz. Suite 110
Houston, TX 77046

Devon Energy Corp.
333 W. Sheridan Ave.
Oklahoma City, OK 73102

Bureau of Land Management
620 E. Greene Street
Carlsbad, NM 88220

Valley Land, LLC
P.O. Box 597
Loving, NM 88256

Black Mountain Exploration
500 Main St, Suite 1200
Fort Worth, TX 76102

OXY USA, Inc.
P.O. Box 4294
Houston, TX 77210

Yates Petroleum Corp, et al
105 S. 4th St.
Artesia, NM 88201

EOG Resources, Inc.
P.O. Box 2267
Midland, TX 79702

Trustees of the Conquistador Council, Boy Scouts of America, Trust Fund
2603 N. Aspen Ave.
Roswell, NM 88201

Matador Production Company
One Lincoln Centre
5400 LBJ Freeway, Ste. 1500
Dallas, TX 75240

Mark McCloy
P.O. Box 1076
Jal, NM 88252

COG Operating, LLC
One Concho Center
600 W. Illinois Ave.
Midland, TX 79701

ABO Petroleum Corp.
P.O. Box 900
Artesia, NM 88211

Myco Industries, Inc.
P.O. Box 840
Artesia, NM 88211

Exxon Mobil Oil Corporation
P.O. Box 4358
Houston, TX 77210-4358

Aquila Energy Resources
10370 Richmond Ave. Ste. 510
Houston, TX 77042-2551

Collins & Ware
503 West Wall St., Suite 1200
Midland, TX 79701-5076

Concho Oil & Gas, LLC
One Concho Center
600 West Illinois Avenue
Midland, TX 79701-4882

Conoco Phillips Co.
3401 E. 30th Street
Farmington, NM 87402

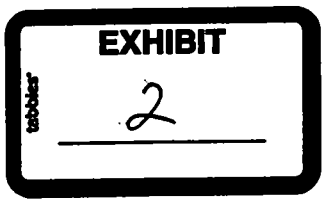
Khody Land & Minerals Company
210 Park Ave., Ste. 900
Oklahoma City, OK 73102-5643

PXP Production Co., LLC
700 Milam Street, Suite 3100
Houston, TX 77002-2764

Marathon Oil Corporation
5555 San Felipe Street
Houston, TX 77056-2799

Mobil Producing Texas & New Mexico
12450 Greenspoint Drive
Houston, TX 77060-1905

XTO Energy, Inc.
9193 S. Jamaica St.
P.O. Box 6501
Englewood, CO 80155



Administrative Order SWD-1667
February 23, 2017

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Pursuant to the provisions of Division Rule 19.15.26.8B. NMAC, Mesquite SWD, Inc. (the "operator") seeks an administrative order for its Sand Dunes SWD Well No. 2 ("proposed well") with a location of 2600 feet from the South line and 2500 from the West line, Unit K of Section 8, Township 24 South, Range 31 East, NMPM, Eddy County, New Mexico, for the purpose of commercial disposal of produced water.

THE DIVISION DIRECTOR FINDS THAT:

The application has been duly filed under the provisions of Division Rule 19.15.26.8B. NMAC and satisfactory information has been provided that affected parties as defined in said rule have been notified and no objections have been received within the prescribed waiting period. The applicant has presented satisfactory evidence that all requirements prescribed in Rule 19.15.26.8 NMAC have been met and the operator is in compliance with Rule 19.15.5.9 NMAC.

IT IS THEREFORE ORDERED THAT:

The applicant, Mesquite SWD, Inc. (OGRID 161968), is hereby authorized to utilize its Sand Dunes SWD Well No. 2 (API 30-015-pending) with a location of 2600 feet from the South line and 2500 from the West line, Unit K of Section 8, Township 24 South, Range 31 East, NMPM, Eddy County, for disposal of oil field produced water (UIC Class II only) through an open hole interval consisting of the Devonian and Silurian formations from 16620 feet to approximately 18010 feet.

Injection will occur through internally-coated, **4-1/2-inch or smaller tubing** and a packer set within 100 feet of the top of the open-hole interval.

This permit does not allow disposal into the Ellenburger formation (lower Ordovician) or lost circulation intervals directly on top and obviously connected to this formation. The operator shall provide logs and a mudlog over the proposed interval which verify that only the permitted interval is completed for disposal.

Prior to commencing disposal, the operator shall submit mudlog and geophysical logs information, to the Division's District geologist and Santa Fe Bureau Engineering office, showing evidence agreeable that only the permitted formation is open for disposal including a summary of

depths (picks) for contacts of the formations which the Division shall use to amend this order for a final description of the depth for the injection interval.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the disposed water enters only the approved disposal interval and is not permitted to escape to other formations or onto the surface. This includes the completion and construction of the well as proposed in the application and, if necessary, as modified by the District Supervisor.

The operator shall circulate the cement behind the casing to surface for all surface and intermediate casings.

The operator shall run a CBL (or equivalent) across the 7-5/8-inch liner from approximately 16620 feet to 11000 feet to demonstrate a good cement across the liner and good cement bond across the 9-5/8-inch casing.

The operator shall supply the Division with a copy of a mudlog over the permitted disposal interval and an estimated insitu water salinity based on open-hole logs. If significant hydrocarbon shows occur while drilling, the operator shall notify the Division's District II and the operator shall be required to receive written permission prior to commencing disposal.

Operator shall submit the results of the swab test which shall include formation water analysis and hydrocarbon potential of the injection interval to the Division's District geologist and Santa Fe Bureau Engineering office prior to commencing injection.

Within two years after commencing disposal, the operator shall conduct an injection survey, consisting of a temperature log or equivalent, over the entire injection interval using representative disposal rates. Copies of the survey results shall be provided to the Division's District I office and Santa Fe Engineering Bureau office.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT procedures and schedules shall follow the requirements in Division Rule 19.15.26.11A. NMAC. The Division Director retains the right to require at any time wireline verification of completion and packer setting depths in this well.

The wellhead injection pressure on the well shall be limited to **no more than 3324 psi,** but may be modified by the Division Director following the completion of the initial Step-Rate Test. In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum

allowable pressure for this well.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formations. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

The operator shall notify the supervisor of the Division's District II office of the date and time of the installation of disposal equipment and of any MIT so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District II office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.24 NMAC.

The injection authority granted under this order is not transferable except upon Division approval. The Division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

The Division may revoke this injection order after notice and hearing if the operator is in violation of Rule 19.15.5.9 NMAC.

The disposal authority granted herein shall terminate two (2) years after the effective date of this Order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto.* The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Compliance with this Order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

David R. Catanach

DAVID R. CATANACH
Director

DRC/mam

cc: Oil Conservation Division – Artesia District Office
Bureau of Land Management – Carlsbad
Administrative Application – pMAM1704452217

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

Tony Delfin
Acting Cabinet Secretary

David R. Catanach, Division Director
Oil Conservation Division

Administrative Order SWD-1642
August 5, 2016

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Pursuant to the provisions of Division Rule 19.15.26.8B. NMAC, Mesquite SWD, Inc. (the "operator") seeks an administrative order for its proposed Scott B SWD Well No. 1 with a location 250 feet from the South Line and 2166 feet from the West line, Unit N of Section 23, Township 24 South, Range 28 East, NMPM, Eddy County, New Mexico, for commercial disposal of produced water.

THE DIVISION DIRECTOR FINDS THAT:

The application has been duly filed under the provisions of Division Rule 19.15.26.8B. NMAC and satisfactory information has been provided that affected parties as defined in said rule have been notified and no objections have been received within the prescribed waiting period. The applicant has presented satisfactory evidence that all requirements prescribed in Division Rule 19.15.26.8 NMAC have been met and the operator is in compliance with Division Rule 19.15.5.9 NMAC.

IT IS THEREFORE ORDERED THAT:

Mesquite SWD, Inc. (OGRID 161968), is hereby authorized to utilize its Scott B SWD Well No. 1 (API 30-015-pending) with a location 250 feet from the South Line and 2166 feet from the West line, Unit N of Section 23, Township 24 South, Range 28 East, NMPM, Eddy County, for disposal of oil field produced water (UIC Class II only) through an open-hole interval within the Devonian and Silurian formations from 15000 feet to 16200 feet. Injection will occur through internally-coated, **4½-inch** or smaller tubing and a packer set within 100 feet of the uppermost perforation.

Prior to commencing disposal, the operator shall submit mudlog and geophysical logs information to the Division's District geologist and Santa Fe Bureau Engineering office, showing evidence agreeable that only the permitted formations are open for disposal including a summary of depths (picks) for contacts of the formations which the Division shall use to amend this order for a final description of the depth for the injection interval.

This permit does not permit disposal into the Ellenburger formation (lower Ordovician) or lost circulation intervals directly on top and obviously connected to this formation.

The operator shall supply the Division with a copy of a mudlog over the permitted disposal

interval and an estimated insitu water salinity based on open-hole logs. If significant hydrocarbon shows occur while drilling, the operator shall notify the Division's District II office and the operator shall be required to receive written permission prior to commencing disposal.

Operator shall submit the results of the swab test which shall include formation water analysis and hydrocarbon potential of the injection interval to the Division's District geologist and Santa Fe Bureau Engineering office prior to commencing injection.

The operator shall circulate all surface and intermediate casings to the surface.

The operator shall run a CBL (or equivalent) across the 7-inch liner from approximately 15000 feet to 11000 feet to demonstrate a good cement across the 7-inch liner, and good bond between the liner and the 9-5/8-inch casing.

Within one year after commencing disposal, the operator shall submit to the Division copies of an injection survey run on this well consisting of a temperature log, or equivalent, run under representative disposal rates.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the disposed water enters only the approved disposal interval and is not permitted to escape to other formations or onto the surface. This includes the well construction proposed and described in the application.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT procedures and schedules shall follow the requirements in Division Rule 19.15.26.11A. NMAC. The Division Director retains the right to require at any time wireline verification of completion and packer setting depths in this well.

The wellhead injection pressure on the well shall be limited to **no more than 3000 psi.** In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formation. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

The operator shall notify the supervisor of the Division's District II office of the date and

time of the installation of disposal equipment and of any MIT so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.24 NMAC.

Without limitation on the duties of the operator as provided in Division Rules 19.15.29 and 19.15.30 NMAC, or otherwise, the operator shall immediately notify the Division's District II office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

The injection authority granted under this order is not transferable except upon division approval. The Division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

The Division may revoke this injection permit after notice and hearing if the operator is in violation of 19.15.5.9 NMAC.

The disposal authority granted herein shall terminate two (2) years after the effective date of this order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Compliance with this order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

David R. Catanach

DAVID R. CATANACH
Director

DRC/mam

cc: Oil Conservation Division – Artesia District Office
Administrative Application No. - pMAM1620059225

State of New Mexico
Energy, Minerals and Natural Resources Department

Administrative Order SWD-1638
July 26, 2016

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Pursuant to the provisions of Division Rule 19.15.26.8B. NMAC, Mesquite SWD, Inc. (the "operator") seeks an administrative order for its proposed VL SWD Well No. 1 with a location 2142 feet from the South Line and 249 feet from the East line, Unit I of Section 14, Township 24 South, Range 28 East, NMPM, Eddy County, New Mexico, for commercial disposal of produced water.

THE DIVISION DIRECTOR FINDS THAT:

The application has been duly filed under the provisions of Division Rule 19.15.26.8B. NMAC and satisfactory information has been provided that affected parties as defined in said rule have been notified and no objections have been received within the prescribed waiting period. The applicant has presented satisfactory evidence that all requirements prescribed in Division Rule 19.15.26.8 NMAC have been met and the operator is in compliance with Division Rule 19.15.5.9 NMAC.

IT IS THEREFORE ORDERED THAT:

Mesquite SWD, Inc. (OGRID 161968), is hereby authorized to utilize its VL SWD Well No. 1 (API 30-015-pending) with a location of 2142 feet from the South Line and 249 feet from the East line, Unit I of Section 14, Township 24 South, Range 28 East, NMPM, Eddy County, for disposal of oil field produced water (UIC Class II only) through an open-hole interval within the Devonian and Silurian formations from 15100 feet to 16300 feet. Injection will occur through internally-coated, **4½-inch** or smaller tubing and a packer set within 100 feet of the uppermost perforation.

Prior to commencing disposal, the operator shall submit mudlog and geophysical logs information to the Division's District geologist and Santa Fe Bureau Engineering office, showing evidence agreeable that only the permitted formations are open for disposal including a summary of depths (picks) for contacts of the formations which the Division shall use to amend this order for a final description of the depth for the injection interval.

This permit does not permit disposal into the Ellenburger formation (lower Ordovician) or lost circulation intervals directly on top and obviously connected to this formation.

The operator shall supply the Division with a copy of a mudlog over the permitted disposal

interval and an estimated insitu water salinity based on open-hole logs. If significant hydrocarbon shows occur while drilling, the operator shall notify the Division's District II office and the operator shall be required to receive written permission prior to commencing disposal.

The operator shall circulate all surface and intermediate casings to the surface.

The operator shall run a CBL (or equivalent) across the 7-5/8-inch liner from approximately 15100 feet to 11000 feet to demonstrate a good cement across the 7-5/8-inch liner, and good bond between the liner and the 9-5/8-inch casing.

Within one year after commencing disposal, the operator shall submit to the Division copies of an injection survey run on this well consisting of a temperature log, or equivalent, run under representative disposal rates.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the disposed water enters only the approved disposal interval and is not permitted to escape to other formations or onto the surface. This includes the well construction proposed and described in the application.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT procedures and schedules shall follow the requirements in Division Rule 19.15.26.11A. NMAC. The Division Director retains the right to require at any time wireline verification of completion and packer setting depths in this well.

The wellhead injection pressure on the well shall be limited to **no more than 3020 psi.** In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formation. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

The operator shall notify the supervisor of the Division's District II office of the date and time of the installation of disposal equipment and of any MIT so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.24

NMAC.

Without limitation on the duties of the operator as provided in Division Rules 19.15.29 and 19.15.30 NMAC, or otherwise, the operator shall immediately notify the Division's District II office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

The injection authority granted under this order is not transferable except upon division approval. The Division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

The Division may revoke this injection permit after notice and hearing if the operator is in violation of 19.15.5.9 NMAC.

The disposal authority granted herein shall terminate two (2) years after the effective date of this order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Compliance with this order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

David R. Catanach

DAVID R. CATANACH
Director

DRC/mam

cc: Oil Conservation Division – Artesia District Office
Administrative Application No. - pMAM1619329820

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

David R. Catanach, Division Director
Oil Conservation Division

Administrative Order SWD-1558
June 26, 2015

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Pursuant to the provisions of Division Rule 19.15.26.8B. NMAC, Mesquite SWD, Inc. (the "operator") seeks an administrative order for its proposed Station SWD Well No. 1 with a proposed location 2625 feet from the North line and 2315 feet from the West line, Unit letter F of Section 7, Township 24 South, Range 32 East, NMPM, Lea County, New Mexico, for commercial disposal of produced water.

THE DIVISION DIRECTOR FINDS THAT:

The application has been duly filed under the provisions of Division Rule 19.15.26.8B. NMAC and satisfactory information has been provided that affected parties as defined in said rule have been notified and no objection was received within the required suspense period. The applicant has presented satisfactory evidence that all requirements prescribed in Rule 19.15.26.8 NMAC have been met and the operator is in compliance with Rule 19.15.5.9 NMAC.

IT IS THEREFORE ORDERED THAT:

The applicant, Mesquite SWD, Inc. (OGRID 161968) is hereby authorized to utilize its proposed Station SWD Well No. 1 (API No. 30-025-Pending) with a proposed location 2625 feet from the North line and 2315 feet from the West line, Unit letter F of Section 7, Township 24 South, Range 32 East, NMPM, Lea County, New Mexico, for commercial disposal of oil field produced water (UIC Class II only) through an open-hole interval within the Silurian and Devonian formations from approximately 16470 feet to approximately 17975 feet. Injection shall occur through internally-coated tubing and a packer set a maximum of 100 feet above the top of the open-hole interval.

Prior to commencing disposal, the operator shall submit mudlog and geophysical logs information, to the Division's District geologist and Santa Fe Bureau Engineering office, showing evidence agreeable that only the permitted formations are open for disposal including a summary of depths (picks) for contacts of the formations which the Division shall use to amend this order for a final description of the depth for the injection interval.

The operator shall run a CBL (or equivalent) from the bottom of the 7-5/8-inch liner through the 9-5/8 intermediate casing to the surface. This will ensure good cement across the 7-5/8-inch liner through the 9-5/8 intermediate casing. Further, this will ensure that the 9-5/8 intermediate casing has a good cement through the portions that contain the DV tools. The

operator shall provide a copy of the log(s) to Division's District I office prior to commencing injection.

Within one year after commencing disposal, the operator shall submit to the Division copies of an injection survey run on this well consisting of a temperature log, or equivalent, run under representative disposal rates.

Failure to comply with any of the requirements detailed above shall result ipso-facto in the loss of injection authority approved by this order.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the disposed water enters only the approved disposal interval and is not permitted to escape to other formations or onto the surface. This includes the well construction proposed in the application and any required modifications of construction as required by the Bureau of Land Management.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT procedures and schedules shall follow the requirements in Division Rule 19.15.26.11A. NMAC. The Division Director retains the right to require at any time wireline verification of completion and packer setting depths in this well.

The wellhead injection pressure on the well shall be limited to **no more than 3294 psi.** In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well. The operator shall install and maintain a chart recorder showing casing and tubing pressures during disposal operations.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formation. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

The operator shall notify the supervisor of the Division's District I office of the date and time of the installation of disposal equipment and of any MIT so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District I office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.24 NMAC.

Without limitation on the duties of the operator as provided in Division Rules 19.15.29 and 19.15.30 NMAC, or otherwise, the operator shall immediately notify the Division's District office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

The injection authority granted under this order is not transferable except upon Division approval. The Division may require the operator to demonstrate mechanical integrity of any disposal well that will be transferred prior to approving transfer of authority to inject.

The Division may revoke this injection permit after notice and hearing if the operator is in violation of Rule 19.15.5.9 NMAC.

The disposal authority granted herein shall terminate two (2) years after the effective date of this order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Compliance with this order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

Jami Bailey for
DAVID R. CATANACH
Director

DRC/mam

cc: Oil Conservation Division – Hobbs District Office
Bureau of Land Management – Carlsbad Field Office
Administrative Application pMAM1505850332

State of New Mexico
Energy, Minerals and Natural Resources Department

Administrative Order SWD-1636
July 15, 2016

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Pursuant to the provisions of Division Rule 19.15.26.8B. NMAC, R360 Permian Basin, LLC (the "operator") seeks an administrative order for its proposed Cypress SWD Well No. 1 with a proposed location 1590 feet from the South Line and 165 feet from the West line, Unit L of Section 34, Township 23 South, Range 29 East, NMPM, Eddy County, New Mexico, for commercial disposal of produced water.

THE DIVISION DIRECTOR FINDS THAT:

The application has been duly filed under the provisions of Division Rule 19.15.26.8B. NMAC and satisfactory information has been provided that affected parties as defined in said rule have been notified and no objections have been received within the prescribed waiting period. The applicant has presented satisfactory evidence that all requirements prescribed in Division Rule 19.15.26.8 NMAC have been met and the operator is in compliance with Division Rule 19.15.5.9 NMAC.

IT IS THEREFORE ORDERED THAT:

R360 Permian Basin, LLC (OGRID 289936), is hereby authorized to utilize its Cypress SWD Well No. 1 (API 30-015-pending) with a proposed location of 1590 feet from the South Line and 165 feet from the West line, Unit L of Section 34, Township 23 South, Range 29 East, NMPM, Eddy County, for disposal of oil field produced water (UIC Class II only) through an open-hole interval within the Devonian formation from 14780 feet to 15780 feet. Injection will occur through internally-coated, **4½-inch** or smaller tubing and a packer set within 100 feet of the uppermost perforation.

Prior to commencing disposal, the operator shall submit mudlog and geophysical logs information to the Division's District geologist and Santa Fe Bureau Engineering office, showing evidence agreeable that only the permitted formations are open for disposal including a summary of depths (picks) for contacts of the formations which the Division shall use to amend this order for a final description of the depth for the injection interval.

This permit does not permit disposal into the Ellenburger formation (lower Ordovician) or lost circulation intervals directly on top and obviously connected to this formation.

The operator shall supply the Division with a copy of a mudlog over the permitted disposal

interval and an estimated insitu water salinity based on open-hole logs. If significant hydrocarbon shows occur while drilling, the operator shall notify the Division's District II office and the operator shall be required to receive written permission prior to commencing disposal.

The operator shall circulate all surface, intermediate, and production casings to surface.

The operator shall run a CBL (or equivalent) across the 7-inch casing through the 9-5/8-inch casing to surface to demonstrate a good cement bond between the two casings, and good cement across the entire casing.

Within one year after commencing disposal, the operator shall submit to the Division copies of an injection survey run on this well consisting of a temperature log, or equivalent, run under representative disposal rates.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the disposed water enters only the approved disposal interval and is not permitted to escape to other formations or onto the surface. This includes the well construction proposed and described in the application.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT procedures and schedules shall follow the requirements in Division Rule 19.15.26.11A. NMAC. The Division Director retains the right to require at any time wireline verification of completion and packer setting depths in this well.

The wellhead injection pressure on the well shall be limited to **no more than 2956 psi.** In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formation. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

The operator shall notify the supervisor of the Division's District II office of the date and time of the installation of disposal equipment and of any MIT so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.24

NMAC.

Without limitation on the duties of the operator as provided in Division Rules 19.15.29 and 19.15.30 NMAC, or otherwise, the operator shall immediately notify the Division's District II office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

The injection authority granted under this order is not transferable except upon division approval. The Division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

The Division may revoke this injection permit after notice and hearing if the operator is in violation of 19.15.5.9 NMAC.

The disposal authority granted herein shall terminate two (2) years after the effective date of this order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Compliance with this order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

David R. Catanach

DAVID R. CATANACH
Director

DRC/mam

cc: Oil Conservation Division – Artesia District Office
Bureau of Land Management - Carlsbad
Administrative application – pMAM1616160351

State of New Mexico
Energy, Minerals and Natural Resources Department

Administrative Order SWD-1610
January 13, 2016

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Pursuant to the provisions of Division Rule 19.15.26.8B. NMAC, R360 Permian Basin, LLC (the "operator") seeks an administrative order to authorize the Gnome East SWD Well No. 1 located 220 feet from the North line and 305 feet from the West line, Unit D of Section 35, Township 23 South, Range 30 East, NMPM, Eddy County, New Mexico, for the commercial disposal of produced water.

THE DIVISION DIRECTOR FINDS THAT:

The application has been duly filed under the provisions of Division Rules 19.15.26.8B. NMAC and satisfactory information has been provided that affected parties as defined in said rule have been notified and no objection was received within the required suspense period. The applicant has presented satisfactory evidence that all requirements prescribed in Rule 19.15.26.8 NMAC have been met and the operator is in compliance with Rule 19.15.5.9 NMAC.

IT IS THEREFORE ORDERED THAT:

The applicant, R360 Permian Basin, LLC (OGRID 289936), is hereby authorized to utilize its Gnome East SWD Well No. 1 (API 30-015-pending) located 220 feet from the North line and 305 feet from the West line, Unit D of Section 35, Township 23 South, Range 30 East, NMPM, Eddy County, for commercial disposal of oil field produced water (UIC Class II only) in the Devonian formation, through an open-hole interval from **15550 to 16550 feet**. Injection will occur through internally-coated, 4½-inch or smaller tubing and a packer set within 100 feet of the open-hole injection interval.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the disposed water enters only the approved disposal interval and is not permitted to escape to other formations or onto the surface. This includes the completion and construction of the well as proposed in the application, and as modified by this Order.

This permit is limited as advertised to only the Devonian aged rocks and to the depths listed above. It does not permit disposal into deeper formations including the Ellenburger formation (lower Ordovician) or lost circulation intervals directly on top and obviously connected to that formation.

Prior to commencing disposal, the operator shall submit mudlog and geophysical logs information, to the Division's District geologist and Santa Fe Bureau Engineering office, showing evidence agreeable that only the permitted formation is open for disposal including a summary of depths (picks) for contacts of the formations which the Division shall use to amend this order for a final description of the depth for the injection interval.

Every casing string shall be cemented and circulated to the surface.

The operator shall run a CBL (or equivalent) across the 7-inch casing to surface to ensure good cement across the casing.

Within two years after commencing disposal, the operator shall conduct an injection survey, consisting of a temperature log or equivalent, over the entire injection interval using representative disposal rates. Copies of the survey results shall be provided to the Division's District II office and Santa Fe Engineering Bureau office.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT procedures and schedules shall follow the requirements in Division Rule 19.15.26.11A. NMAC. The Division Director retains the right to require at any time wireline verification of completion and packer setting depths in this well.

The wellhead injection pressure on the well shall be limited to **no more than 3100 psi.** In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formation. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

The operator shall notify the supervisor of the Division's District II office of the date and time of the installation of disposal equipment and of any MIT so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.24 NMAC.

Without limitation on the duties of the operator as provided in Division Rules 19.15.29 and 19.15.30 NMAC, or otherwise, the operator shall immediately notify the Division's District II

office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

The injection authority granted under this order is not transferable except upon Division approval. The Division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

The Division may revoke this injection order after notice and hearing if the operator is in violation of Rule 19.15.5.9 NMAC.

The disposal authority granted herein shall terminate two (2) years after the effective date of this Order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Compliance with this Order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

David R. Catanach

DAVID R. CATANACH
Director

DRC/mam

cc: Oil Conservation Division – Artesia
Bureau of Land Management - Carlsbad
Application number - pMAM1536258742

State of New Mexico
Energy, Minerals and Natural Resources Department

Administrative Order SWD-1602
December 1, 2015

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Pursuant to the provisions of Division Rule 19.15.26.8B. NMAC, R360 Permian Basin, LLC (the "operator") seeks an administrative order to authorize the Uber East SWD Well No. 1 located 2345 feet from the South line and 660 feet from the East line, Unit I of Section 24, Township 23 South, Range 31 East, NMPM, Eddy County, New Mexico, for the commercial disposal of produced water.

THE DIVISION DIRECTOR FINDS THAT:

The application has been duly filed under the provisions of Division Rules 19.15.26.8B. NMAC and satisfactory information has been provided that affected parties as defined in said rule have been notified and no objection was received within the required suspense period. The applicant has presented satisfactory evidence that all requirements prescribed in Rule 19.15.26.8 NMAC have been met and the operator is in compliance with Rule 19.15.5.9 NMAC.

IT IS THEREFORE ORDERED THAT:

The applicant, R360 Permian Basin, LLC (OGRID 289936), is hereby authorized to utilize its Uber East SWD Well No. 1 (API 30-015-pending) located 2345 feet from the South line and 660 feet from the East line, Unit I of Section 24, Township 23 South, Range 31 East, NMPM, Eddy County, for commercial disposal of oil field produced water (UIC Class II only) in the Devonian formation, through an open-hole interval from **16390 to 17500 feet.** Injection will occur through internally-coated, 4½-inch or smaller tubing and a packer set within 100 feet of the open-hole injection interval.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the disposed water enters only the approved disposal interval and is not permitted to escape to other formations or onto the surface. This includes the completion and construction of the well as proposed in the application, and as modified by this Order.

This permit is limited as advertised to only the Devonian aged rocks and to the depths listed above. It does not permit disposal into deeper formations including the Ellenburger formation (lower Ordovician) or lost circulation intervals directly on top and obviously connected to that formation.

Prior to commencing disposal, the operator shall submit mudlog and geophysical logs information, to the Division's District geologist and Santa Fe Bureau Engineering office, showing evidence agreeable that only the permitted formation is open for disposal including a summary of depths (picks) for contacts of the formations which the Division shall use to amend this order for a final description of the depth for the injection interval.

Every casing string shall be cemented and circulated to the surface.

The operator shall run a CBL (or equivalent) across the 7-inch casing to surface to ensure good cement across the casing.

Within two years after commencing disposal, the operator shall conduct an injection survey, consisting of a temperature log or equivalent, over the entire injection interval using representative disposal rates. Copies of the survey results shall be provided to the Division's District II office and Santa Fe Engineering Bureau office.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT procedures and schedules shall follow the requirements in Division Rule 19.15.26.11A. NMAC. The Division Director retains the right to require at any time wireline verification of completion and packer setting depths in this well.

The wellhead injection pressure on the well shall be limited to **no more than 3278 psi.** In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formation. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

The operator shall notify the supervisor of the Division's District II office of the date and time of the installation of disposal equipment and of any MIT so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.24 NMAC.

Without limitation on the duties of the operator as provided in Division Rules 19.15.29 and 19.15.30 NMAC, or otherwise, the operator shall immediately notify the Division's District II

office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

The injection authority granted under this order is not transferable except upon Division approval. The Division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

The Division may revoke this injection order after notice and hearing if the operator is in violation of Rule 19.15.5.9 NMAC.

The disposal authority granted herein shall terminate two (2) years after the effective date of this Order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Compliance with this Order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

David R. Catanach

DAVID R. CATANACH
Director

DRC/mam

cc: Oil Conservation Division – Artesia
Bureau of Land Management - Carlsbad
Application number - pMAM1531035509

State of New Mexico
Energy, Minerals and Natural Resources Department

Administrative Order SWD-1600
November 20, 2015

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Pursuant to the provisions of Division Rule 19.15.26.8B. NMAC, R360 Permian Basin, LLC (the "operator") seeks an administrative order to authorize the Uber North SWD Well No. 1 located 516 feet from the North line and 2355 feet from the East line, Unit B of Section 15, Township 23 South, Range 31 East, NMPM, Eddy County, New Mexico, for the commercial disposal of produced water.

THE DIVISION DIRECTOR FINDS THAT:

The application has been duly filed under the provisions of Division Rules 19.15.26.8B. NMAC and satisfactory information has been provided that affected parties as defined in said rule have been notified and no objection was received within the required suspense period. The applicant has presented satisfactory evidence that all requirements prescribed in Rule 19.15.26.8 NMAC have been met and the operator is in compliance with Rule 19.15.5.9 NMAC.

IT IS THEREFORE ORDERED THAT:

The applicant, R360 Permian Basin, LLC (OGRID 289936), is hereby authorized to utilize its Uber North SWD Well No. 1 (API 30-015-pending) located 516 feet from the North line and 2355 feet from the East line, Unit B of Section 15, Township 23 South, Range 31 East, NMPM, Eddy County, for commercial disposal of oil field produced water (UIC Class II only) in the Devonian formation, through an open-hole interval from **16500 to 17500 feet**. Injection will occur through internally-coated, 4½-inch or smaller tubing and a packer set within 100 feet of the open-hole injection interval.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the disposed water enters only the approved disposal interval and is not permitted to escape to other formations or onto the surface. This includes the completion and construction of the well as proposed in the application, and as modified by this Order.

This permit is limited as advertised to only the Devonian aged rocks and to the depths listed above. It does not permit disposal into deeper formations including the Ellenburger formation (lower Ordovician) or lost circulation intervals directly on top and obviously connected to that formation.

Prior to commencing disposal, the operator shall submit mudlog and geophysical logs information, to the Division's District geologist and Santa Fe Bureau Engineering office, showing evidence agreeable that only the permitted formation is open for disposal including a summary of depths (picks) for contacts of the formations which the Division shall use to amend this order for a final description of the depth for the injection interval.

Every casing string shall be cemented and circulated to the surface.

The operator shall run a CBL (or equivalent) across the 7-inch casing to surface to ensure good cement across the casing.

Within two years after commencing disposal, the operator shall conduct an injection survey, consisting of a temperature log or equivalent, over the entire injection interval using representative disposal rates. Copies of the survey results shall be provided to the Division's District II office and Santa Fe Engineering Bureau office.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT procedures and schedules shall follow the requirements in Division Rule 19.15.26.11A. NMAC. The Division Director retains the right to require at any time wireline verification of completion and packer setting depths in this well.

The wellhead injection pressure on the well shall be limited to **no more than 3300 psi.** In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formation. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

The operator shall notify the supervisor of the Division's District II office of the date and time of the installation of disposal equipment and of any MIT so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.24 NMAC.

Without limitation on the duties of the operator as provided in Division Rules 19.15.29 and 19.15.30 NMAC, or otherwise, the operator shall immediately notify the Division's District II

office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

The injection authority granted under this order is not transferable except upon Division approval. The Division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

The Division may revoke this injection order after notice and hearing if the operator is in violation of Rule 19.15.5.9 NMAC.

The disposal authority granted herein shall terminate two (2) years after the effective date of this Order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Compliance with this Order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

David R. Catanach

DAVID R. CATANACH
Director

DRC/mam

cc: Oil Conservation Division – Artesia
Bureau of Land Management - Carlsbad
Application number - pMAM1530638610

5 1/2" Injection Tubing Inside of 7 5/8"

Specs

5 ½"	OD	ID	Length	Lined ID	Flare Drift
Coupling	6.104"	4.779"	10.369"		
Body	5.5"	4.778"		4.52"	4.269

7 5/8"	OD	ID	Wall thickness	5.5" cpl clearance	5.5" body clearance
39#	7.625"	6.625"	.500"	.521"	1.125"

All fishing procedures are subject to well conditions. Determinations are made onsite on a case by case scenario.

Overshot fishing procedure.

In the event of a collar looking up

1. Trip in hole with a mill and mill off collar to allow for an overshot spiral grapple to be used to latch on to the pipe body.
2. Trip in hole with turned down overshot assembly and latch onto pipe.
3. Once latched establish neutral string weight, and pick up 1-2 points over. Turn to the right 10-15 times to release seal assembly from packer.
4. Once released from the packer, trip of out the hole with fish.

In the event of a body break

1. If dressing is needed trip in hole with a mill and mill pipe body to allow for an over shot to be able to latch on to the body of the pipe. *If no milling is needed trip in hole with turned down overshot and latch on to fish.
2. Once latched onto fish, pick up 1-2 points over string weight and turn to the right 10-15 times and release from packer.
3. Trip out of hole with fish.

*Wash pipe with a mill may be substituted for dressing off a break instead of a standard mill to ensure pipe stabilization, and to ensure the casing is not damaged do to milling.

exhibit 3

In the event a mill cannot be used

If a collar is looking up and a mill cannot be used to mill the collar off a cutting tool may be utilized to cut the collar off and then a spear used to retrieve to the cut off collar. Then a turned down overshot may be utilized to retrieve the fish and release from the packer.

Spear fishing procedure

A spear may be used as well to spear into the fish. Be it a collar or body looking up. With an insert lined pipe a smaller spear will be used to go in and pull the lining out of the pipe, and then trip out of the hole to change out spears to the proper size for the pipe ID. Then trip back in to spear into the fish. Once the fish has been speared, pick up 1-2 points over neutral weight and turn 10-15 times to release from the packer and trip out of hole with the fish and packer assembly.

Abandonment Procedure

In the event that pipe cannot be fished out and the operator elects to abandon the well. The operator would need to ensure that geological formations are isolated and cannot communicate due to casing failures in the long term. To do this the operator would ensure the pipe ID is open and clear and then run in hole with wireline and set a profile plug inside of the packer assembly. Then with wireline shoot perforations at the bottom most part of pipe still in the well bore. Then the operator would trip in hole with a work string and latch onto pipe with an overshot, spear, cement retainer or any other tool that would ensure a seal and allow the operator to pump cement down the remaining injection tubing and up the annulus between the 5.5" tubing and 7.625". This would allow for the cement to fill both the ID of the pipe, and the annulus to provided isolation between the different geological formations affected by the abandoned pipe. Then plug the remaining well according to proper plugging procedures.

Allowed Clearances by the OCD

3.5" inside of 5.5"

- 3.5" tubing: Collar OD- 4.5"
  *MOST COMMON 5.5" WEIGHTS USED

5.5" Weight	ID	3.5" Upset clearance
15	4.950"	0.45"
17	4.892"	0.392"
20	4.776"	0.276"

2 7/8" INSIDE 4.5"

- 2 7/8" Tubing: Collar OD- 3.668"

4.5" Weight	ID	2 7/8" clearance
9.5	4.090"	0.442"

*** BOTH MINIMUM WEIGHT CASINGS HAVE LESS CLEARANCE THAT THE 5.5" INSIDE OF 7.625"**

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

Exhibit 4

Lori Wrotenbery
Director
Oil Conservation Division

CORRECTED
ADMINISTRATIVE ORDER SWD-784

APPLICATION OF MARATHON OIL COMPANY FOR PRODUCED WATER AND GAS PLANT WASTE DISPOSAL, EDDY COUNTY, NEW MEXICO.

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Under the provisions of Rule 701(B), Marathon Oil Company made application to the New Mexico Oil Conservation Division on July 28, 2000, for permission to complete for produced water and gas plant waste disposal its AGI Well No. 1 (**API No. N/A**) located 2138 feet from the North line and 1060 feet from the West line (Unit E) of Section 23, Township 21 South, Range 23 East, NMPM, Eddy County, New Mexico. The AGI Well No. 1 is to be drilled and completed to replace Marathon's Indian Basin Com Well No. 1 disposal well.

THE DIVISION DIRECTOR FINDS THAT:

(1) The application has been duly filed under the provisions of Rule 701(B) of the Division Rules and Regulations;

(2) Satisfactory information has been provided that all offset operators and surface owners have been duly notified;

(3) The applicant has presented satisfactory evidence that all requirements prescribed in Rule 701 will be met; and

(4) No objections have been received within the waiting period prescribed by said rule.

IT IS THEREFORE ORDERED THAT:

The applicant herein, is hereby authorized to complete its AGI Well No. 1 (**API No. N/A**) located 2138 feet from the North line and 1060 feet from the West line (Unit E) of Section 23, Township 21 South, Range 23 East, NMPM, Eddy County, New Mexico, in such a manner as to permit the injection of produced water and gas plant waste for disposal purposes into the Devonian formation from approximately 10,350 feet to 11,000 feet (Openhole) through 5 1/2 inch plastic-lined tubing set in a packer located at approximately 10,300 feet.

IT IS FURTHER ORDERED THAT:

Within 30 days of commencing injection operations into the AGI Well No. 1, injection operations in Marathon's Indian Basin Com Well No. 1 disposal well shall cease and it shall be plugged back pursuant to Division standards.

The operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

Prior to commencing injection operations into the well, the casing shall be pressure tested from the surface to the packer setting depth to assure the integrity of said casing.

The casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge at the surface or left open to the atmosphere to facilitate detection of leakage in the casing, tubing, or packer.

The injection well or system shall be equipped with a pressure limiting device which will limit the wellhead pressure on the injection well to no more than 2070 psi.

The Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the Devonian formation. Such proper showing shall consist of a valid step-rate test run in accordance with and acceptable to this office.

The operator shall notify the supervisor of the Artesia district office of the Division of the date and time of the installation of disposal equipment and of any mechanical integrity test so that the same may be inspected and witnessed.

The operator shall immediately notify the supervisor of the Artesia district office of the Division of the failure of the tubing, casing, or packer in said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

PROVIDED FURTHER THAT, jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh water or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the injection authority granted herein.

The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Rule Nos. 706 and 1120 of the Division Rules and Regulations.

The injection authority granted herein shall terminate one year after the effective date of

this order if the operator has not commenced injection operations into the subject well, provided however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

Approved at Santa Fe, New Mexico, on this 14th day of August, 2000.

LORI WROTENBERY, Director

LW/MWA/kv

cc: Oil Conservation Division – Artesia
U.S. Bureau of Land Management - Carlsbad

IT IS FURTHER ORDERED THAT:

Within 30 days of commencing injection operations into the AGI Well No. 1, injection operations in Marathon's Indian Basin Com Well No. 1 disposal well shall cease and it shall be plugged back pursuant to Division standards.

The operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

Prior to commencing injection operations into the well, the casing shall be pressure tested from the surface to the packer setting depth to assure the integrity of said casing.

The casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge at the surface or left open to the atmosphere to facilitate detection of leakage in the casing, tubing, or packer.

The injection well or system shall be equipped with a pressure limiting device which will limit the wellhead pressure on the injection well to no more than 2070 psi.

The Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the Devonian formation. Such proper showing shall consist of a valid step-rate test run in accordance with and acceptable to this office.

The operator shall notify the supervisor of the Artesia district office of the Division of the date and time of the installation of disposal equipment and of any mechanical integrity test so that the same may be inspected and witnessed.

The operator shall immediately notify the supervisor of the Artesia district office of the Division of the failure of the tubing, casing, or packer in said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

PROVIDED FURTHER THAT, jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh water or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the injection authority granted herein.

The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Rule Nos. 706 and 1120 of the Division Rules and Regulations.

The injection authority granted herein shall terminate one year after the effective date of

State of New Mexico
Energy, Minerals and Natural Resources Department

Administrative Order SWD-1489
June 24, 2014

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Pursuant to the provisions of Division Rule 19.15.26.8B. NMAC, RKI Exploration and Production, LLC (the "operator") seeks an administrative order for its proposed Longview Federal 12 SWD Well No. 5 with a location of 210 feet from the North line and 1665 feet from the East line, Unit letter B of Section 12, Township 23 South, Range 28 East, NMPM, Eddy County, New Mexico, for produced water disposal purposes.

THE DIVISION DIRECTOR FINDS THAT:

The application has been duly filed under the provisions of 19.15.26.8B. NMAC and satisfactory information has been provided that affected parties as defined in said rule have been notified and no objections have been received within the prescribed waiting period. The applicant has presented satisfactory evidence that all requirements prescribed in 19.15.26.8 NMAC have been met and the operator is in compliance with 19.15.5.9 NMAC.

IT IS THEREFORE ORDERED THAT:

The applicant, RKI Exploration and Production, LLC (OGRID 246289), is hereby authorized to utilize its Longview Federal 12 SWD Well No. 5 (API 30-015-Pending) with a location of 210 feet from the North line and 1665 feet from the East line, Unit letter B of Section 12, Township 23 South, Range 28 East, NMPM, Eddy County, for disposal of oil field produced water (UIC Class II only) through open hole into an interval consisting of the Devonian, Silurian, and Ordovician formations from approximately 14000 feet to approximately 14994 feet. *If the upper contact of the Ordovician Ellenburger formation is encountered prior to the lower limit of the approved injection interval at 14994 feet, then the total depth of the well (and injection interval) shall be reduced to include only the upper 100 feet of Ellenburger formation.* Injection will occur through internally-coated, 5 ½-inch or smaller tubing and a packer set within 100 feet of the permitted interval.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the disposed water enters only the approved disposal interval and is not permitted to escape to other formations or onto the surface. This includes the well construction proposed and described in the application.

The operator shall supply the Division with a copy of a mudlog over the permitted

disposal interval and an estimated insitu water salinity based on open-hole logs. If significant hydrocarbon shows occur while drilling, the operator shall notify the Division's district II and the operator shall be required to receive written permission prior to commencing disposal.

The operator shall conduct a cement bond log (or equivalent) showing final top of cement for the 9 5/8-inch casing as proposed in the application. The operator shall also provide a summary of depths (picks) for formation tops in the injection interval to the Division's district II office prior to commencing disposal.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT procedures and schedules shall follow the requirements in Division Rule 19.15.26.11A. NMAC. The Division Director retains the right to require at any time wireline verification of completion and packer setting depths in this well.

The wellhead injection pressure on the well shall be limited to **no more than 2800 psi**. In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formation. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

The operator shall notify the supervisor of the Division's district II office of the date and time of the installation of disposal equipment and of any MIT so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's district office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.24 NMAC.

Without limitation on the duties of the operator as provided in Division Rules 19.15.29 and 19.15.30 NMAC, or otherwise, the operator shall immediately notify the Division's district II office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

The injection authority granted under this order is not transferable except upon division approval. The Division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

The Division may revoke this injection permit after notice and hearing if the operator is in violation of 19.15.5.9 NMAC.

The disposal authority granted herein shall terminate two (2) years after the effective date of this order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Compliance with this order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

JAMI BAILEY
Director

JB/prg

cc: Oil Conservation Division – Artesia District Office
Bureau of Land Management – Carlsbad Office

[Administrative Application No. pMAM1410645588]

Administrative Order SWD-1593
November 5, 2015

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Pursuant to the provisions of Division Rule 19.15.26.8B. NMAC, OWL SWD Operating, LLC (the "operator") seeks an administrative order for its proposed McCloy SWD Well No. 2 with a proposed location 1595 feet from the South line and 369 feet from the West line, Unit L of Section 15, Township 24 South, Range 32 East, NMPM, Lea County, New Mexico, for commercial disposal of produced water.

THE DIVISION DIRECTOR FINDS THAT:

The application has been duly filed under the provisions of Division Rule 19.15.26.8B. NMAC and satisfactory information has been provided that affected parties as defined in said rule have been notified and no objections have been received within the prescribed waiting period. The applicant has presented satisfactory evidence that all requirements prescribed in Division Rule 19.15.26.8 NMAC have been met and the operator is in compliance with Division Rule 19.15.5.9 NMAC.

IT IS THEREFORE ORDERED THAT:

Owl SWD Operating, LLC (OGRID 308399), is hereby authorized to utilize its McCloy SWD Well No. 2 (API 30-025-pending) with a location of 1595 feet from the South line and 369 feet from the West line, Unit L of Section 15, Township 24 South, Range 32 East, NMPM, Lea County, for disposal of oil field produced water (UIC Class II only) into the Devonian formation through open hole interval from 16500 feet to 18250 feet. Injection will occur through internally-coated, 5½-inch or smaller tubing and a packer set within 100 feet of the uppermost perforation.

Prior to commencing disposal, the operator shall submit mudlog and geophysical logs information, to the Division's District geologist and Santa Fe Bureau Engineering office, showing evidence agreeable that only the permitted formations are open for disposal including a summary of depths (picks) for contacts of the formations which the Division shall use to amend this order for a final description of the depth for the injection interval.

This permit does not permit disposal into the Ellenburger formation (lower Ordovician) or lost circulation intervals directly on top and obviously connected to this formation.

The operator shall supply the Division with a copy of a mudlog over the permitted disposal interval and an estimated insitu water salinity based on open-hole logs. If significant hydrocarbon

shows occur while drilling, the operator shall notify the Division's District I office and the operator shall be required to receive written permission prior to commencing disposal.

The operator shall run a CBL (or equivalent) across the 7-3/4 inch liner through the 10-3/4 casing to surface to demonstrate a good cement bond between the two casings and good cement across the 10-3/4 casing.

Within one year after commencing disposal, the operator shall submit to the Division copies of an injection survey run on this well consisting of a temperature log, or equivalent, run under representative disposal rates.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the disposed water enters only the approved disposal interval and is not permitted to escape to other formations or onto the surface. This includes the well construction proposed and described in the application.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT procedures and schedules shall follow the requirements in Division Rule 19.15.26.11A. NMAC. The Division Director retains the right to require at any time wireline verification of completion and packer setting depths in this well.

The wellhead injection pressure on the well shall be limited to **no more than 3350 psi.** In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formation. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

The operator shall notify the supervisor of the Division's District I office of the date and time of the installation of disposal equipment and of any MIT so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.24 NMAC.

Without limitation on the duties of the operator as provided in Division Rules 19.15.29 and

19.15.30 NMAC, or otherwise, the operator shall immediately notify the Division's District I office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

The injection authority granted under this order is not transferable except upon division approval. The Division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

The Division may revoke this injection permit after notice and hearing if the operator is in violation of 19.15.5.9 NMAC.

The disposal authority granted herein shall terminate two (2) years after the effective date of this order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Compliance with this order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

David R. Catanach

DAVID R. CATANACH
Director

DRC/mam

cc: Oil Conservation Division – Hobbs District Office
Bureau of Land Management – Carlsbad
Application Number – pMAM1529252667

State of New Mexico
Energy, Minerals and Natural Resources Department

Administrative Order SWD-1555-A
November 13, 2015

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Pursuant to the provisions of 19.15.26.8B. NMAC, OWL SWD Operating, LLC (the "operator") seeks an administrative order to utilize its Smith Ranch Federal SWD Well No. 1 with a surface location of 1502 feet from the South line and 695 feet from the East line, Unit I of Section 6, Township 20 South, Range 34 East, NMPM, Lea County, New Mexico, for produced commercial disposal of produced water. This Order supersedes Administrative Order SWD-1555, issued on June 6, 2015.

The operator petitioned the Division to amend Administrative Order SWD-1555 for approval to change the surface location and open-hole interval as submitted in the application dated October 7, 2015. Operator changed the original surface location as a result of surface obstructions including a fiber optic line and power line. However, this change in location did not affect the wells in the new Area of Review.

The total depth and the open-hole interval of the proposed well has changed after meeting with the BLM. The new total depth is 15625 feet, and the open-hole injection interval is from 14625 feet to 15625 feet. The amended permit also lowers the maximum disposal pressure to **2925 psi.**

This Order approves both these modifications.

THE DIVISION DIRECTOR FINDS THAT:

The application has been duly filed under the provisions of Division Rule 19.15.26.8B. NMAC; however, notification of affected parties as defined in said rule was not required since the amendment is not a major modification. The applicant has presented satisfactory evidence that all requirements prescribed in Rule 19.15.26.8 NMAC have been met and the operator is in compliance with Rule 19.15.5.9 NMAC.

IT IS THEREFORE ORDERED THAT:

OWL SWD Operating, LLC (OGRID 308339), is hereby authorized to utilize its Smith Ranch Federal SWD Well No. 1 (API 30-025-pending) with a surface location of 1502 feet from the South line and 695 feet from the East line, Unit I of Section 6, Township 20 South, Range 34 East, NMPM, Lea County, for disposal of oil field produced water (UIC Class II only) into the Devonian formation through an open-hole interval from 14625 feet to 15625 feet. Injection will

occur through internally-coated, 5½-inch or smaller tubing and a packer set within 100 feet of the top of the open-hole interval.

Prior to commencing disposal, the operator shall submit mudlog and geophysical logs information, to the Division's District geologist and Santa Fe Bureau Engineering office, showing evidence agreeable that only the permitted formations are open for disposal including a summary of depths (picks) for contacts of the formations which the Division shall use to amend this order for a final description of the depth for the injection interval.

This permit does not permit disposal into the Ellenburger formation (lower Ordovician) or lost circulation intervals directly on top and obviously connected to this formation.

The operator shall supply the Division with a copy of a mudlog over the permitted disposal interval and an estimated insitu water salinity based on open-hole logs. If significant hydrocarbon shows occur while drilling, the operator shall notify the Division's District I office and the operator shall be required to receive written permission prior to commencing disposal.

The operator shall run a CBL (or equivalent) across the 7-inch liner through the 9-5/8 casing to the surface to ensure good cement bond between the liner and casing, and assure good cement across the 9-5/8 casing.

Within one year after commencing disposal, the operator shall submit to the Division copies of an injection survey run on this well consisting of a temperature log, or equivalent, run under representative disposal rates.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the disposed water enters only the approved disposal interval and is not permitted to escape to other formations or onto the surface. This includes the well construction proposed and described in the application.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT testing procedures and schedules shall follow the requirements in Division Rule 19.15.26.11A. NMAC. The Division Director retains the right to require at any time wireline verification of completion and packer setting depths in this well.

The wellhead injection pressure on the well shall be limited to **no more than 2925 psi**. In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formation. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

The operator shall notify the supervisor of the Division's District I office of the date and time of the installation of disposal equipment and of any MIT so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.24 NMAC.

Without limitation on the duties of the operator as provided in Division Rules 19.15.29 and 19.15.30 NMAC, or otherwise, the operator shall immediately notify the Division's District I office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

The injection authority granted under this order is not transferable except upon division approval. The Division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

The Division may revoke this injection permit after notice and hearing if the operator is in violation of 19.15.5.9 NMAC.

The disposal authority granted herein shall terminate two (2) years after the effective date of this order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Compliance with this order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

David R. Catanach

DAVID R. CATANACH
Director

DRC/mam

cc: Oil Conservation Division – Hobbs
Bureau of Land Management – Carlsbad
Application File pMAM1528330138

State of New Mexico
Energy, Minerals and Natural Resources Department

Administrative Order SWD-1550-A
March 22, 2016

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Pursuant to the provisions of 19.15.26.8B. NMAC, OWL SWD Operating, LLC (the "operator") seeks an administrative order to utilize its Madera SWD Well No. 1 with a surface location of 433 feet from the South line and 1970 feet from the West line, Unit N of Section 14, Township 24 South, Range 34 East, NMPM, Lea County, New Mexico, for produced commercial disposal of produced water.

This Order supersedes Administrative Order SWD-1550, issued on May 7, 2015.

The operator petitioned the Division to amend Administrative Order SWD-1550 for approval to change the open-hole interval within the approved Devonian formation as submitted in the original application dated April 8, 2015. Operator changed the open-hole interval because the well came in low to original prognosis.

The new total depth is 19222 feet, and the open-hole injection interval is from 17400 feet to 19922 feet. The amended permit also increases the maximum disposal pressure to **3480 psi.**

This Order approves these modifications.

THE DIVISION DIRECTOR FINDS THAT:

The application has been duly filed under the provisions of Division Rule 19.15.26.8B. NMAC; however, notification of affected parties as defined in said rule was not required since the amendment is not a major modification. The applicant has presented satisfactory evidence that all requirements prescribed in Rule 19.15.26.8 NMAC have been met and the operator is in compliance with Rule 19.15.5.9 NMAC.

IT IS THEREFORE ORDERED THAT:

OWL SWD Operating, LLC (OGRID 308339), is hereby authorized to utilize its Madera SWD Well No. 1 (API 30-025-42448) with a surface location of 433 feet from the South line and 1970 feet from the West line, Unit N of Section 14, Township 24 South, Range 34 East, NMPM, Lea County, for disposal of oil field produced water (UIC Class II only) into the Devonian formation through an open-hole interval from 17400 feet to 19222 feet. Injection will occur through internally-coated, 5½-inch or smaller tubing and a packer set within 100 feet of the top of the open-hole interval.

This permit does not permit disposal into the Ellenburger formation (lower Ordovician) or lost circulation intervals directly on top and obviously connected to this formation.

Within one year after commencing disposal, the operator shall submit to the Division copies of an injection survey run on this well consisting of a temperature log, or equivalent, run under representative disposal rates.

Applicant has met the special requirements for a CBL, revised wellbore diagram, cross-section, and mudlog as required in Administrative Order SWD-1550.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the disposed water enters only the approved disposal interval and is not permitted to escape to other formations or onto the surface. This includes the well construction proposed and described in the application.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT testing procedures and schedules shall follow the requirements in Division Rule 19.15.26.11A. NMAC. The Division Director retains the right to require at any time wireline verification of completion and packer setting depths in this well.

The wellhead injection pressure on the well shall be limited to **no more than 3480 psi.** In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formation. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

The operator shall notify the supervisor of the Division's District I office of the date and time of the installation of disposal equipment and of any MIT so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.24 NMAC.

Without limitation on the duties of the operator as provided in Division Rules 19.15.29 and 19.15.30 NMAC, or otherwise, the operator shall immediately notify the Division's District I

office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

The injection authority granted under this order is not transferable except upon division approval. The Division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

The Division may revoke this injection permit after notice and hearing if the operator is in violation of 19.15.5.9 NMAC.

The disposal authority granted herein shall terminate two (2) years after the effective date of this order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Compliance with this order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

David R. Catanach

DAVID R. CATANACH
Director

DRC/mam

cc: Oil Conservation Division – Hobbs District Office
Well File 30-025-42448

State of New Mexico
Energy, Minerals and Natural Resources Department

Administrative Order SWD-1633
July 11, 2016

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Pursuant to the provisions of Division Rule 19.15.26.8B. NMAC, OWL SWD Operating, LLC (the "operator") seeks an administrative order for its proposed Kimberly SWD Well No. 1 with a proposed location 1450 feet from the South Line and 287 feet from the East line, Unit I of Section 31, Township 25 South, Range 37 East, NMPM, Lea County, New Mexico, for commercial disposal of produced water.

THE DIVISION DIRECTOR FINDS THAT:

The application has been duly filed under the provisions of Division Rule 19.15.26.8B. NMAC and satisfactory information has been provided that affected parties as defined in said rule have been notified and no objections have been received within the prescribed waiting period. The applicant has presented satisfactory evidence that all requirements prescribed in Division Rule 19.15.26.8 NMAC have been met and the operator is in compliance with Division Rule 19.15.5.9 NMAC.

IT IS THEREFORE ORDERED THAT:

Owl SWD Operating, LLC (OGRID 308399), is hereby authorized to utilize its Kimberly SWD Well No. 1 (API 30-025-pending) with a proposed location of 1450 feet from the South Line and 287 feet from the East line, Unit I of Section 31, Township 25 South, Range 37 East, NMPM, Lea County, for disposal of oil field produced water (UIC Class II only) through an open-hole interval within the Devonian and Silurian aged rocks from 10000 feet to 11400 feet. Injection will occur through internally-coated, **5½-inch** or smaller tubing and a packer set within 100 feet of the uppermost perforation.

Prior to commencing disposal, the operator shall submit mudlog and geophysical logs information to the Division's District geologist and Santa Fe Bureau Engineering office, showing evidence agreeable that only the permitted formations are open for disposal including a summary of depths (picks) for contacts of the formations which the Division shall use to amend this order for a final description of the depth for the injection interval.

This permit does not permit disposal into the Ellenburger formation (lower Ordovician) or lost circulation intervals directly on top and obviously connected to this formation.

The operator shall supply the Division with a copy of a mudlog over the permitted disposal

interval and an estimated insitu water salinity based on open-hole logs. If significant hydrocarbon shows occur while drilling, the operator shall notify the Division's District I office and the operator shall be required to receive written permission prior to commencing disposal.

The operator shall run a CBL (or equivalent) across the 9-5/8-inch casing through the 13-3/8-inch casing to surface to demonstrate a good cement bond between the two casings, and good cement across the entire casing.

Within one year after commencing disposal, the operator shall submit to the Division copies of an injection survey run on this well consisting of a temperature log, or equivalent, run under representative disposal rates.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the disposed water enters only the approved disposal interval and is not permitted to escape to other formations or onto the surface. This includes the well construction proposed and described in the application.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT procedures and schedules shall follow the requirements in Division Rule 19.15.26.11A. NMAC. The Division Director retains the right to require at any time wireline verification of completion and packer setting depths in this well.

The wellhead injection pressure on the well shall be limited to **no more than 2000 psi.** In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formation. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

The operator shall notify the supervisor of the Division's District I office of the date and time of the installation of disposal equipment and of any MIT so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.24 NMAC.

Without limitation on the duties of the operator as provided in Division Rules 19.15.29 and 19.15.30 NMAC, or otherwise, the operator shall immediately notify the Division's District I office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

The injection authority granted under this order is not transferable except upon division approval. The Division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

The Division may revoke this injection permit after notice and hearing if the operator is in violation of 19.15.5.9 NMAC.

The disposal authority granted herein shall terminate two (2) years after the effective date of this order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Compliance with this order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

David R. Catanach

DAVID R. CATANACH
Director

DRC/mam

cc: Oil Conservation Division – Hobbs District Office
Administrative application – pMAM1613136612

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

Ken McQueen
Cabinet Secretary

Matthias Sayer
Deputy Cabinet Secretary

David R Catanach, Division Director
Oil Conservation Division

Administrative Order SWD-1685
July 25, 2017

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Pursuant to the provisions of Division Rule 19 15 26 8B NMAC, Solaris Water Midstream, LLC (the "operator") seeks an administrative order for its Solaris Brininstool SWD Well No 1 ("proposed well") with a location of 2390 feet from the North line and 615 from the East line, Unit H of Section 29, Township 25 South, Range 33 East, NMPM, Lea County, New Mexico, for the purpose of commercial disposal of produced water

THE DIVISION DIRECTOR FINDS THAT

The application has been duly filed under the provisions of Division Rule 19 15 26 8B NMAC and satisfactory information has been provided that affected parties as defined in said rule have been notified and no objections have been received within the prescribed waiting period The applicant has presented satisfactory evidence that all requirements prescribed in Rule 19 15 26 8 NMAC have been met and the operator is in compliance with Rule 19 15 5 9 NMAC

Injection will occur through either an internally-coated, 5-1/2-inch or smaller tubing inside the surface and intermediate casings, and a 5-inch flush joint or small tubing inside the liner Further, a packer shall be set within 100 feet of the uppermost perforation

IT IS THEREFORE ORDERED THAT

The applicant, Solaris Water Midstream, LLC (OGRID 371643), is hereby authorized to utilize its Solaris Brininstool SWD Well No 1 (API 30-025-pending) with a location of 2390 feet from the North line and 615 from the East line, Unit H of Section 29, Township 25 South, Range 33 East, NMPM, Lea County, for disposal of oil field produced water (UIC Class II only) through an open hole interval consisting of the Devonian and Silurian formations from 17600 feet to approximately 19600 feet

This permit does not allow disposal into the Ellenburger formation (lower Ordovician) or lost circulation intervals directly on top and obviously connected to this formation

Prior to commencing disposal, the operator shall submit mudlog and geophysical logs information, to the Division's District geologist and Santa Fe Bureau Engineering office, showing evidence agreeable that only the permitted formation is open for disposal including a summary of

depths (picks) for contacts of the formations which the Division shall use to amend this order for a final description of the depth for the injection interval.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the disposed water enters only the approved disposal interval and is not permitted to escape to other formations or onto the surface. This includes the completion and construction of the well as proposed in the application and, if necessary, as modified by the District Supervisor.

The operator shall circulate the cement behind the casing to surface for all surface and intermediate casings.

The operator shall run a CBL (or equivalent) across the 7-3/4-inch liner from 500 feet above the top of liner to the bottom of the liner to demonstrate a good cement across the 7-3/4-inch liner, and good bond between the liner and the 10-3/4-inch casing.

Within two years after commencing disposal, the operator shall conduct an injection survey, consisting of a temperature log or equivalent, over the entire injection interval using representative disposal rates. Copies of the survey results shall be provided to the Division's District I office and Santa Fe Engineering Bureau office.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT procedures and schedules shall follow the requirements in Division Rule 19.15.26.11A. NMAC. The Division Director retains the right to require at any time wireline verification of completion and packer setting depths in this well.

The wellhead injection pressure on the well shall be limited to **no more than 3520 psi,** but may be modified by the Division Director following the completion of the initial Step-Rate Test. In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well. The operator shall install and maintain a chart recorder showing casing and tubing pressures during disposal operations.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formations. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

The operator shall notify the supervisor of the Division's District I office of the date and

time of the installation of disposal equipment and of any MIT so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District I office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15 26.13 and 19 15.7.24 NMAC.

The injection authority granted under this order is not transferable except upon Division approval The Division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject

The Division may revoke this injection order after notice and hearing if the operator is in violation of Rule 19 15.5.9 NMAC.

The disposal authority granted herein shall terminate two (2) years after the effective date of this Order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause

Compliance with this Order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

David R. Catanach

DAVID R. CATANACH
Director

DRC/mam

cc: Oil Conservation Division – Hobbs District Office
Bureau of Land Management - Carlsbad
Administrative application – pMAM1718757682

STATE OF NEW MEXICO
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES
OIL CONSERVATION DIVISION

APPLICATION OF MESQUITE SWD, INC. TO AMEND APPROVALS FOR SALT WATER DISPOSAL WELLS IN LEA AND EDDY COUNTIES.

CASE NO. 15654

AFFIDAVIT

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

Jennifer L. Bradfute, attorney in fact and authorized representative of Mesquite SWD, Inc., the Applicant herein, being first duly sworn, upon oath, states that the above-referenced Application was provided under the notice letter and proof of receipt attached hereto.

Jennifer L. Bradfute

SUBSCRIBED AND SWORN to before me this 29th day of March 2017 by Jennifer L. Bradfute.

Notary Public

My commission expires: 4-5-17

Exhibit 5

MODRALL SPERLING

LAWYERS

March 7, 2017

Jennifer L. Bradfute
505.848.1845
Fax: 505.848.1882
jlb@modrall.com

VIA CERTIFIED MAIL RETURN RECEIPT REQUESTED

Re: In The Matter of the Application of Mesquite SWD, Inc. to amend approvals for salt water disposal wells in Lea and Eddy Counties.

Case No. 15654

TO: Affected Parties,

This letter is to advise you that Mesquite SWD, Inc. has filed the enclosed application with the New Mexico Oil Conservation Division seeking to amend the size of tubing approved by the Division for certain Salt Water Disposal Wells which have previously been approved by administrative order, which are scheduled to be drilled. The wells and related administrative orders are as follows:

NMOCD Order Number	Order Date	Well Name	Legal Description
SWD-1667	2/23/2017	San Dunes SWD #2	Unit K, Sec. 8, T24S-R31E, Eddy County, N.M.
SWD-1642	8/5/2016	Scott B SWD #1	Unit N, Sec. 23, T24S-R28E, Eddy County, N.M.
SWD-1638	7/26/2016	VL SWD #1	Unit I, Sec. 14, T24S-R28E, Eddy County, N.M.
SWD-1558	6/26/2015	Station SWD #1	Unit F, Sec. 7, T24S-R32E, Lea County, N.M.
SWD-1636	7/15/2016	Cypress SWD #1	Unit L, Sec. 34, T23S, R29E, Eddy County, N.M.
SWD-1610	1/13/2016	Gnome East SWD #1	Unit D, Sec. 35, T23S, R30E, Eddy County, N.M.
SWD-1602	12/1/2015	Uber East SWD #1	Unit I, Sec. 24, T23S, R31E, Eddy County, N.M.
SWD-1600	11/20/2015	Uber North SWD #1	Unit B, Sec. 15, T23S, R31E, Eddy County, N.M.

Modrall Sperling
Roehl Harris & Sisk P.A.

Bank of America Centre
500 Fourth Street NW
Suite 1000
Albuquerque,
New Mexico 87102

PO Box 2168
Albuquerque,
New Mexico 87103-2168

Tel: 505.848.1800
www.modrall.com

All of the above-listed wells will be drilled for injection into the Devonian Formation, and the only change sought is concerning the size of tubing allowed by the Division. This application has been set for hearing before a Division Examiner at 8:15 a.m. on March 30, 2017. The hearing will be held in Porter Hall in the Oil Conservation Division's Santa Fe Office located at 1220 South Saint Francis Drive, Santa Fe, New Mexico 87505. As a party who may be affected by this application, we are notifying you of your right to appear at the hearing and participate in this case, including the right to present evidence either in support of or in opposition to the application. Failure to appear at the hearing may preclude you from any involvement in this case at a later date.

Pursuant to Division Rule 19.15.4.13.B, you are further notified that if you desire to appear in this case, then you are requested to file a Pre-Hearing Statement with the Division not later than 5:00 PM on Thursday, March 23, 2017, with a copy delivered to the undersigned.

Sincerely,

Jennifer L. Bradfute
Attorney for Mesquite SWD, Inc.

Sand Dunes SWD #2

Chevron USA
Attn: Permitting Team
6301 Deauville Blvd.
Midland, TX 79706

Oxy Oil Gas Corporation
5 Greenway Plz. Suite 110
Houston, TX 77046

Devon Energy Corp.
333 W. Sheridan Ave.
Oklahoma City, OK 73102

Bureau of Land Management
620 E. Greene Street
Carlsbad, NM 88220

Scott B SWD #1

Bureau of Land Management
620 E. Greene St.
Carlsbad, NM 88220

Valley Land, LLC
P.O. Box 597
Loving, NM 88256

Black Mountain Exploration
500 Main St, Suite 1200
Fort Worth, TX 76102

Devon Energy
333 W. Sheridan Ave.
Oklahoma City, OK 73102-5015

OXY USA, Inc.
P.O. Box 4294
Houston, TX 77210

Yates Petroleum Corp, et al
105 S. 4th St.
Artesia, NM 88201

EOG Resources, Inc.
P.O. Box 2267
Midland, TX 79702

VL SWD #1

Trustees of the Conquistador Council,
Boy Scouts of America, Trust Fund
2603 N. Aspen Ave.
Roswell, NM 88201

Devon Energy
333 W. Sheridan Ave.
Oklahoma City, OK 73102-5015

Matador Production Company
One Lincoln Centre
5400 LBJ Freeway, Ste. 1500
Dallas, TX 75240

OXY USA, Inc.
P.O. Box 4294
Houston, TX 77210

Station SWD #1

Bureau of Land Management
620 E. Green St.
Carlsbad, NM 88220

Mark McCloy
P.O. Box 1076
Jal, NM 88252

Devon Energy
333 W. Sheridan Ave.
Oklahoma City, OK 73102-5015

OXY USA, Inc.
P.O. Box 4294
Houston, TX 77210

COG Operating, LLC
One Concho Center
600 W. Illinois Ave.
Midland, TX 79701

Cypress SWD

Yates Petroleum Corp.
105 South 4th Street
Artesia, NM 88210-2122

ABO Petroleum Corp.
P.O. Box 900
Artesia, NM 88211

Myco Industries, Inc.
P.O. Box 840
Artesia, NM 88211

Bureau of Land Management
620 East Greene Street
Carlsbad, NM 88220-6292

EOG Resources, Inc.
P.O. Box 2267
Midland, TX 79702

OXY USA, Inc.
P.O. Box 4294
Houston, TX 77210

Exxon Mobil Oil Corporation

P.O. Box 4358
Houston, TX 77210-4358

Gnome East SWD Well #1

Aquila Energy Resources
10370 Richmond Ave. Ste. 510
Houston, TX 77042-2551

Bureau of Land Management
Carlsbad Field Office
620 East Greene Street
Carlsbad, NM 88220-6292

Collins & Ware
503 West Wall St., Suite 1200
Midland, TX 79701-5076

Concho Oil & Gas, LLC
One Concho Center
600 West Illinois Avenue
Midland, TX 79701-4882

Conoco Phillips Co.
3401 E. 30th Street
Farmington, NM 87402

Devon Energy
333 W. Sheridan Ave.
Oklahoma City, OK 73102-5015

Exxon Mobil Oil
P.O. Box 4358
Houston, TX 77210-4358

Khody Land & Minerals Company
210 Park Ave., Ste. 900
Oklahoma City, OK 73102-5643

OXY USA, Inc.

P.O. Box 4294
Houston, TX 77210

PXP Production Co., LLC
700 Milam Street, Suite 3100
Houston, TX 77002-2764

Uber East SWD Well #1

Bureau of Land Management
620 East Greene Street
Carlsbad, NM 88220

Marathon Oil Corporation
5555 San Felipe Street
Houston, TX 77056-2799

Mobil Producing Texas & New Mexico
12450 Greenspoint Drive
Houston, TX 77060-1905

Abo Petroleum Corp.
P.O. Box 900
Artesia, NM 88211

Devon Energy
333 W. Sheridan Ave.
Oklahoma City, OK 73102-5015

Yates Petroleum Corp.
105 South 4th Street
Artesia, NM 88210-2122

Myco Industries, Inc.
P.O. Box 840
Artesia, NM 88211

EOG Resources, Inc.
P.O. Box 2267
Midland, TX 79702

OXY USA, Inc.
P.O. Box 4294
Houston, TX 77210

XTO Energy, Inc.
9193 S. Jamaica St.
P.O. Box 6501
Englewood, CO 80155

Uber North SWD Well #1

Abo Petroleum Corporation
P.O. Box 900
Artesia, NM 88211

Bureau of Land Management
620 East Greene Street
Carlsbad, NM 88220

Devon Energy
333 W. Sheridan Ave.
Oklahoma City, OK 73102-5015

Marathon Oil Corporation
5555 San Felipe Street
Houston, TX 77056-2723

Mobil Producing Texas and New Mexico
12450 Greenspoint Drive
Houston, TX 77060

Myco Industries, Inc.
P.O. Box 840
Artesia, NM 88211

OXY USA, Inc.
P.O. Box 4294
Houston, TX 77210

Yates Petroleum Corp.
105 South 4th Street
Artesia, NM 88210

EOG Resources, Inc.
P.O. Box 2267
Midland, TX 79702

MESQUITE SWD, INC. APPLICATION NOTICE
CASE NO. 15654
MAILED: MARCH 7, 2017

Parties	Certified Return No's
Chevron USA Attn: Permitting Team 6301 Deauville Blvd. Midland, TX 79706	7015-1520-0002-9719-9019 03/13/17
Oxy Oil Gas Corporation 5 Greenway Plz. Suite 110 Houston, TX 77046	7015-1520-0002-9719-9026 03/20/17
Devon Energy Corp. 333 W. Sheridan Ave. Oklahoma City, OK 73102	7015-1520-0002-9719-9040 03/13/17
Bureau of Land Management 620 E. Greene Street Carlsbad, NM 88220	7015-1520-0002-9719-9064 03/13/17
Valley Land, LLC P.O. Box 597 Loving, NM 88256	7015-1520-0002-9719-9071 03/16/17
Black Mountain Exploration 500 Main St, Suite 1200 Fort Worth, TX 76102	7015-1520-0002-9719-9057 03/13/17
OXY USA, Inc. P.O. Box 4294 Houston, TX 77210	7015-1520-0002-9719-9033 03/20/17
Yates Petroleum Corp, et al 105 S. 4th St. Artesia, NM 88201	7015-1520-0002-9719-9088 03/17/17
EOG Resources, Inc. P.O. Box 2267 Midland, TX 79702	7015-2780-0002-5895-6677 03/24/17
Trustees of the Conquistador Council, Boy Scouts of America, Trust Fund 2603 N. Aspen Ave. Roswell, NM 88201	7015-2780-0002-5895-6660 03/13/17
Matador Production Company One Lincoln Centre 5400 LBJ Freeway, Ste. 1500 Dallas, TX 75240	7015-2780-0002-5895-6653 03/13/17
Mark McCloy P.O. Box 1076 Jal, NM 88252	7015-2780-0002-5895-6646 03/13/17

MESQUITE SWD, INC. APPLICATION NOTICE
CASE NO. 15654
MAILED: MARCH 7, 2017

COG Operating, LLC One Concho Center 600 W. Illinois Ave. Midland, TX 79701	7015-2780-0002-5895-6639 03/16/17
ABO Petroleum Corp. P.O. Box 900 Artesia, NM 88211	7015-2780-0002-5895-6622 03/13/17
Myco Industries, Inc. P.O. Box 840 Artesia, NM 88211	7015-2780-0002-5895-6615 03/13/17
Exxon Mobil Oil Corporation P.O. Box 4358 Houston, TX 77210-4358	7015-2780-0002-5895-6608 03/17/17
Aquila Energy Resources 10370 Richmond Ave. Ste. 510 Houston, TX 77042-2551	7010-2780-0002-5895-6592 Return to Sender – Unable to Forward 03/21/17
Collins & Ware 503 West Wall St., Suite 1200 Midland, TX 79701-5076	7010-2780-0002-5895-6585 03/13/17
Concho Oil & Gas, LLC One Concho Center 600 West Illinois Avenue Midland, TX 79701-4882	7010-2780-0002-5895-6578 03/13/17
Conoco Phillips Co. 3401 E. 30th Street Farmington, NM 87402	7010-2780-0002-5895-6561 03/15/17
Khody Land & Minerals Company 210 Park Ave., Ste. 900 Oklahoma City, OK 73102-5643	7010-2780-0002-5895-6554 03/14/17
PXP Production Co., LLC 700 Milam Street, Suite 3100 Houston, TX 77002-2764	7010-2780-0002-5895-6547 03/17/17
Marathon Oil Corporation 5555 San Felipe Street Houston, TX 77056-2799	7010-2780-0002-5895-6530 03/16/17
Mobil Producing Texas & New Mexico 12450 Greenspoint Drive Houston, TX 77060-1905	7010-2780-0002-5895-6523
XTO Energy, Inc. 9193 S. Jamaica St. P.O. Box 6501 Englewood, CO 80155	7010-2780-0002-5895-6516 03/14/17

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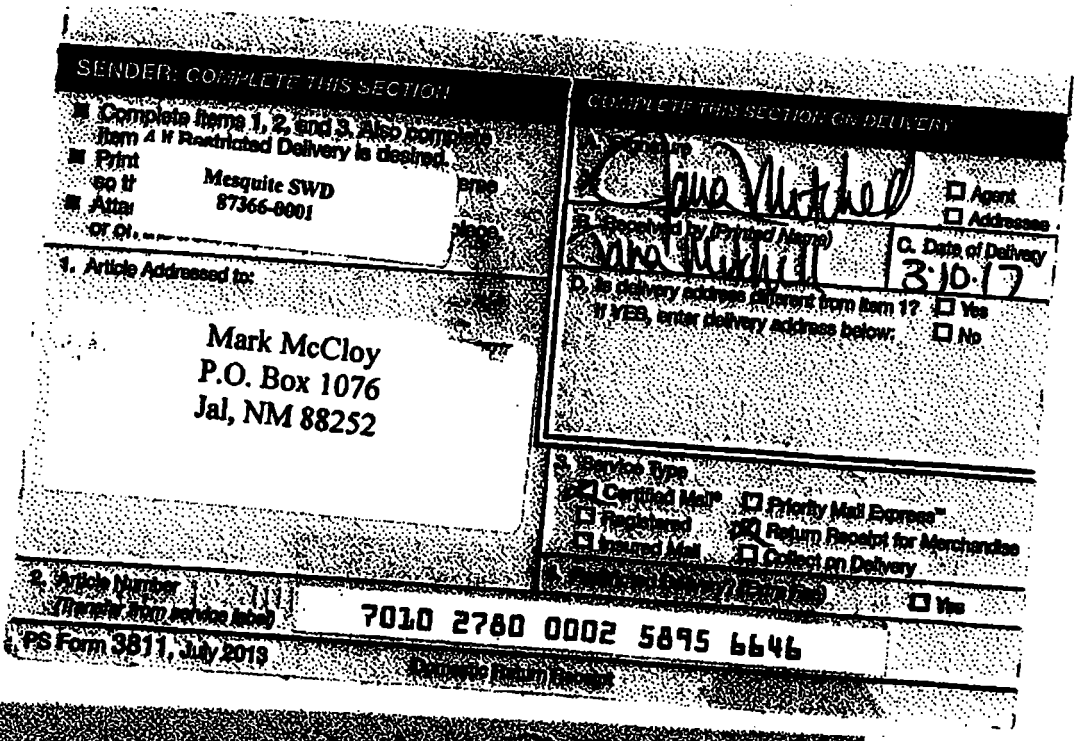


SENDER: COMPLETE THIS SECTION

■ Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
■ Print your name and address on the reverse so that we can return the card to you.
■ Attach this card to the back of the mailpiece, or on the front if space permits.

Mesquite SWD
87366-0001

1. Article Addressed to:

Mark McCloy
P.O. Box 1076
Jal, NM 88252

COMPLETE THIS SECTION ON DELIVERY

A. Signature
Agent
Addressee

B. Received by (Printed Name)
C. Date of Delivery
3-10-17

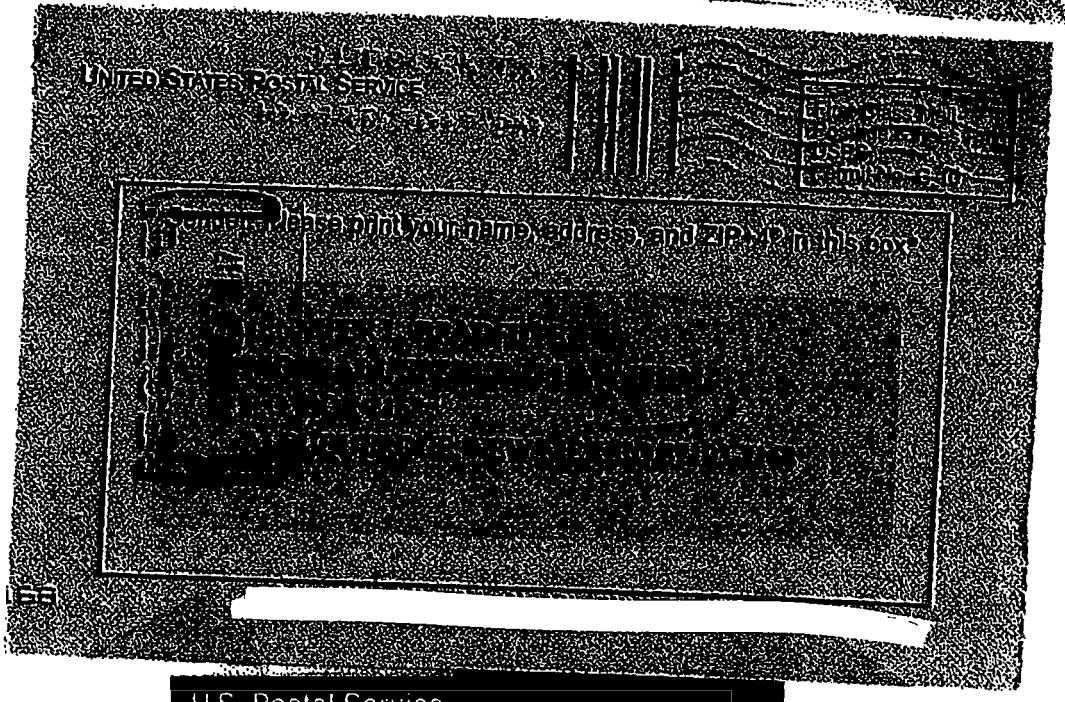
D. Is delivery address different from item 1? Yes
If YES, enter delivery address below: No

3. Service Type
Certified Mail® Priority Mail Express™
Registered Return Receipt for Merchandise
Insured Mail Collect on Delivery

Restricted Delivery? (Extra Fee) Yes

2. Article Number (Transfer from service label)
7010 2780 0002 5895 6646

PS Form 3811, July 2013 Domestic Return Receipt



UNITED STATES POSTAL SERVICE

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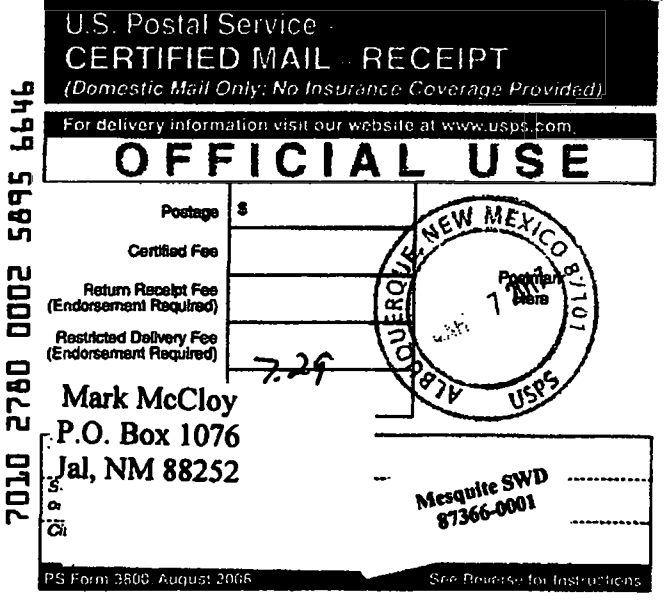

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Mark McCloy
P.O. Box 1076
Jal, NM 88252

Mesquite SWD
87366-0001

7010 2780 0002 5895 6646

PS Form 3800, August 2006 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete
- Pr
- At
or on the front if space permits.

Mesquite SWD
87366-0001

1. Article Addressed to:

Trustees of the Conquistador Council
Boy Scouts of America, Trust Fund
2603 N. Aspen Ave.
Roswell, NM 88201

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
☐ Agent
☐ Addressee

B. Received by (Printed Name)

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail® ☐ Priority Mail Express™
☐ Registered ☒ Return Receipt for Merchandise
☐ Insured Mail ☐ Collect on Delivery

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7010 2780 0002 5895 6660

PS Form 3811, July 2013 Domestic Return Receipt

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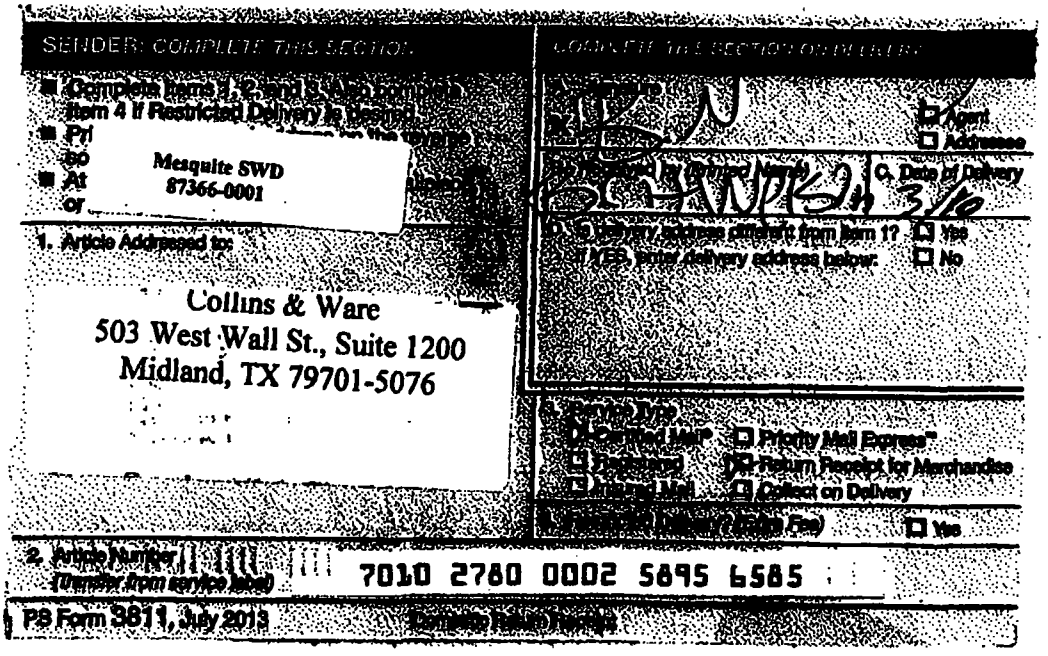
2017
USPS

7010 2780 0002 5895 6660

Trustees of the Conquistador Council
Boy Scouts of America, Trust Fund
2603 N. Aspen Ave.
Roswell, NM 88201

Mesquite SWD
87366-0001

PS Form 3800, August 2006 See Reverse for Instructions


SENDER: COMPLETE THIS SECTION

■ Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
■ Print your name and address on the reverse so that we can return the card to you.
■ Attach this card to the back of the mailpiece, or on the front if space permits.

Mesquite SWD
87366-0001

1. Article Addressed to:

Collins & Ware
503 West Wall St., Suite 1200
Midland, TX 79701-5076

COMPLETE THIS SECTION ON DELIVERY

A. Signature
☐ Agent
☐ Addressee

B. Received by (Printed Name) C. Date of Delivery

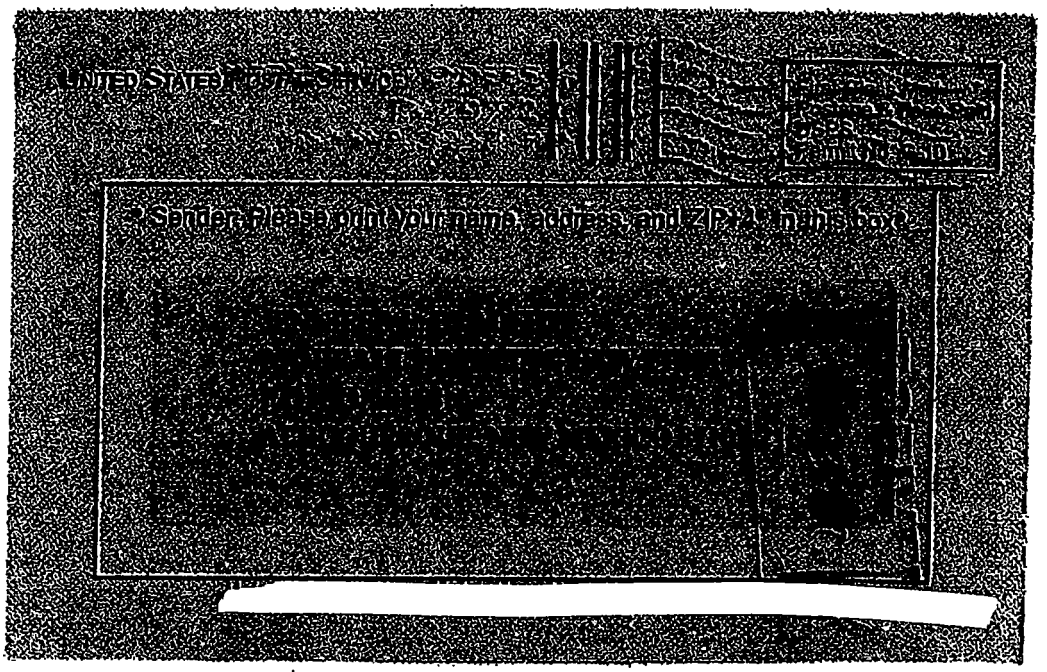
D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail® ☐ Priority Mail Express™
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ Collect on Delivery

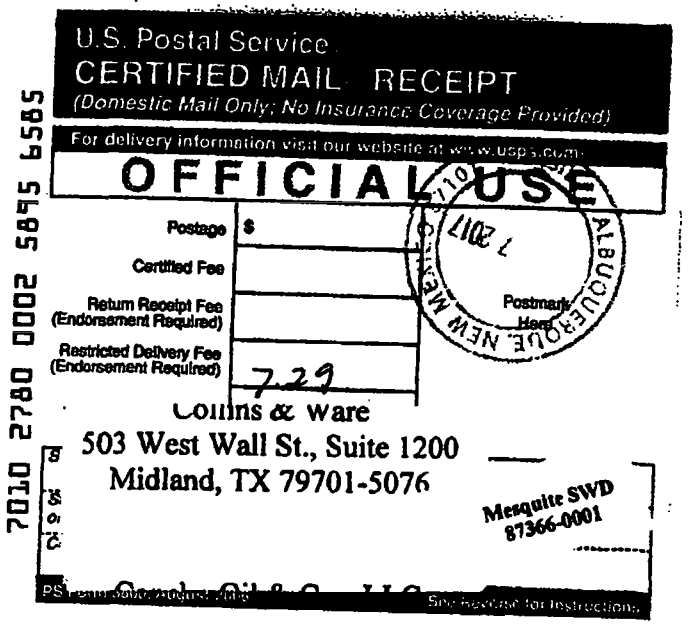
4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7010 2780 0002 5895 6585

PS Form 3811, July 2013 Domestic Return Receipt


UNITED STATES POSTAL SERVICE

Sender: Please print your name, address, and ZIP+4® in this box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7 2017

Collins & Ware
503 West Wall St., Suite 1200
Midland, TX 79701-5076

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87366-0001

7010 2780 0002 5895 6585

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

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■ Print your name and address on the reverse
so that we can return the card to you.
■ Attach this card to the back of the mailpiece,
or on the front if space permits.

Mesquite SWD
87366-0001

1. Article Addressed to:

ABO Petroleum Corp.
P.O. Box 900
Artesia, NM 88211

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
☐ Agent
☐ Addressee

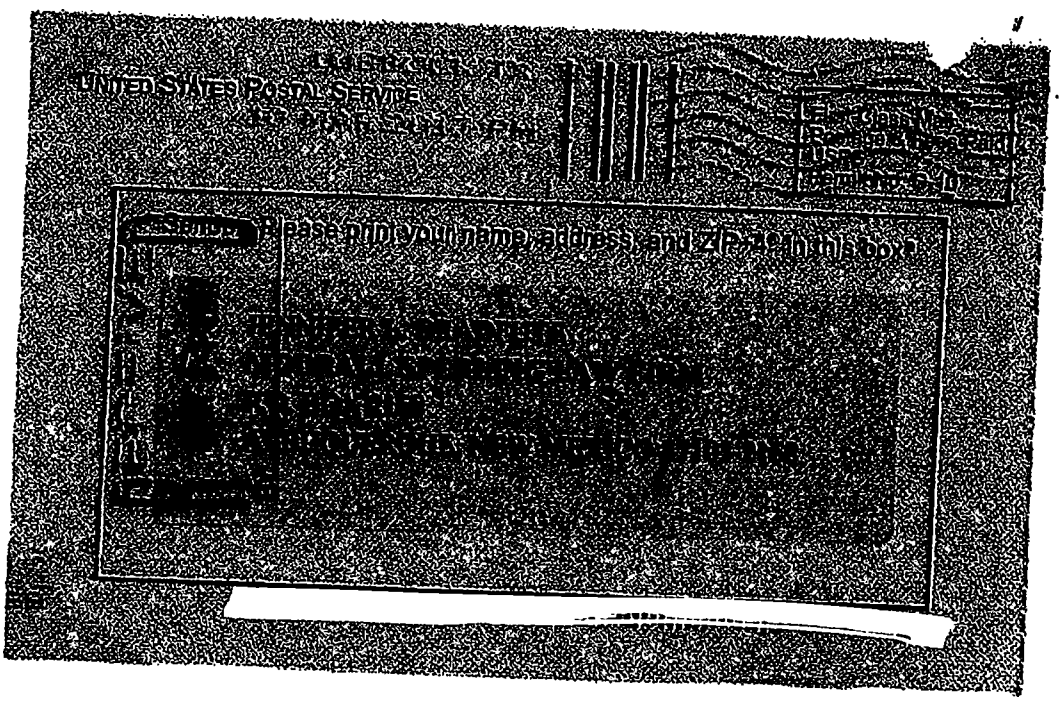
B. Received by (Printed Name)
C. Date of Delivery
3-10-1

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail® ☐ Priority Mail Express™
☐ Registered ☑ Return Receipt for Merchandise
☐ Insured Mail ☐ Collect on Delivery
4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number
(Transfer from service label)
7010 2780 0002 5895 6622

PS Form 3811, July 2013 Domestic Return Receipt



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Certified Fee
Return Receipt Fee (Endorsement Required)
Restricted Delivery Fee (Endorsement Required)
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ALBUQUERQUE, NEW MEXICO 87101
Postmark Here
MAY 1
USPS

ABO Petroleum Corp.
P.O. Box 900
Artesia, NM 88211

Mesquite SWD
87366-0001

7010 2780 0002 5895 6622

PS Form 3800, August 2006 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

Mesquite SWD
87366-0001

1. Article Addressed to:

Myco Industries, Inc.
P.O. Box 840
Artesia, NM 88211

COMPLETE THIS SECTION ON DELIVERY

Agent
Addressee

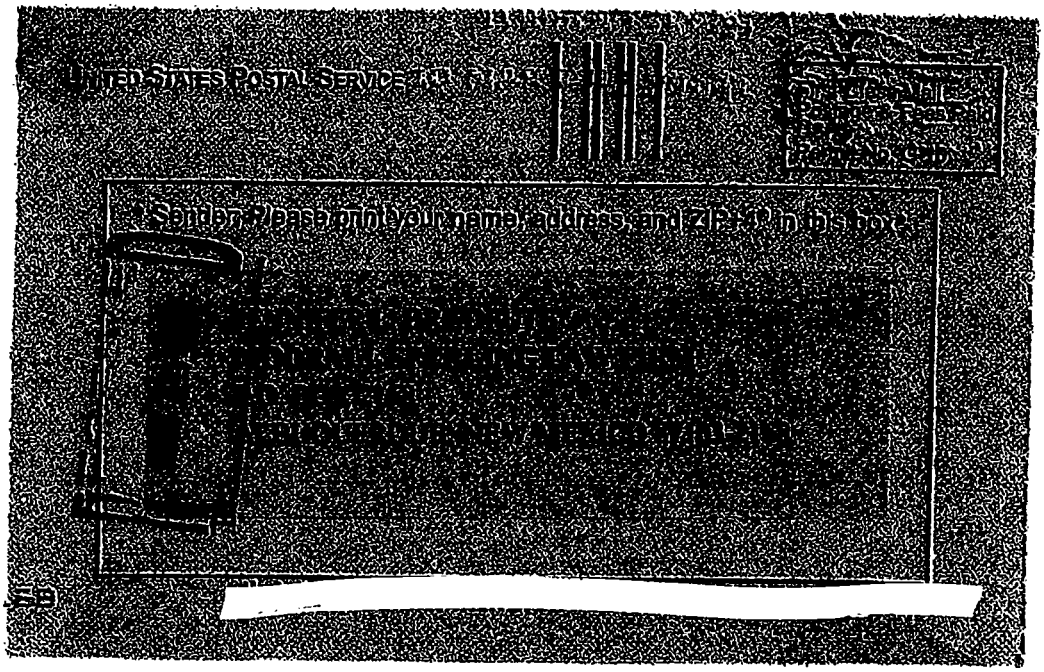
B. Received by (Printed Name) | C. Date of Delivery

D. Is delivery address different from item 1? Yes
If YES, enter delivery address below: No

Priority Mail Express®
Return Receipt for Merchandise
Collect on Delivery

2. Article Number (Transfer from service label) 7010 2780 0002 5895 6615

PS Form 3811, July 2013



U.S. Postal Service
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Return Receipt Fee (Endorsement Required)
Restricted Delivery Fee (Endorsement Required)

ALBUQUERQUE, NEW MEXICO 87101
Postmark Here 2017
USPS

Myco Industries, Inc.
P.O. Box 840
Artesia, NM 88211

Mesquite SWD
87366-0001

7010 2780 0002 5895 6615

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item
- Print
- Attach

Mesquite SWD
87366-0001

or on the front if space permits.

1. Article Addressed to:

Concho Oil & Gas, LLC
One Concho Center
600 West Illinois Avenue
Midland, TX 79701-4882

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Donna Simmons
☐ Agent
☐ Addressee

B. Received by (Printed Name) Donna Simmons
C. Date 3-10-14

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail® ☐ Priority Mail Express™
☐ Registered ☑ Return Receipt for Merchandise
☐ Insured Mail ☐ Collect on Delivery

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7010 2780 0002 5895 6578

PS Form 3811, July 2013 Domestic Return Receipt

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Sender: Please print your name, address, and ZIP+4® in this box

DENVER CO 802

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Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	

7.29

USPS ALBUQUERQUE NEW MEXICO 87101
Postmark Here
MAR 2014

Concho Oil & Gas, LLC
One Concho Center
600 West Illinois Avenue
Midland, TX 79701-4882

Mesquite SWD
87366-0001

See Reverse for Instructions

7010 2780 0002 5895 6578

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

Mesquite SWD
87366-0001

1. Article Addressed to:

Matador Production Company
One Lincoln Centre
5400 LBJ Freeway, Ste. 1500
Dallas, TX 75240

COMPLETE THIS SECTION ON DELIVERY

A. Signature
Agent
Addressee

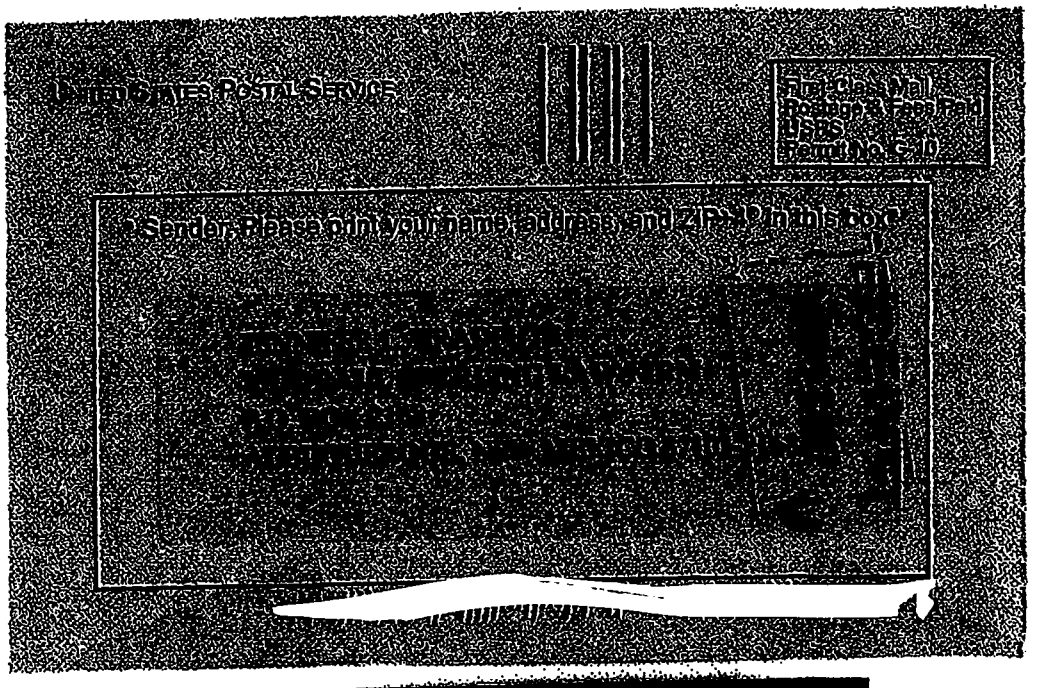
B. Received by (Printed Name) C. Date of Delivery
5/16/17

D. Is delivery address different from item 1? Yes
If YES, enter delivery address below: No

3. Service Type
Certified Mail® Priority Mail Express®
Registered Return Receipt for Merchandise
Insured Mail Collect on Delivery
Restricted Delivery? (Extra Fee) Yes

2. Article Number (Transfer from service label) 7010 2780 0002 5895 6653

PS Form 3811, July 2013 Domestic Return Receipt



U.S. Postal Service
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Postage $
Certified Fee
Return Receipt Fee (Endorsement Required)
Restricted Delivery Fee (Endorsement Required)
7.29

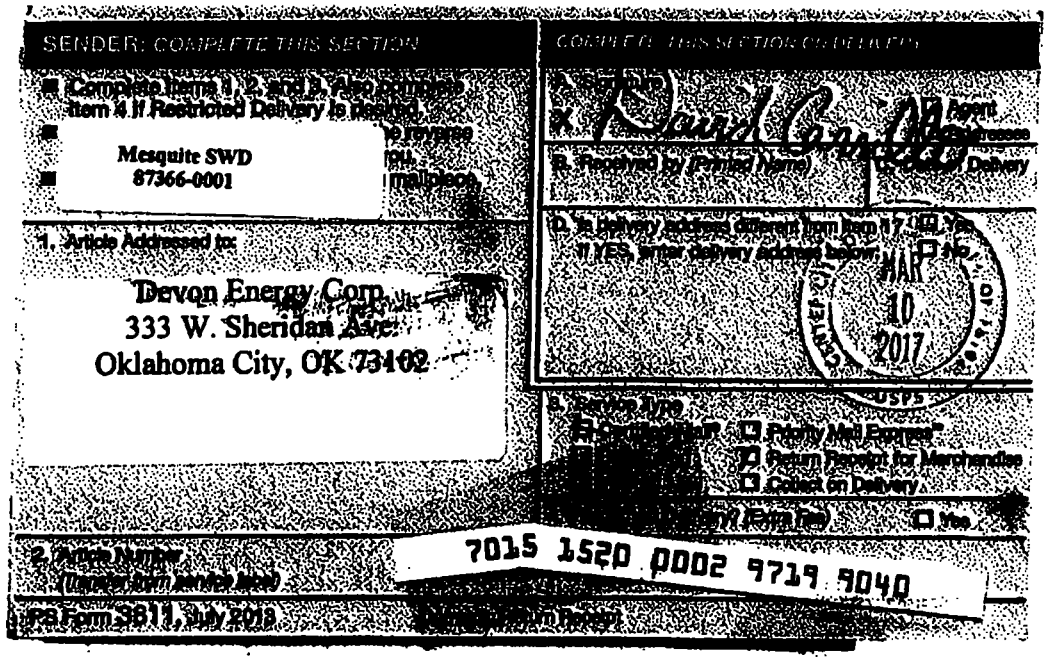
ALBUQUERQUE NEW MEXICO 87101
Postmark Here
USPS

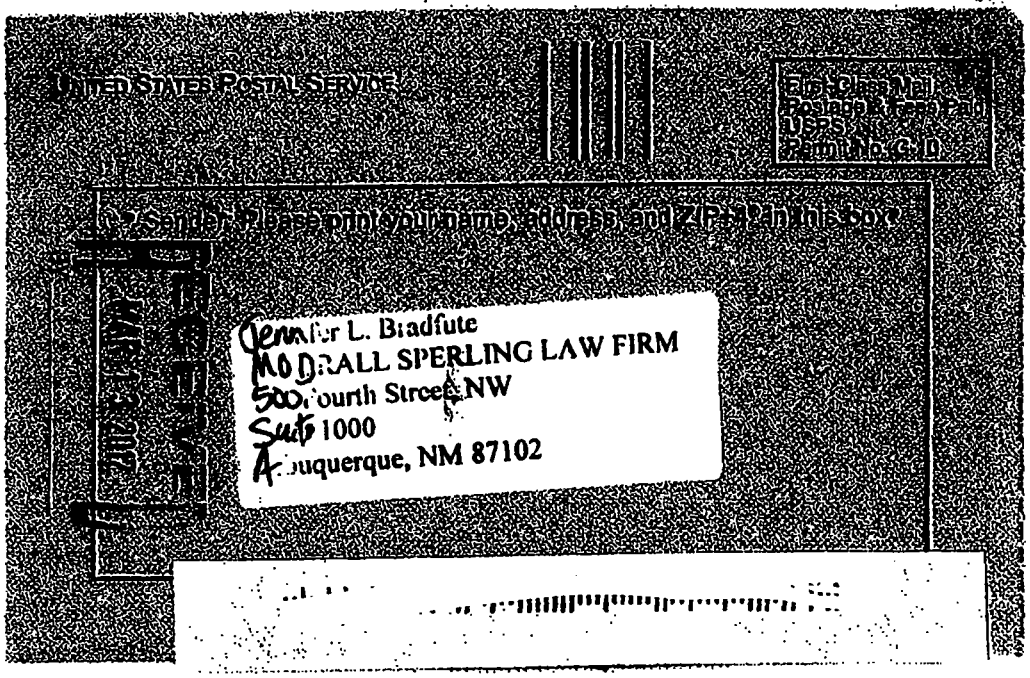
Matador Production Company
One Lincoln Centre
5400 LBJ Freeway, Ste. 1500
Dallas, TX 75240

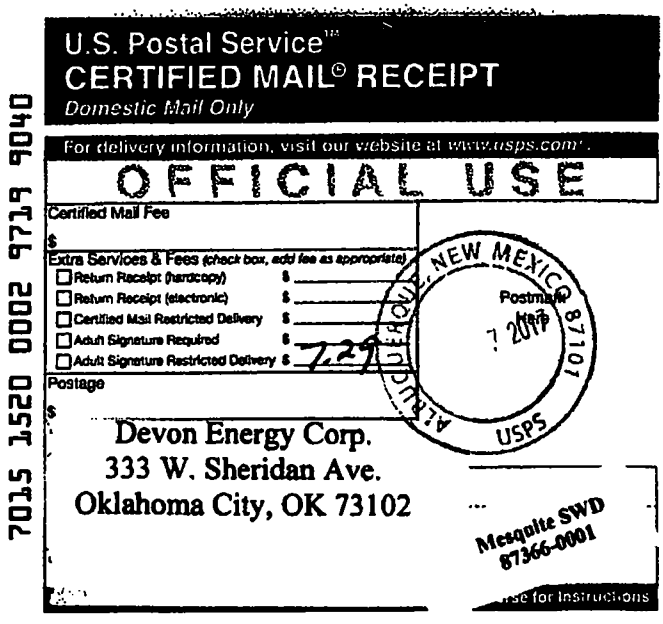
Mesquite SWD
87366-0001

7010 2780 0002 5895 6653

PS Form 3800, April 2015 See Reverse for Instructions


SENDER: COMPLETE THIS SECTION
Mesquite SWD
87366-0001
1. Article Addressed to:
Devon Energy Corp.
333 W. Sheridan Ave.
Oklahoma City, OK 73102
MAR
10
2017
7015 1520 0002 9719 9040


UNITED STATES POSTAL SERVICE
First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10
Sender: Please print your name, address, and ZIP+4® in this box
Jennifer L. Bradfute
MODRALL SPERLING LAW FIRM
500 Fourth Street NW
Suite 1000
Albuquerque, NM 87102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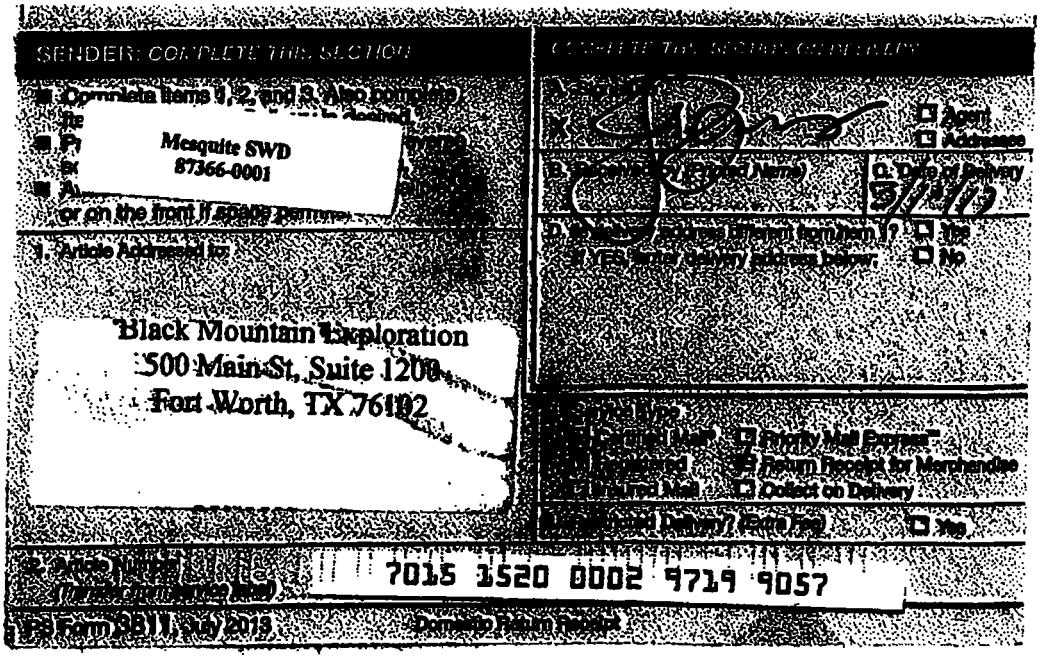
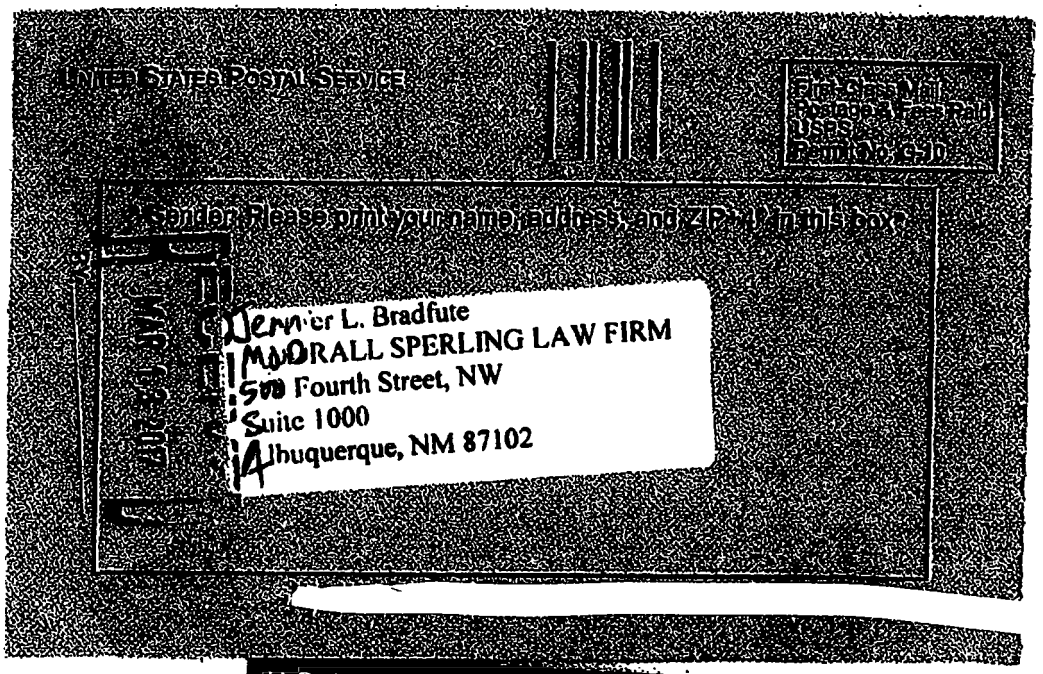
Certified Mail Restricted Delivery $
Adult Signature Required $
Adult Signature Restricted Delivery $ 7.27
Postage
$
ALBUQUERQUE, NEW MEXICO 87101
MAR 7 2017
USPS
Devon Energy Corp.
333 W. Sheridan Ave.
Oklahoma City, OK 73102
Mesquite SWD
87366-0001
7015 1520 0002 9719 9040


SENDER: COMPLETE THIS SECTION
Mesquite SWD
87366-0001
Black Mountain Exploration
500 Main St, Suite 1200
Fort Worth, TX 76102
7015 1520 0002 9719 9057
PS Form 3811, July 2015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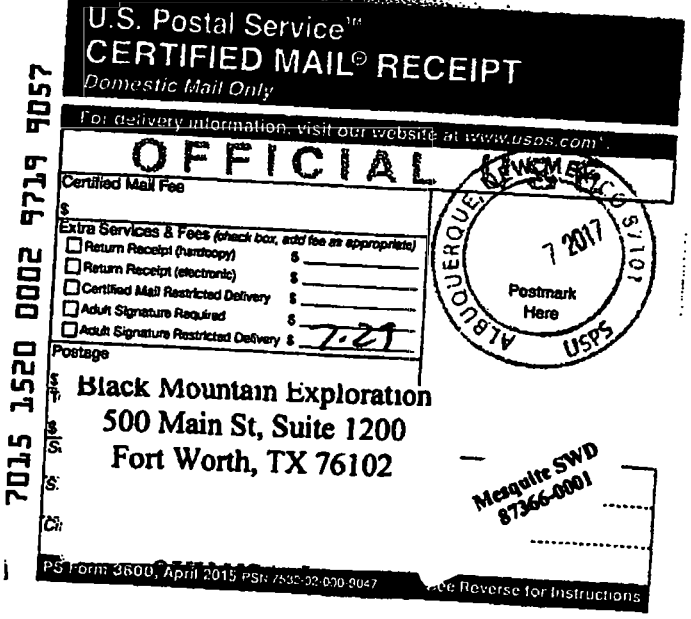
Jennifer L. Bradfute
MODRALL SPERLING LAW FIRM
500 Fourth Street, NW
Suite 1000
Albuquerque, NM 87102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ALBUQUERQUE NM 87102
7 2017
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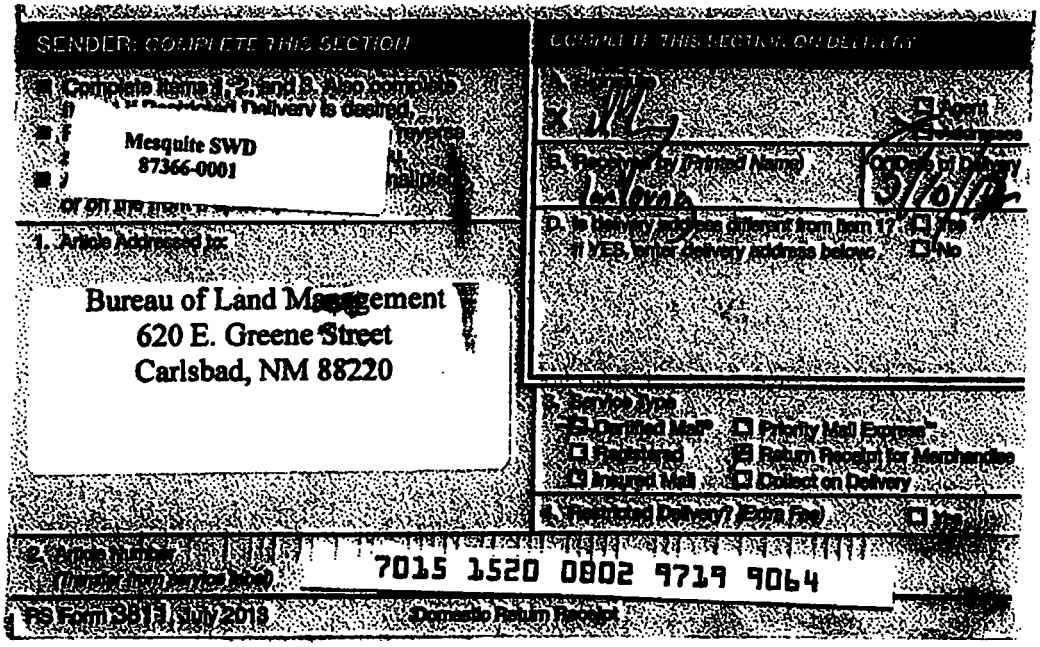
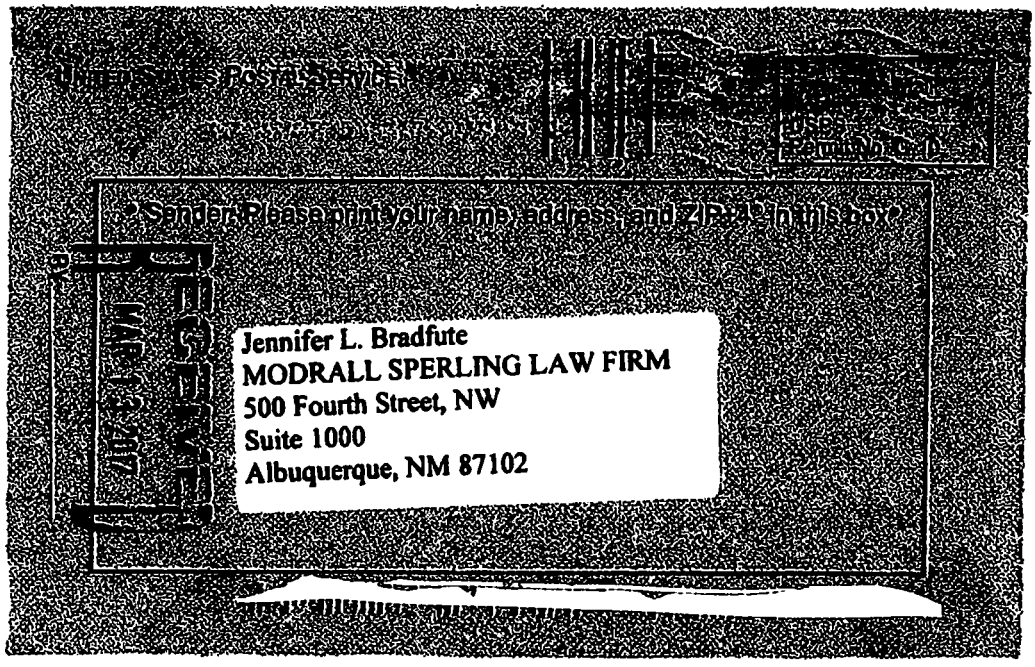
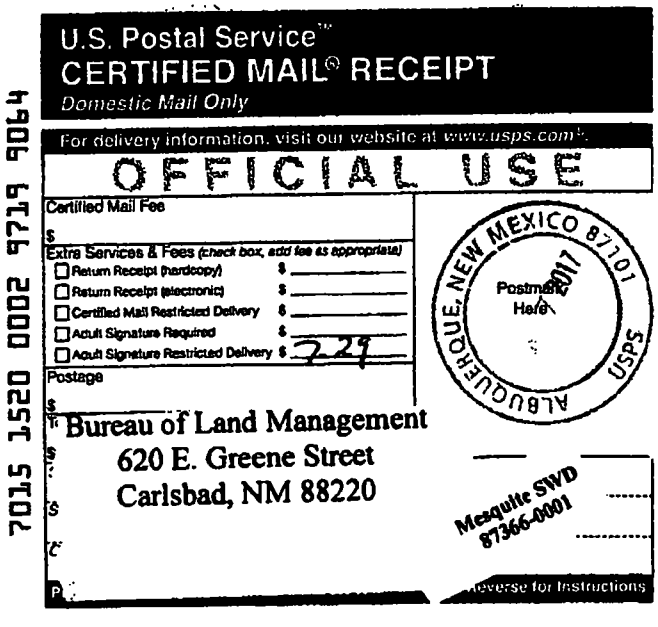
USPS
Black Mountain Exploration
500 Main St, Suite 1200
Fort Worth, TX 76102
Mesquite SWD
87366-0001
7015 1520 0002 9719 9057
PS Form 3800, April 2015
See Reverse for Instructions


SENDER: COMPLETE THIS SECTION
Mesquite SWD
87366-0001
1. Article Addressed to:
Bureau of Land Management
620 E. Greene Street
Carlsbad, NM 88220
7015 1520 0802 9719 9064
PS Form 3811, July 2019


Sender: Please print your name, address, and ZIP+4® in this box
Jennifer L. Bradfute
MODRALL SPERLING LAW FIRM
500 Fourth Street, NW
Suite 1000
Albuquerque, NM 87102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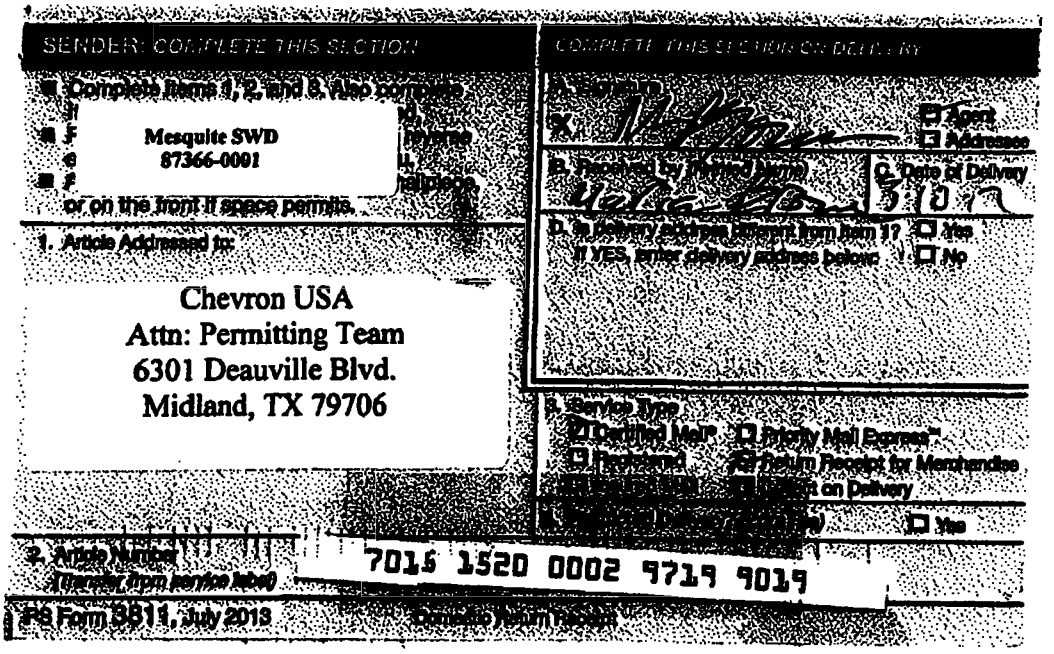
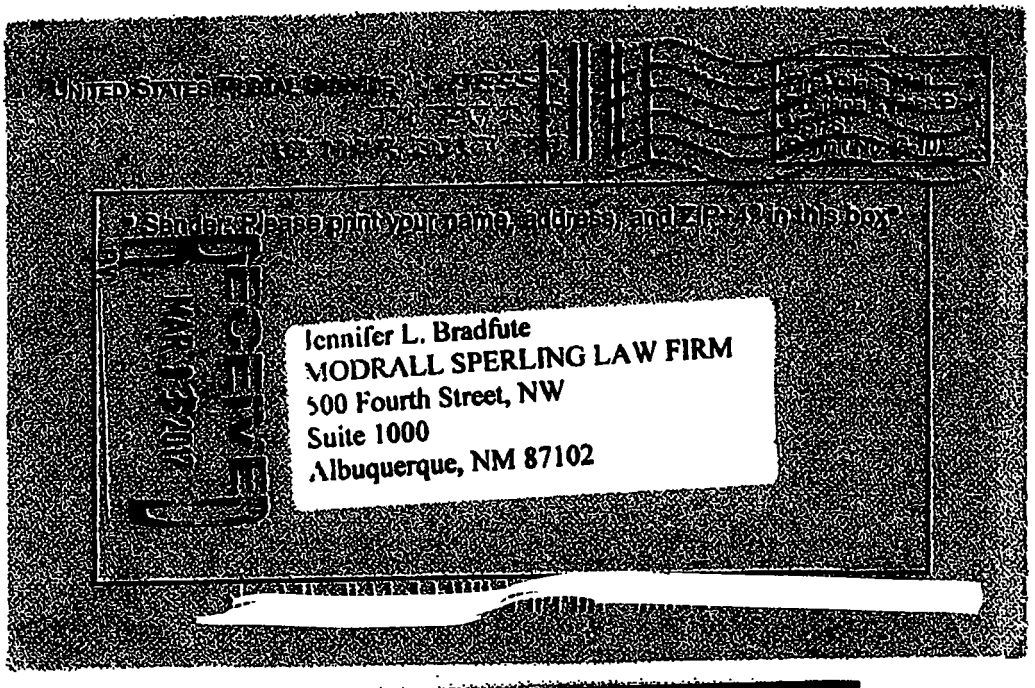
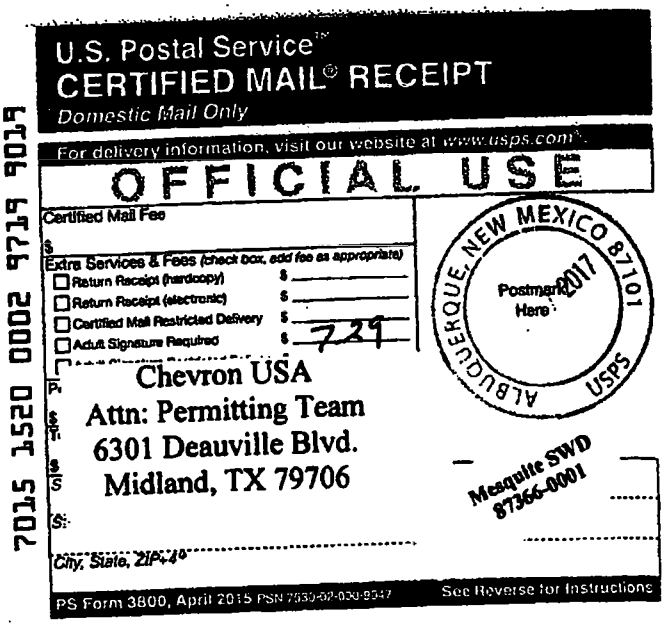
Bureau of Land Management
620 E. Greene Street
Carlsbad, NM 88220
Mesquite SWD
87366-0001
7015 1520 0002 9719 9064


SENDER: COMPLETE THIS SECTION
Mesquite SWD
87366-0001
or on the front if space permits.
1. Article Addressed to:
Chevron USA
Attn: Permitting Team
6301 Deauville Blvd.
Midland, TX 79706
COMPLETE THIS SECTION ON DELIVERY
Agent
Addressee
B. Received by (Printed Name)
C. Date of Delivery
D. Is delivery address different from item 1? Yes
If YES, enter delivery address below: No
Certified Mail®
Priority Mail Express™
Return Receipt for Merchandise
Yes
2. Article Number
7015 1520 0002 9719 9019
PS Form 3811, July 2013


UNITED STATES POSTAL SERVICE
Sender: Please print your name, address, and ZIP+4® in this box
Jennifer L. Bradfute
MODRALL SPERLING LAW FIRM
500 Fourth Street, NW
Suite 1000
Albuquerque, NM 87102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2017
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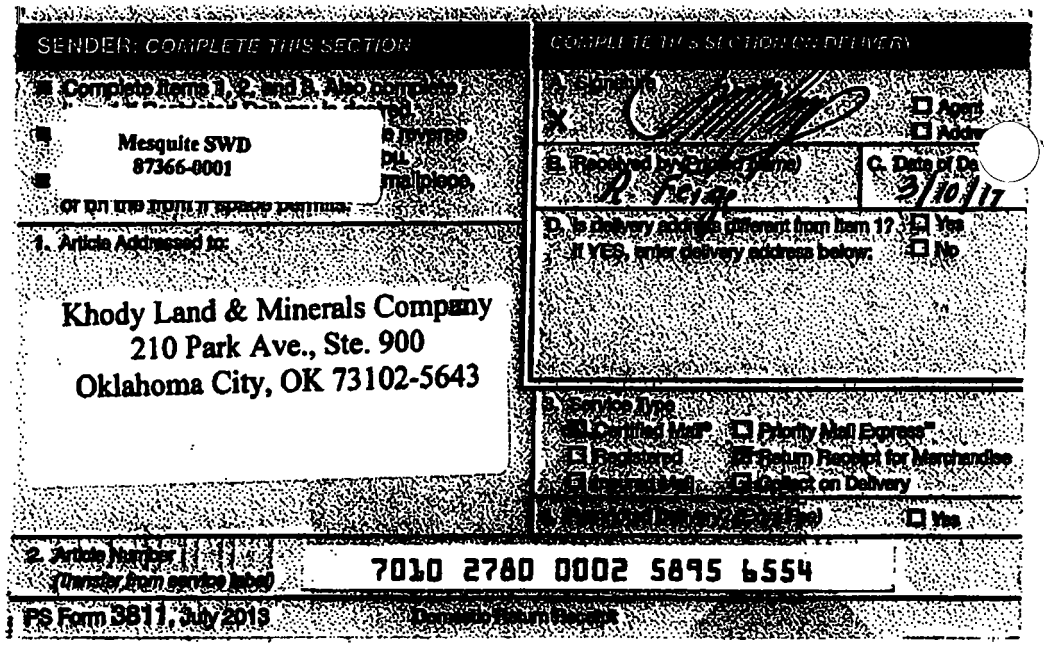
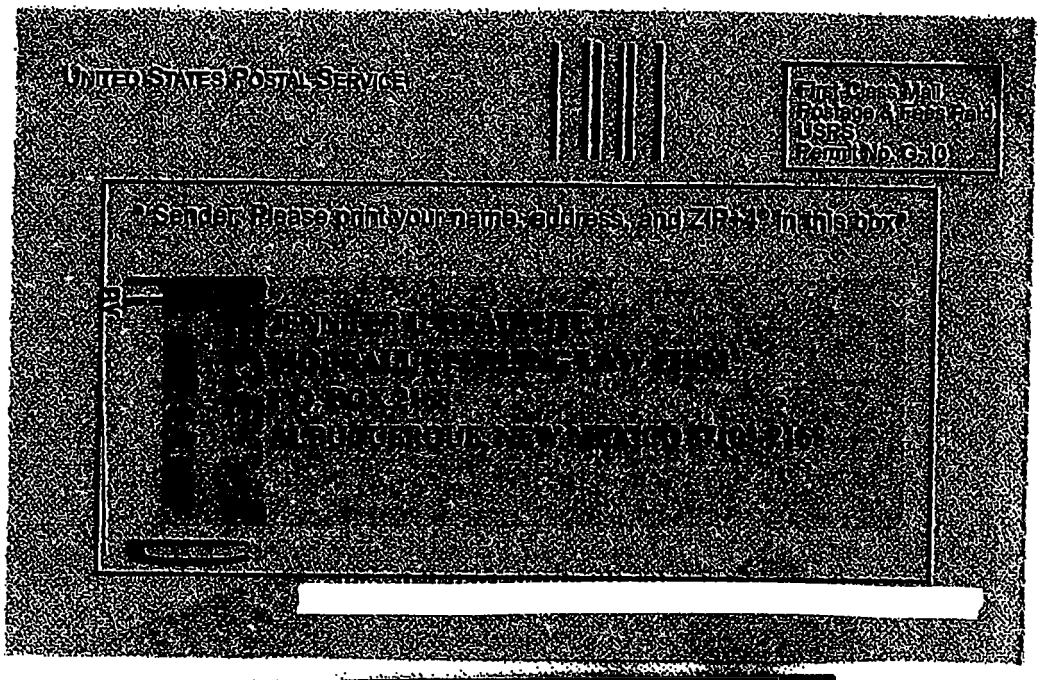
Chevron USA
Attn: Permitting Team
6301 Deauville Blvd.
Midland, TX 79706
Mesquite SWD
87366-0001
City, State, ZIP+4®
PS Form 3800, April 2015 PSN 7530-02-000-9047
See Reverse for Instructions
7015 1520 0002 9719 9019


SENDER: COMPLETE THIS SECTION
Mesquite SWD
87366-0001
1. Article Addressed to:
Khody Land & Minerals Company
210 Park Ave., Ste. 900
Oklahoma City, OK 73102-5643
3/10/17
7010 2780 0002 5895 6554
PS Form 3811, July 2013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Permit No. G-10
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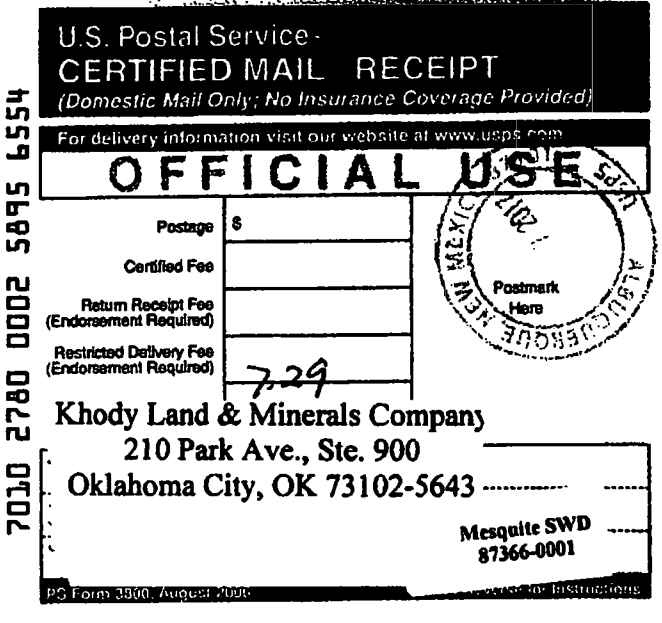
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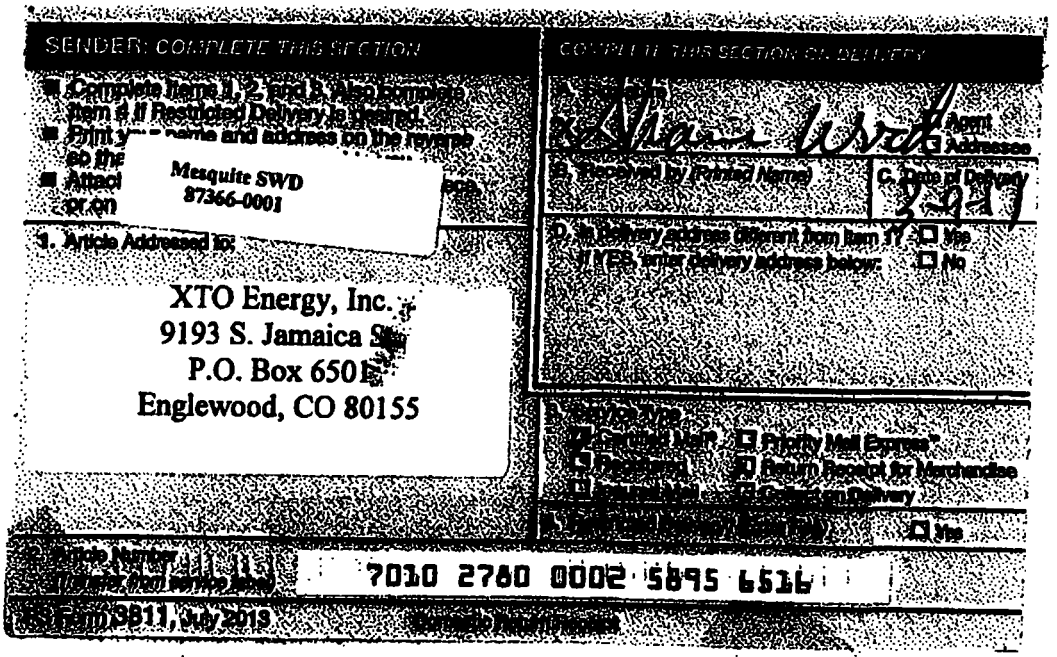
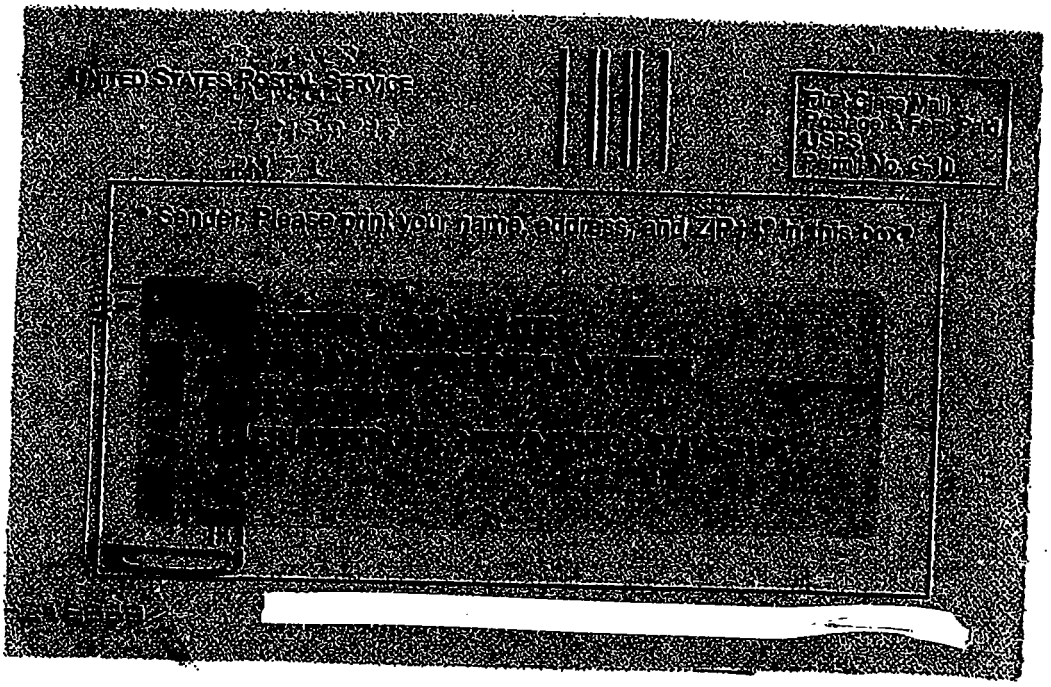
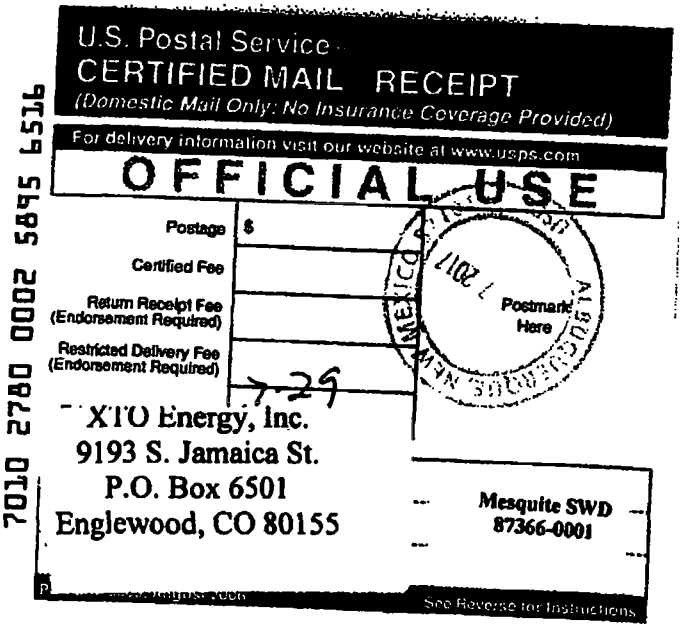
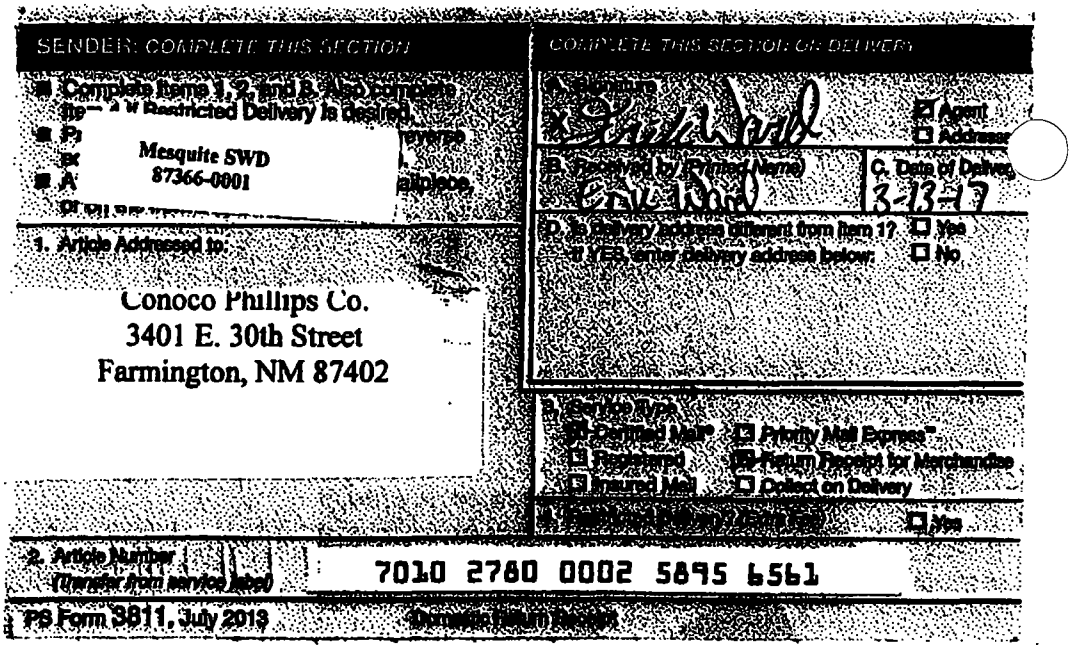
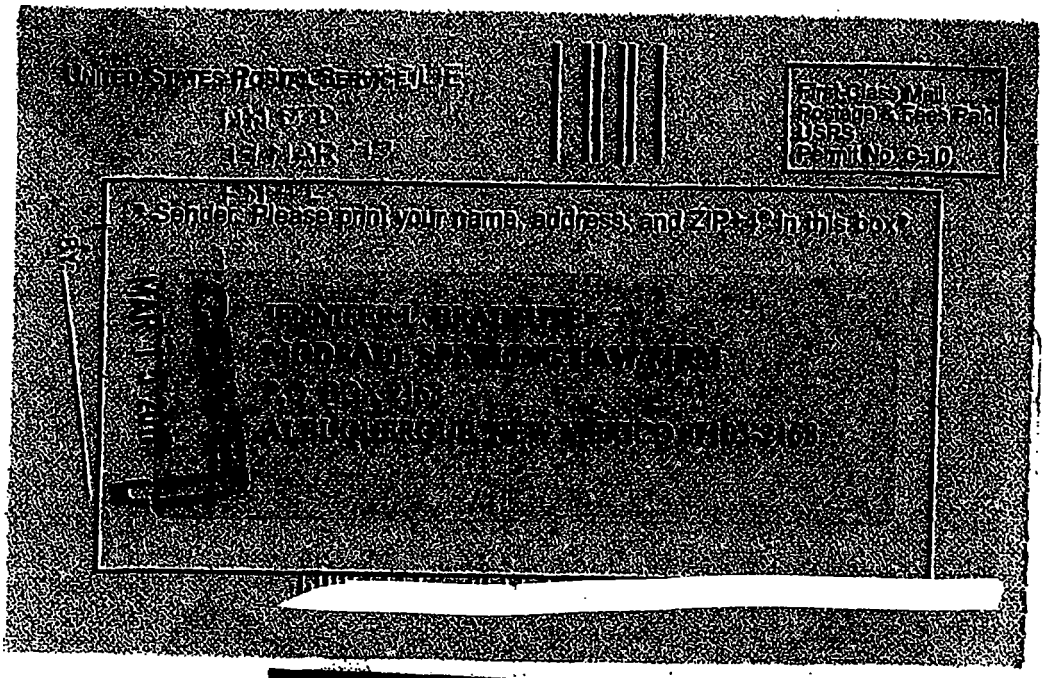
ALBUQUERQUE, NEW MEXICO
Khody Land & Minerals Company
210 Park Ave., Ste. 900
Oklahoma City, OK 73102-5643
Mesquite SWD
87366-0001
PS Form 3800, August 2006
7010 2780 0002 5895 6554

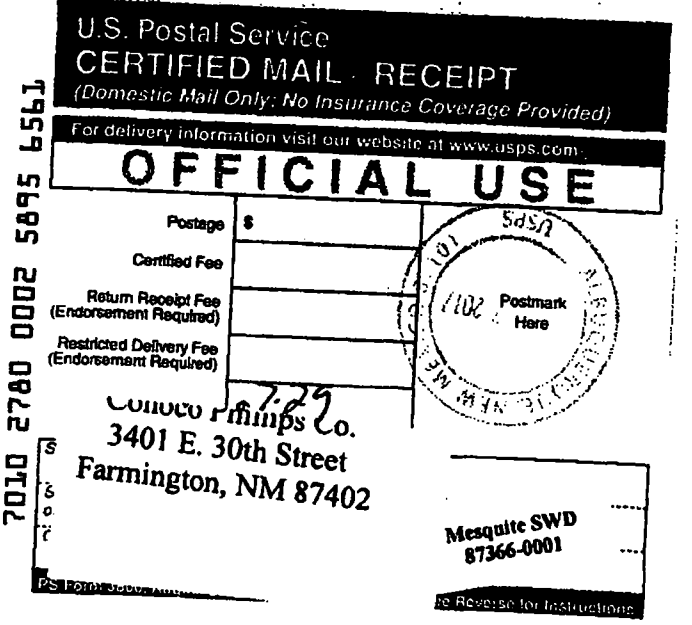

SENDER: COMPLETE THIS SECTION
Mesquite SWD
87366-0001
XTO Energy, Inc.
9193 S. Jamaica St
P.O. Box 6501
Englewood, CO 80155
7010 2780 0002 5895 6516
PS Form 3811, July 2013

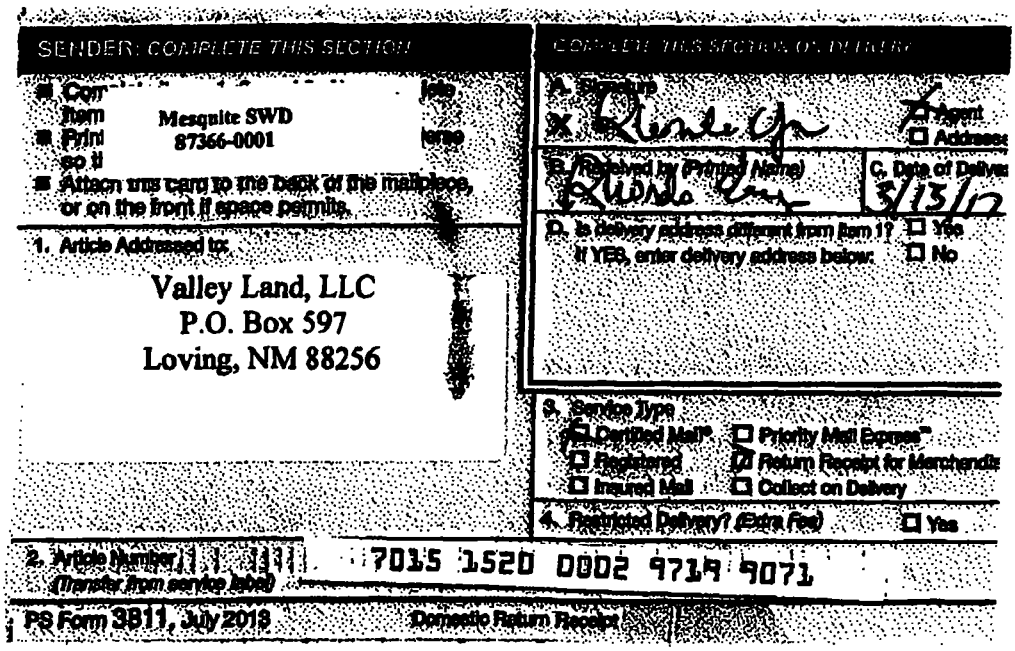

UNITED STATES POSTAL SERVICE
First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10
Sender: Please print your name, address, and ZIP+4® in this box


U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com
OFFICIAL USE
Postage
Certified Fee
Return Receipt Fee (Endorsement Required)
Restricted Delivery Fee (Endorsement Required)
Postmark Here
7.29
XTO Energy, Inc.
9193 S. Jamaica St.
P.O. Box 6501
Englewood, CO 80155
Mesquite SWD
87366-0001
7010 2780 0002 5895 6516
See Reverse for Instructions


SENDER: COMPLETE THIS SECTION
Complete items 1, 2, and 3. Also complete
Restricted Delivery is desired.
Mesquite SWD
87366-0001
1. Article Addressed to:
Conoco Phillips Co.
3401 E. 30th Street
Farmington, NM 87402
COMPLETE THIS SECTION ON DELIVERY
Agent
Addressee
B. Received by (Printed Name)
C. Date of Delivery
3-13-17
D. Is delivery address different from item 1? Yes
If YES, enter delivery address below: No
Certified Mail®
Priority Mail Express®
Registered
Return Receipt for Merchandise
Insured Mail
Collect on Delivery
2. Article Number
7010 2780 0002 5895 6561
PS Form 3811, July 2013
Domestic Return Receipt


UNITED STATES POSTAL SERVICE
15 MAR 17
First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10
Sender: Please print your name, address, and ZIP+4® in this box®
MAIL


U.S. Postal Service
CERTIFIED MAIL® RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE
Postage $
Certified Fee
Return Receipt Fee (Endorsement Required)
Restricted Delivery Fee (Endorsement Required)
Postmark Here
7010 2780 0002 5895 6561
Conoco Phillips Co.
3401 E. 30th Street
Farmington, NM 87402
Mesquite SWD
87366-0001
PS Form 3800
See Reverse for Instructions



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Valley Land, LLC
P.O. Box 597
Loving, NM 88256

Mesquite SWD
87366-0001

COMPLETE THIS SECTION ON DELIVERY

A. Signature
x [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) [signature] C. Date of Delivery 3/13/18

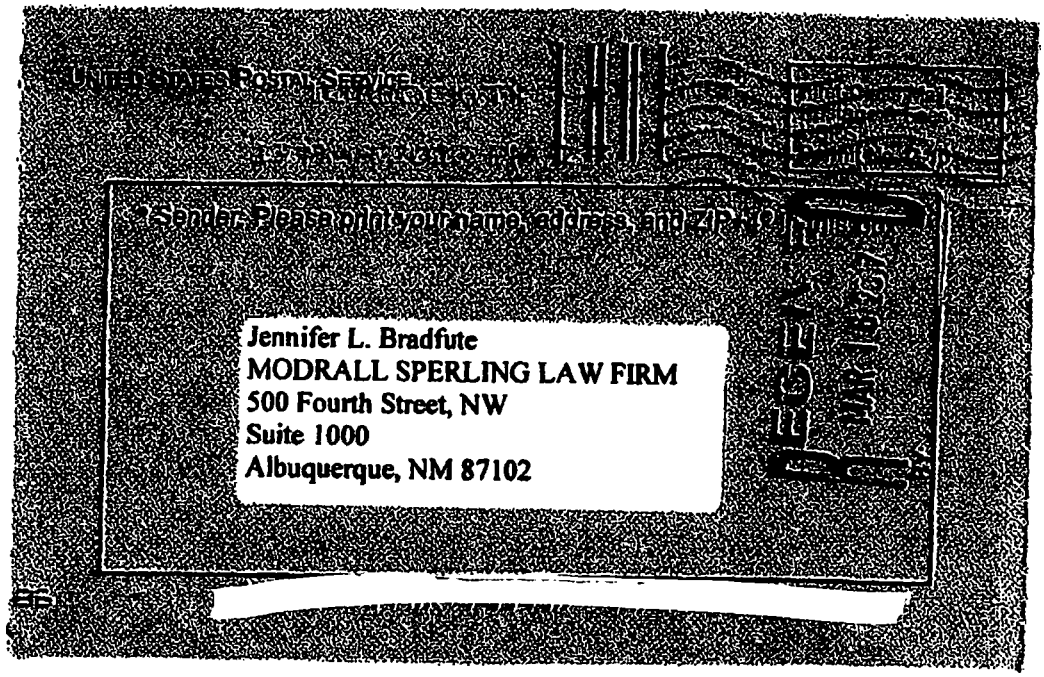
D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail® ☐ Priority Mail Express™
☐ Registered ☑ Return Receipt for Merchandise
☐ Insured Mail ☐ Collect on Delivery

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7015 1520 0002 9719 9071

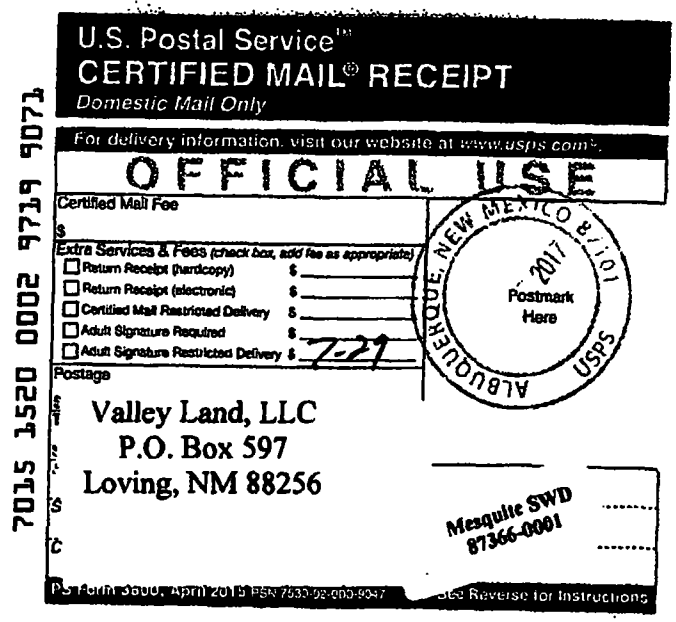
PS Form 3811, July 2013 Domestic Return Receipt



UNITED STATES POSTAL SERVICE

Sender: Please print your name, address, and ZIP+4® in this box

Jennifer L. Bradfute
MODRALL SPERLING LAW FIRM
500 Fourth Street, NW
Suite 1000
Albuquerque, NM 87102



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OFFICIAL USE

Certified Mail Fee
$

Extra Services & Fees (check box, add fee as appropriate)
☐ Return Receipt (hardcopy) $
☐ Return Receipt (electronic) $
☐ Certified Mail Restricted Delivery $
☐ Adult Signature Required $
☐ Adult Signature Restricted Delivery $ 7.27

Postage

ALBUQUERQUE, NEW MEXICO 87101 2017 USPS Postmark Here

Valley Land, LLC
P.O. Box 597
Loving, NM 88256

Mesquite SWD
87366-0001

7015 1520 0002 9719 9071

PS Form 3800, April 20[illegible] See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.

Mesquite SWD
87366-0001

1. Article Addressed to:

COG Operating, LLC
One Concho Center
600 W. Illinois Ave.
Midland, TX 79701

2. Article Number (Transfer from service label): 7010 2780 0002 5895 6639

PS Form 3811, July 2013 — Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature: [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name): C. Date of Delivery: 5/3/17

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail® ☐ Priority Mail Express™
☐ Registered ☒ Return Receipt for Merchandise
☐ Insured Mail ☐ Collect on Delivery

4. Restricted Delivery? (Extra Fee) ☐ Yes

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Sender: Please print your name, address, and ZIP+4® in this box •

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
	7.29

Postmark Here

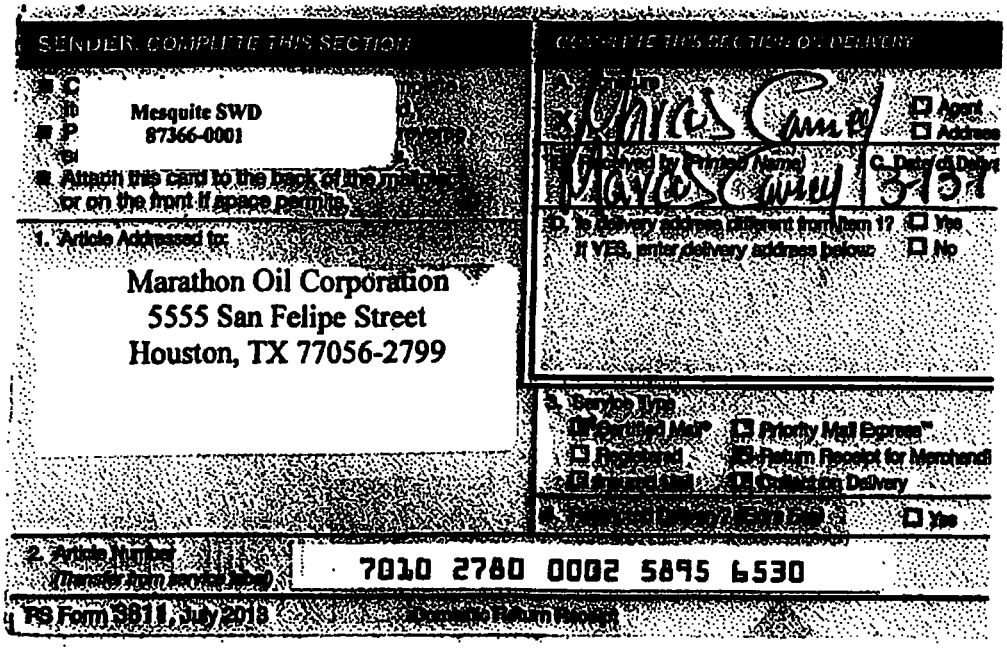
ALBUQUERQUE, NEW MEXICO 87101
7 2017
USPS

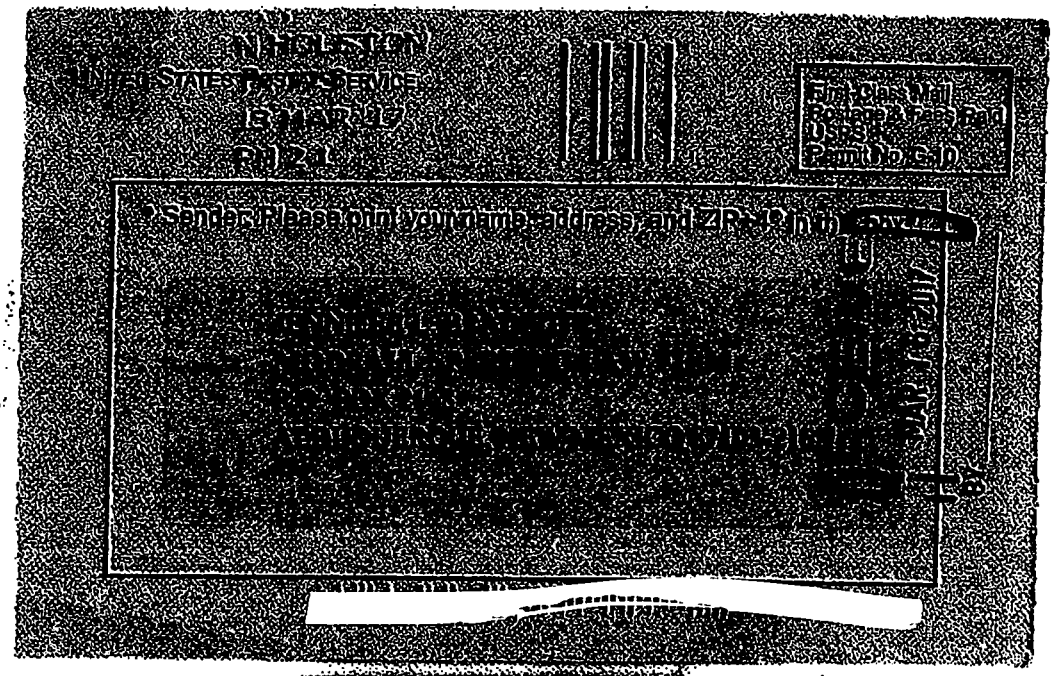
COG Operating, LLC
One Concho Center
600 W. Illinois Ave.
Midland, TX 79701

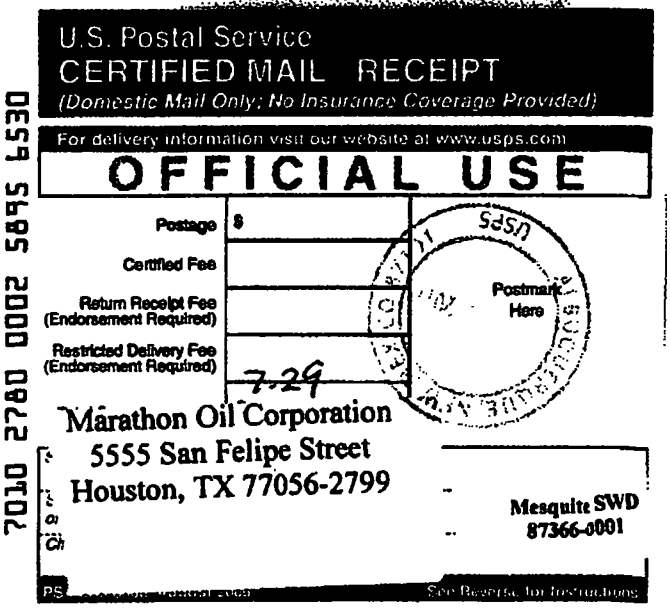
Mesquite SWD
87366-0001

7010 2780 0002 5895 6639

See Reverse for Instructions


SENDER: COMPLETE THIS SECTION
Mesquite SWD
87366-0001
Attach this card to the back of the mailpiece, or on the front if space permits.
1. Article Addressed to:
Marathon Oil Corporation
5555 San Felipe Street
Houston, TX 77056-2799
COMPLETE THIS SECTION ON DELIVERY
Agent
Address
D. Is delivery address different from item 1? Yes
If YES, enter delivery address below: No
Priority Mail Express®
Return Receipt for Merchandi
Delivery
Yes
2. Article Number
7010 2780 0002 5895 6530
PS Form 3811, July 2015
Domestic Return Receipt


First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10
Sender: Please print your name, address, and ZIP+4® in this box


U.S. Postal Service
CERTIFIED MAIL RECEIPT
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For delivery information visit our website at www.usps.com
OFFICIAL USE
Postage $
Certified Fee
Return Receipt Fee (Endorsement Required)
Restricted Delivery Fee (Endorsement Required)
7.29
Postmark Here
USPS
Marathon Oil Corporation
5555 San Felipe Street
Houston, TX 77056-2799
Mesquite SWD
87366-0001
7010 2780 0002 5895 6530
PS
See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete
- Mesquite SWD 87366-0001
- or on the front if space permits.

1. Article Addressed to:

PXP Production Co., LLC
700 Milam Street, Suite 3100
Houston, TX 77002-2764

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
☐ Agent
☐

B. Received by (Printed Name) C. Date 3-4

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail® ☐ Priority Mail Express™
☐ Registered ☐ Return Receipt for Merchandis
☐ Insured Mail ☐ Collect on Delivery

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7010 2780 0002 5895 6547

PS Form July 2013 Domestic Return Receipt

UNITED STATES POSTAL SERVICE

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Postage & Fees Paid
USPS

Sender: Please print your name, address, and ZIP+4® in this box

03/15

U.S. Postal Service
CERTIFIED MAIL RECEIPT
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OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	

Postmark Here

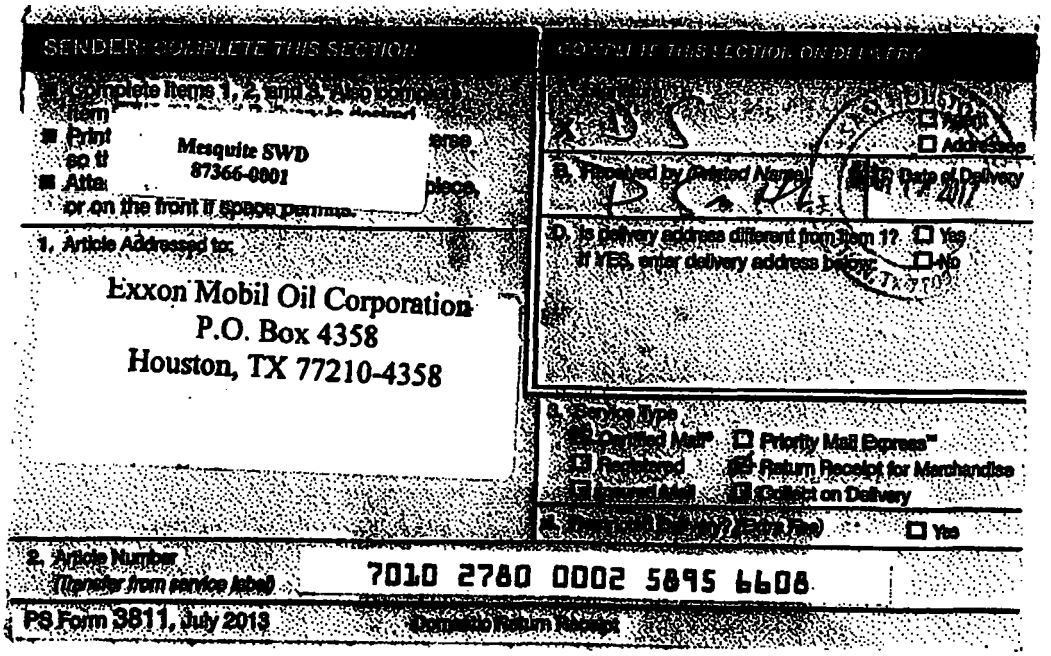
7.29

PXP Production Co., LLC
700 Milam Street, Suite 3100
Houston, TX 77002-2764

Mesquite SWD
87366-0001

PS Form 3800, August 2006 See Reverse for Instructions

7010 2780 0002 5895 6547



SENDER: COMPLETE THIS SECTION

Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.

Print your name and address on the reverse so that we can return the card to you.

Attach this card to the back of the mailpiece, or on the front if space permits.

Mesquite SWD
87366-0001

1. Article Addressed to:

Exxon Mobil Oil Corporation
P.O. Box 4358
Houston, TX 77210-4358

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
Agent
Addressee

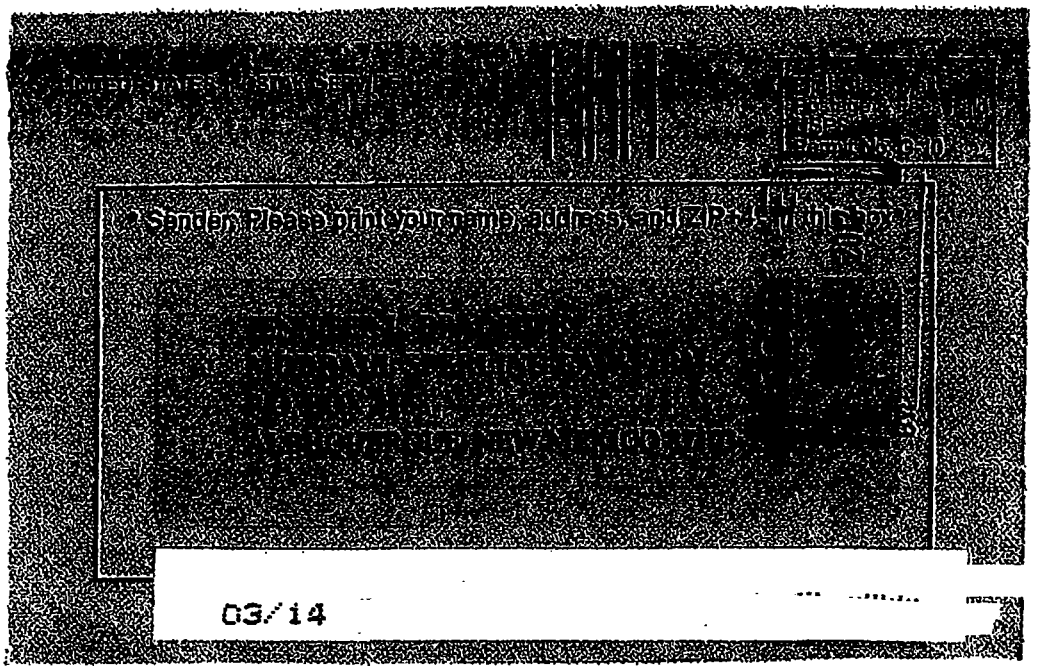
B. Received by (Printed Name) C. Date of Delivery

D. Is delivery address different from item 1? Yes
If YES, enter delivery address below: No

3. Service Type
Certified Mail® Priority Mail Express™
Registered Return Receipt for Merchandise
Insured Mail Collect on Delivery
4. Restricted Delivery? (Extra Fee) Yes

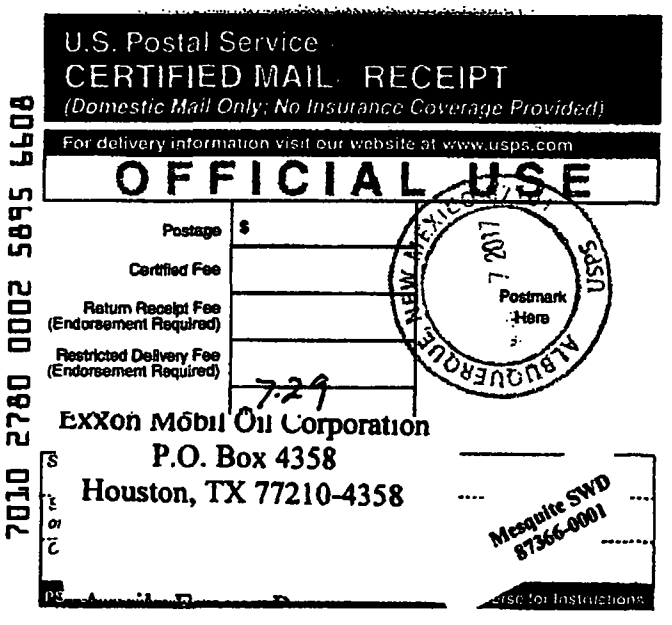
2. Article Number (Transfer from service label) 7010 2780 0002 5895 6608

PS Form 3811, July 2013 Domestic Return Receipt



Sender: Please print your name, address, and ZIP+4® in this box

03/14



U.S. Postal Service
CERTIFIED MAIL® RECEIPT
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For delivery information visit our website at www.usps.com

OFFICIAL USE

Postage $
Certified Fee
Return Receipt Fee (Endorsement Required)
Restricted Delivery Fee (Endorsement Required)
7.29

USPS ALBUQUERQUE, NEW MEXICO JUL 7 2017 Postmark Here

Exxon Mobil Oil Corporation
P.O. Box 4358
Houston, TX 77210-4358

Mesquite SWD
87366-0001

7010 2780 0002 5895 6608

PS Form 3800, April 2015 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

■ Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.

Mesquite SWD
87366-0001

1. Article Addressed to:

Yates Petroleum Corp, et al
105 S. 4th St.
Artesia, NM 88201

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

☐ Agent

B. Received by (Printed Name)

C. Date of Delivery 3/14/17

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail® ☐ Priority Mail Express™
☐ Registered ☒ Return Receipt for Merchandise
☐ Insured Mail ☐ Collect on Delivery

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7015 1520 0002 9719 9088

PS Form 3811, July 2013 Domestic Return Receipt

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Sender: Please print your name, address, and ZIP+4® in this box•

Jennifer L. Bradfute
MODRALL SPERLING LAW FIRM
500 Fourth Street, NW
Suite 1000
Albuquerque, NM 87102

RECEIVED MAR 17 2017

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OFFICIAL USE

Certified Mail Fee
$

Extra Services & Fees (check box, add fee as appropriate)
☐ Return Receipt (hardcopy) $
☐ Return Receipt (electronic) $
☐ Certified Mail Restricted Delivery $
☐ Adult Signature Required $
☐ Adult Signature Restricted Delivery $

Postage

Postmark Here

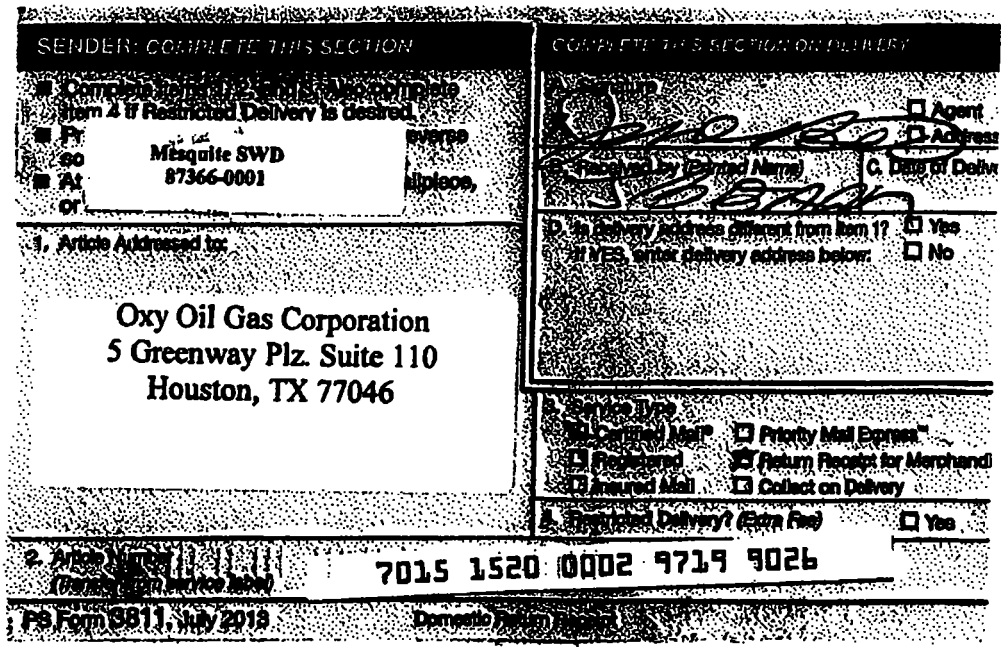
ALBUQUERQUE NEW MEXICO 87103 USPS 7 2017

Yates Petroleum Corp, et al
105 S. 4th St.
Artesia, NM 88201

Mesquite SWD
87366-0001

7015 1520 0002 9719 9088

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions



SENDER: COMPLETE THIS SECTION

Mesquite SWD
87366-0001

1. Article Addressed to:

Oxy Oil Gas Corporation
5 Greenway Plz. Suite 110
Houston, TX 77046

COMPLETE THIS SECTION ON DELIVERY

Agent
Address

C. Date of Deliv

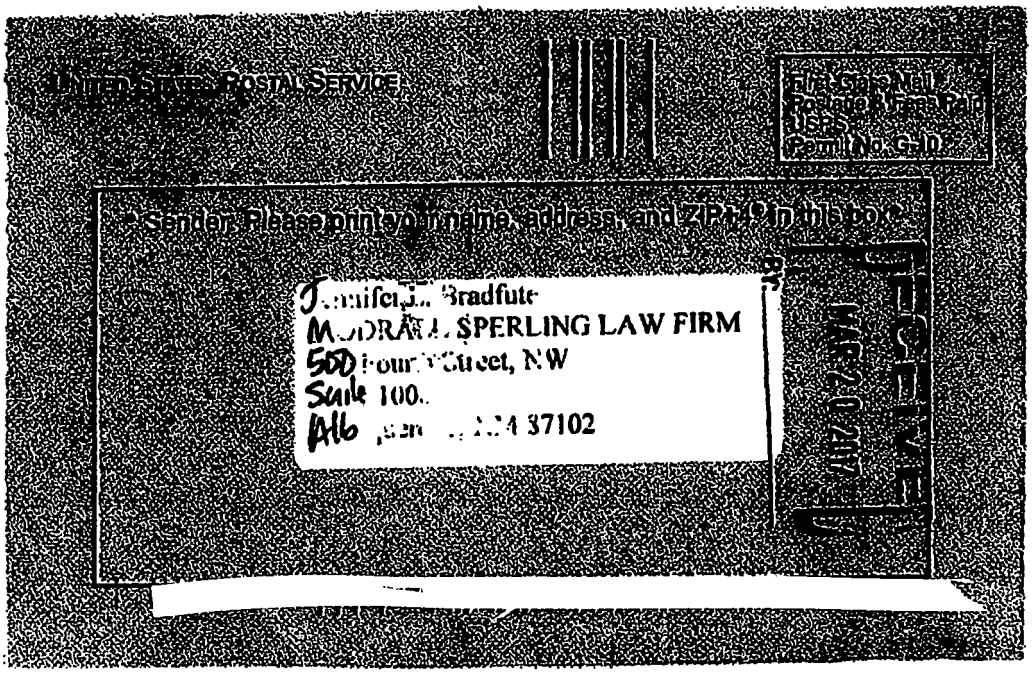
D. Is delivery address different from item 1? Yes
If YES, enter delivery address below: No

Service Type
Certified Mail® Priority Mail Express™
Registered Return Receipt for Merchandi
Insured Mail Collect on Delivery

Restricted Delivery? (Extra Fee) Yes

2. Article Number (Transfer from service label)
7015 1520 0002 9719 9026

PS Form 3811, July 2013 Domestic Return Receipt



UNITED STATES POSTAL SERVICE

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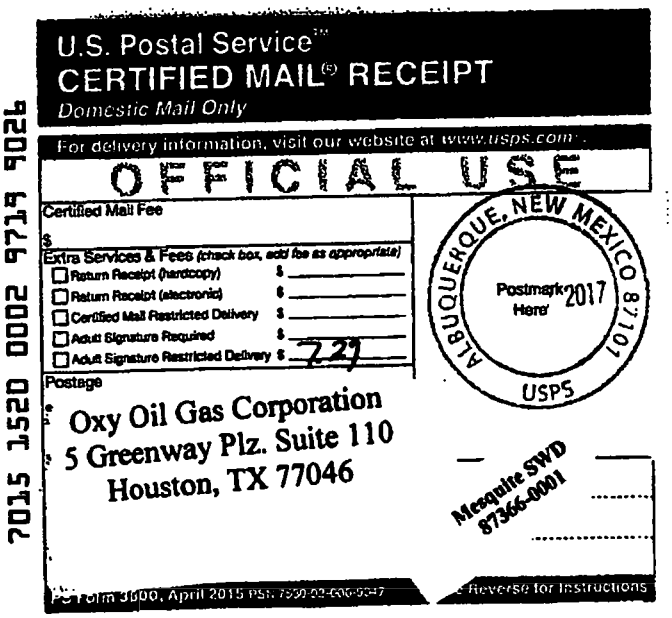
Postage & Fees Paid
USPS
Permit No. G-10

Sender: Please print your name, address, and ZIP+4® in this box

Jennifer L. Bradfute
MODRALL SPERLING LAW FIRM
500 Fourth Street, NW
Suite 100
Albuquerque, NM 87102

PRESS FIRMLY TO SEAL



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OFFICIAL USE

Certified Mail Fee
$

Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $
Return Receipt (electronic) $
Certified Mail Restricted Delivery $
Adult Signature Required $
Adult Signature Restricted Delivery $ 2.21

Postage

Oxy Oil Gas Corporation
5 Greenway Plz. Suite 110
Houston, TX 77046

ALBUQUERQUE, NEW MEXICO 87101
Postmark Here 2017
USPS

Mesquite SWD
87366-0001

7015 1520 0002 9719 9026

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

Mesquite SWD
87366-0001

1. Article Addressed to:

OXY USA, Inc.
P.O. Box 4294
Houston, TX 77210

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
B. Received by (Printed Name) C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

TX 7700?

3. Service Type
☑ Certified Mail® ☐ Priority Mail Express™
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ Collect on Delivery

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7015 1520 0002 9719 9033

PS Form 3811, July 2013 Domestic Return Receipt

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

Sender: Please print your name, address, and ZIP+4® in this box.

Jennifer L. Bradfute
MODRALL SPERLING LAW FIRM
500 Fourth Street, NW
Suite 1000
Albuquerque, NM 87102

RECEIVED
MAR 20 2017

7015 1520 0002 9719 9033

U.S. Postal Service™
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Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

OFFICIAL USE

Certified Mail Fee
$

Extra Services & Fees (check box, add fee as appropriate)
- ☐ Return Receipt (hardcopy) $
- ☐ Return Receipt (electronic) $
- ☐ Certified Mail Restricted Delivery $
- ☐ Adult Signature Required $
- ☐ Adult Signature Restricted Delivery $ 7-27

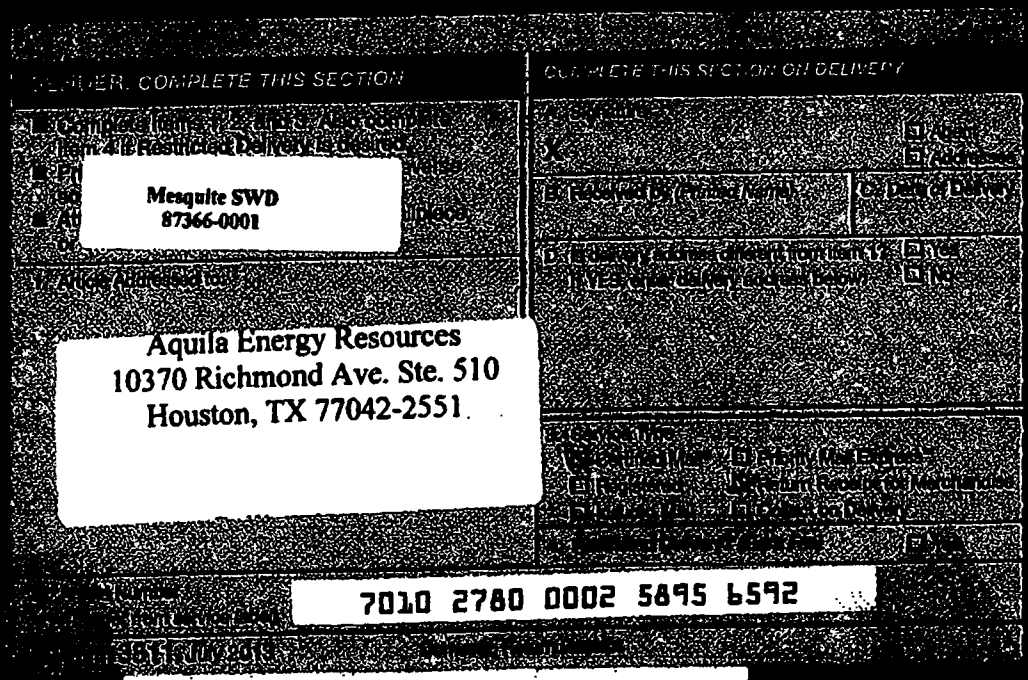
Postage
$

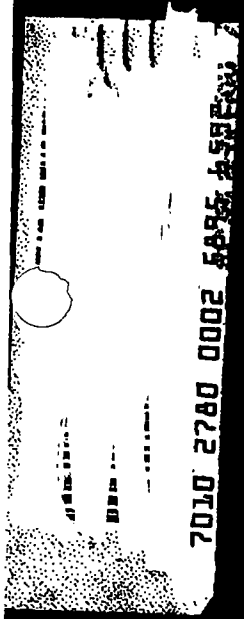
To OXY USA, Inc.
P.O. Box 4294
Houston, TX 77210

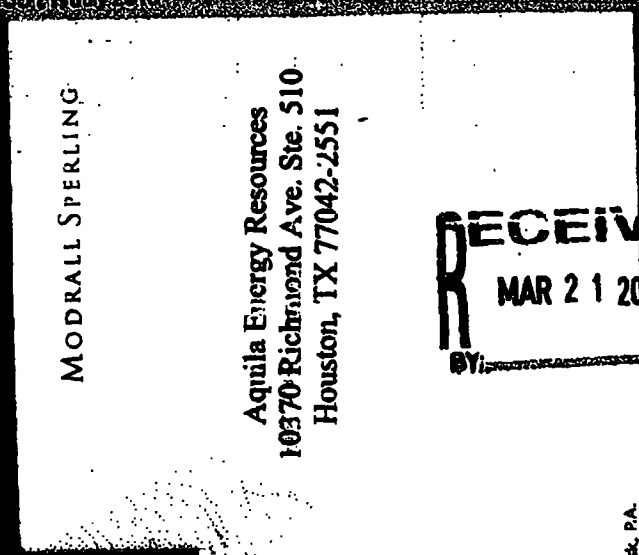
NEW MEXICO 87101 2017 ALBUQUERQUE USPS Postmark Here

Mesquite SWD
87366-0001

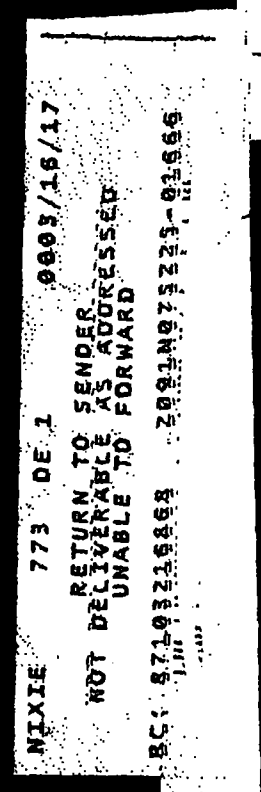
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

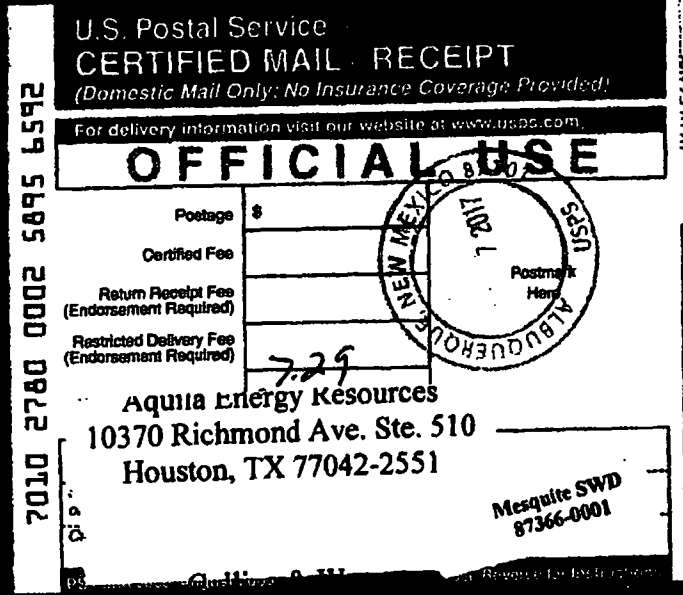

Mesquite SWD
87366-0001
Aquila Energy Resources
10370 Richmond Ave. Ste. 510
Houston, TX 77042-2551
7010 2780 0002 5895 6592


7010 2780 0002 5895 6592


MODRALL SPERLING
Aquila Energy Resources
10370 Richmond Ave. Ste. 510
Houston, TX 77042-2551
Modrall Sperling
Roehl Harris & Sisk, P.A.

MAR 2 1 20


NIXIE 773 DE 1 0003/16/17
RETURN TO SENDER
NOT DELIVERABLE AS ADDRESSED
UNABLE TO FORWARD
BC: 87103216468 2091N07S225-01666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CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
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Postage
Certified Fee
Return Receipt Fee (Endorsement Required)
Restricted Delivery Fee (Endorsement Required)
7.29
Postmark Here
ALBUQUERQUE, NEW MEXICO 87101
USPS
Aquila Energy Resources
10370 Richmond Ave. Ste. 510
Houston, TX 77042-2551
Mesquite SWD
87366-0001
7010 2780 0002 5895 6592

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Mesquite SWD
87366-0001

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Reverse for Instructions

Affidavit of Publication

State of New Mexico,
County of Eddy, ss.

Danny Fletcher, being first duly sworn, on oath says:

That he is the Publisher of the Carlsbad Current-Argus, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the State wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

March 16 2017

That the cost of publication is **$111.50** and that payment thereof has been made and will be assessed as court costs.

Subscribed and sworn to before me this 17 day of March, 2017

Cynthia Arredondo

My commission Expires 2/13/21

Notary Public

OFFICIAL SEAL
CYNTHIA ARREDONDO
Notary Public
State of New Mexico
My Comm. Expires 2/13/21

March 16, 2017

CASE No. 15654: Notice to all affected parties, as well as the heirs and devisees of: Chevron USA; Oxy Oil Gas Corporation; OXY USA, Inc.; Devon Energy Corp.; The United States Bureau of Land Management; Valley Land, LLC; Black Mountain Exploration; Yates Petroleum Corp; EOG Resources, Inc.; Trustees of the Conquistador Council; Matador Production Company; Mark McCloy; COG Operating, LLC; Myco Industries, Inc.; ABO Petroleum Corp.; Exxon Mobil Oil Corporation; Aquila Energy Resources; Collins & Ware; Condho Oil & Gas, LLC; Khody Land & Minerals Company; PXP Production Co, LLC; Marathon Oil Corporation; Mobil Producing Texas & New Mexico; and XTO Energy, Inc. for the application to amend administrative orders issued approving salt water disposal wells in Lea and Eddy Counties. The State of New Mexico, through its Oil Conservation Division, hereby gives notice that the Division will conduct a public hearing at 8:15 a.m. on March 30, 2017 to consider this application. Applicant seeks an order from the Division: Amending Order Numbers SWD-1667 for the San Dunes SWD #2 well, SWD-1642 for the Scott B SWD #1 well, SWD-1638 for the VL SWD #1 well, SWD-1556 for the Station SWD #1 well, SWD-1636 for the Cypress SWD #1 well, SWD-1610 for the Gnome East SWD #1 well, SWD-1602 for the Uber East SWD #1 well, and SWD-1600 for the Uber North SWD #1 well to allow for injection to occur through internally-coated, 5 ½ inch or smaller tubing. The orders issued by the Division currently only allow for tubing to be used if its 4 ½ inches or smaller. The Station SWD #1 well is located approximately 31.7 miles Northwest of Jal, New Mexico. The San Dunes SWD #2, Scott B SWD #1, and Scott B SWD #1 are located within 17 miles of Malaga, New Mexico. The Cypress SWD #1, Gnome East SWD #1, Uber East SWD #1, and Uber North SWD #1 are located approximately 21 - 37 miles southeast of Carlsbad, New Mexico.

Delaware Basin Stratigraphic Unit Descriptions

Lower Paleozoic

Woodford Shale (Upper Devonian)

The Woodford Shale is dominated by organic-rich mudstone interbedded with carbonate (limestone and/or dolostone) beds, chert beds and radiolarian laminae. This unit has been interpreted to include sedimentary gravity-flow deposits. Dominantly shale means lower porosity and permeability than the limestone/dolostone units above and below. The Woodford Shale is unconformable on the units below it. Locally this contact includes solution cavities and fissures down into the underlying carbonate unit(s), creating a complex boundary. It is up to 150' thick locally.

Thirtyone Formation (Lower Devonian)

The Thirtyone Formation is part of a wedge of sedimentary rocks that thins to the north and the west where the wedge ends up truncated beneath the base of the overlying Woodford Shale. The Thirtyone Formation is only present in southeastern Lea County and consists of an upper coarsely crystalline dolostone unit and lower chert unit. This unit is not present in the area of concern.

Wristen Group (Middle-Upper Silurian)

The Wristen Group consists of interbedded limestone and dolostone that has a maximum thickness in Lea County, then thins to the north and the west. Thicknesses range from 0 to 1,400' thick. In the Delaware Basin, it occurs up to 19,000' below land surface, then rises to 10,000' to 12,000' subsurface to the north and west. It represents deposition in a shelf-margin environment and includes buildups of coral reefs, stromatoporoids and other invertebrate colonialists. The carbonate beds include boundstones, rudstones and oolitic grainstones with significant primary porosity. To the north, reservoirs targeted for production are dolomitic with vugular and fracture-related porosity.

Fusselman Formation (Late Ordovician-Lower Silurian)

The Fusselman Formation is almost entirely dolostone and can be up to 1,500' thick. As with the overlying Thirtyone Formation and Wristen Group, the Fusselman Formation thinks to the north and west where it is truncated beneath the Woodford Shale to the north of where the Wristen Group pinches out. In Lea County, the Fusselman Formation can be 18,000' or more below land surface. It is primarily coarsely crystalline dolostone that is vugular, fractured and/or brecciated, with significant secondary porosity due to the fracturing and brecciation.

Exhibit 6

Montoya Group (Middle-Upper Ordovician)

The Montoya Formation includes three dolostone members overlying a sandstone unit. The three upper carbonate units include the Upham, Aleman and Cutter Members and the lower sandstone unit is the Cable Canyon Sandstone. The entire package can be up to 600' thick and depth to the top of the unit ranges from 5,500' near the northern pinchout in Chaves County to as much as 20,000' in southern Lea County. The Montoya Group was stripped from the higher parts of the Central Basin Platform by erosion in the Late Pennsylvanian and Early Permian.

Simpson Group (Middle-Upper Ordovician)

The Simpson Group in a heterogeneous unit with limestone, dolostone, sandstone and green shale horizons. Up to 1000' thick, it is dominated by the shale beds (55% of total thickness), followed by the dolostone and limestone beds (40%) and finally sandstone (5%). The shale horizons can serve as a permeability barrier between the underlying Precambrian basement rocks and overlying reservoirs where the Simpson Group is present and has sufficient thickness. Depths to the Simpson Group range from 6,700' on parts of the Central Basin Platform to up to 21,000' in the Delaware Basin.

Ellenburger Formation (Lower Ordovician)

The Ellenburger Formation is up to 1000' thick and composed of limestone and dolostone that represent cyclic deposition in waters of the inner platform with restricted circulation. Porosity in the Ellenburger Formation includes porosity in the matrix, vugs, major karst dissolution features, collapse karst breccias and fractures. Depths to the top of the unit range from 7,500' on the Central Basin Platform to up to 22,000' in the Delaware Basin.

References

Broadhead, R.F., 2017, Petroleum Geology: *in* V.T. McLemore, S. Timmons and M. Wilks (eds.), Energy and Mineral Resources of New Mexico, New Mexico Bureau of Geology and Mineral Resources Memoir 50, vol. A, 90 p.

Comer, J.B., 1991, Stratigraphic analysis of the Upper Devonian Woodford Formation, Permian Basin, West Texas and southeastern New Mexico: Bureau of Economic Geology, University of Texas at Austin, Report of Investigations no. 201, 63 p.

Hemmesch, N.T., Harris, N.B., Mnich, C.A. and Selby, D., 2014, A sequence-stratigraphic framework for the Upper Devonian Woodford Shale, Permian Basin, west Texas: American Association of Petroleum Geologists Bulletin, v. 98, no. 1, p. 23-47, doi:10.1306/05221312077

Texas Bureau of Economic Geology, 2009, Integrated Synthesis of the Permian Basin: Data and Models for Recovering Existing and Undiscovered Oil Resources from the Largest Oil-Bearing Basin in the U.S.: Department of Energy Final Technical Report, Award No: DE-FC26-04NT15509, 964 p.

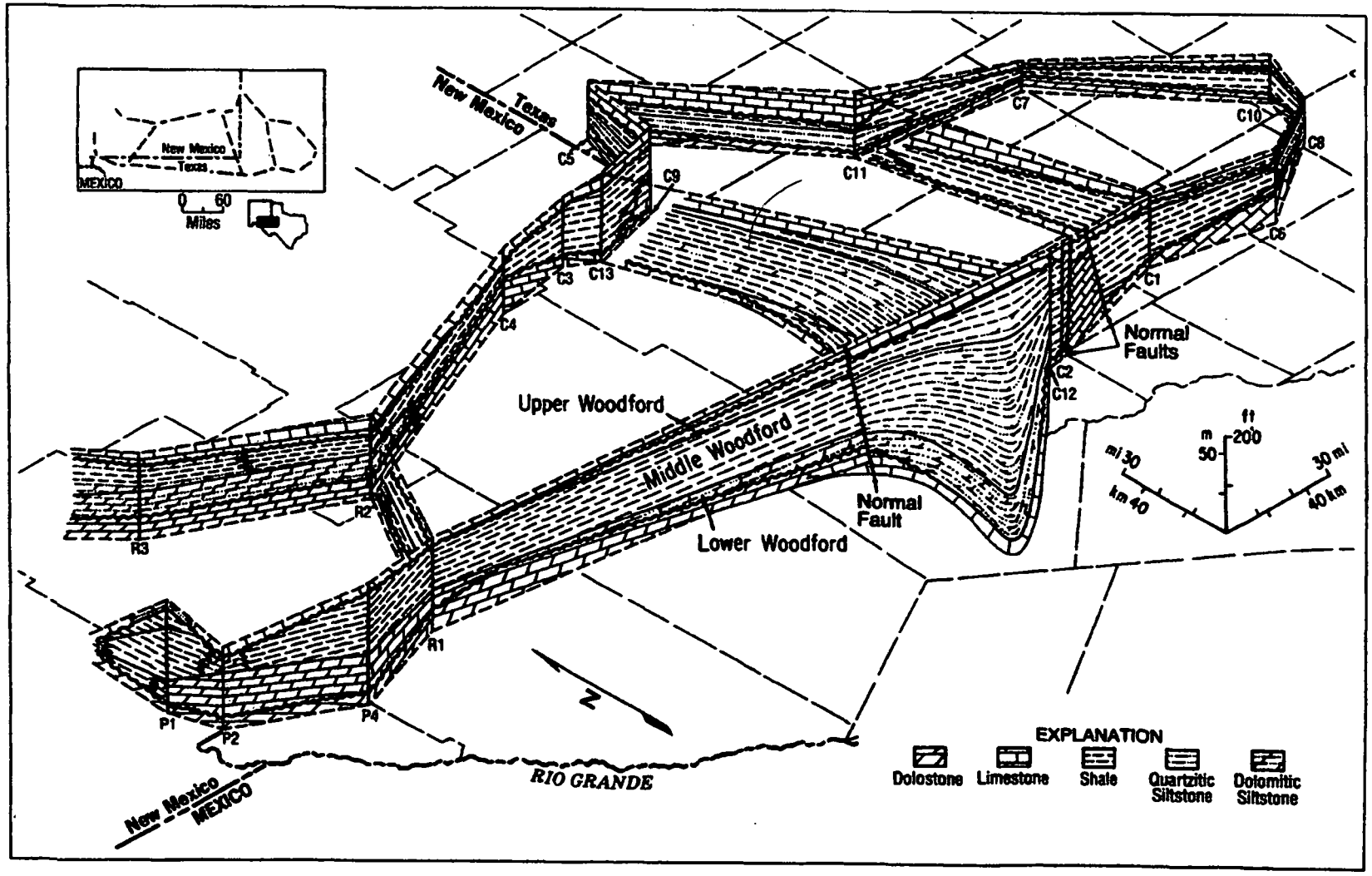
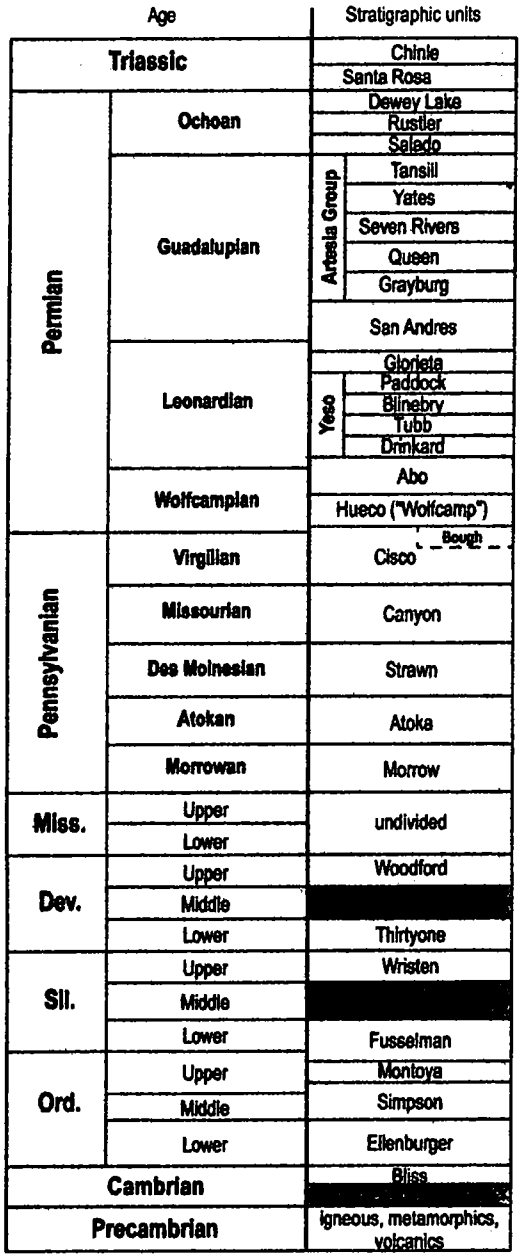
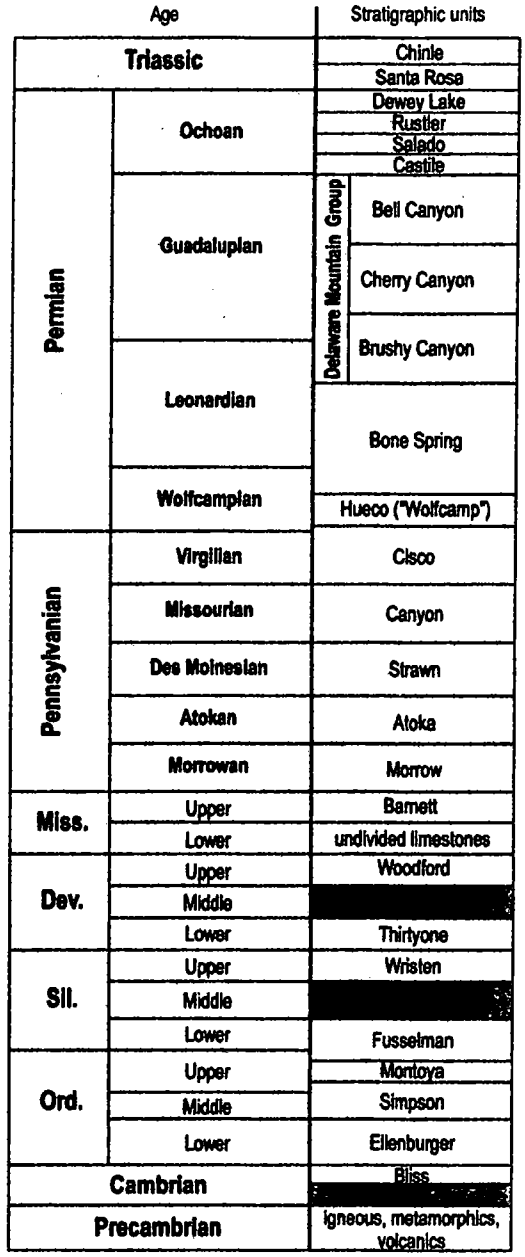


FIGURE 8. Fence diagram of Upper Devonian units. Correlation from outcrop to subsurface from Rosado (1970). Datum is top of Woodford. Locality numbers refer to map symbols in appendix A.

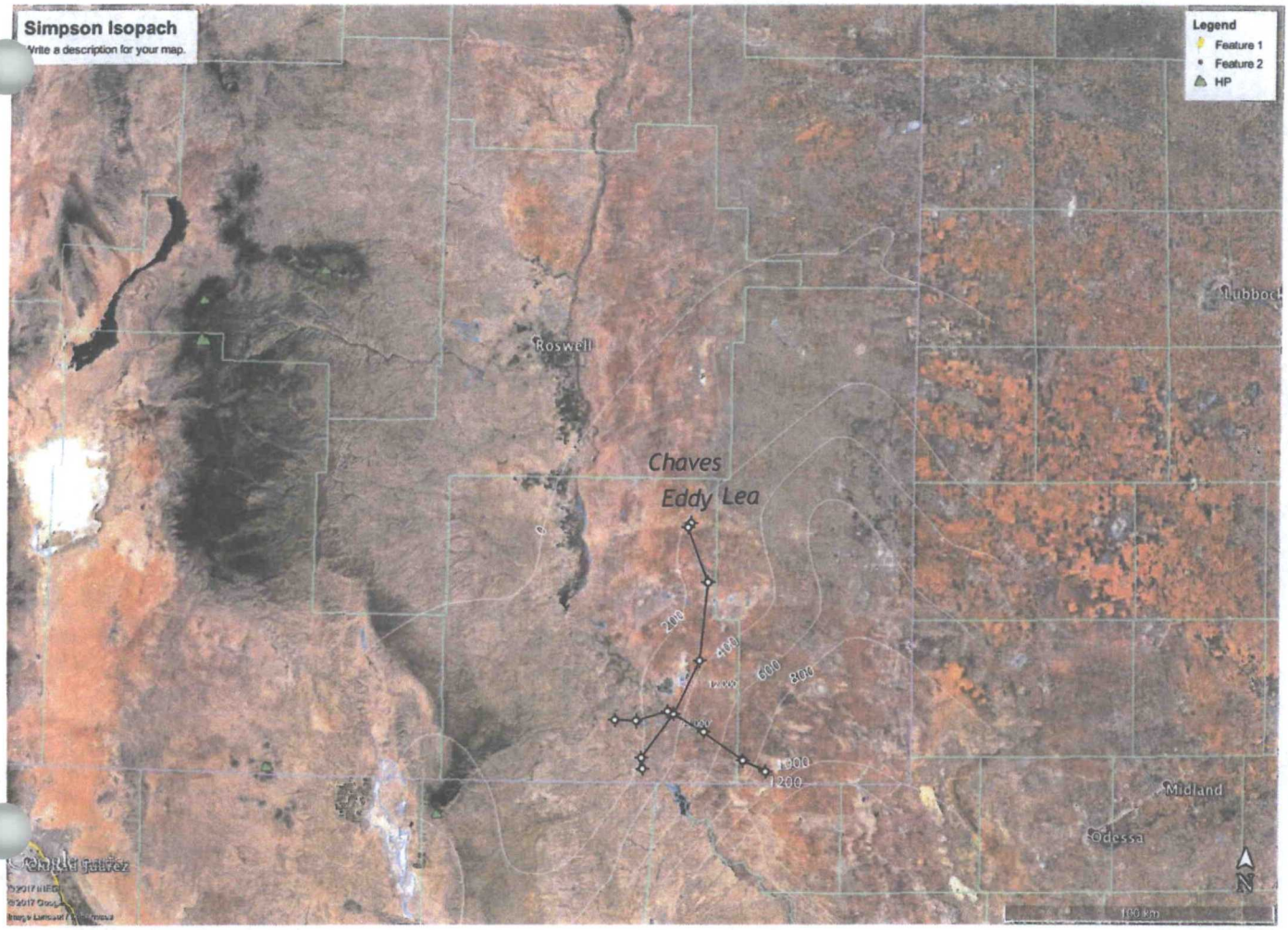
Exhibit 7





Stratigraphic charts for the Northwest Shelf and Central Basin Platform (left-hand figure) and Delaware Basin (right-hand figure). Strata of concern for this investigation include the Precambrian through Devonian units in the Delaware Basin figure. From Broadhead (2017).

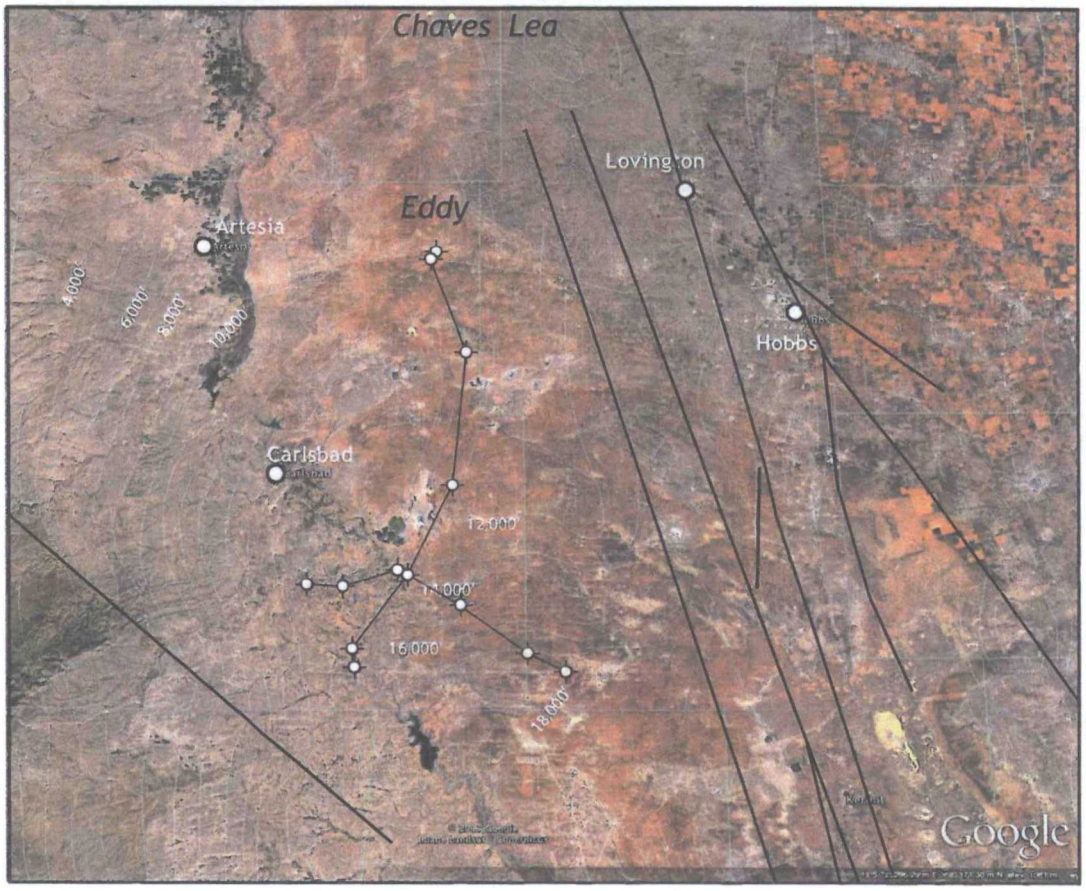
Exhibit 8



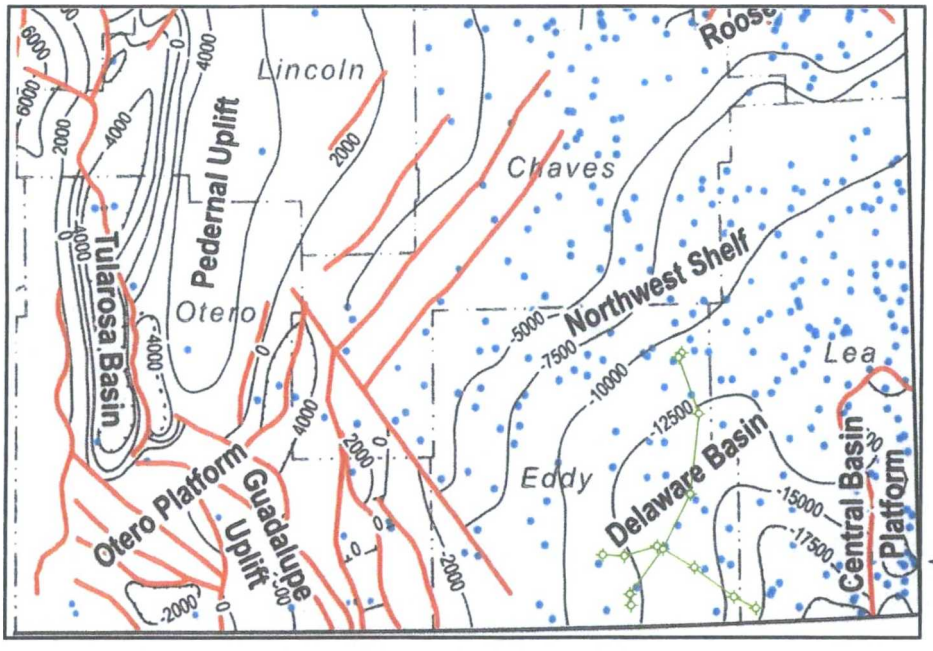
Simpson Isopach (from http://www.beg.utexas.edu/resprog/permianbasin/integsynthesis.htm; from Freznal et al., 1992)

Exhibit 9

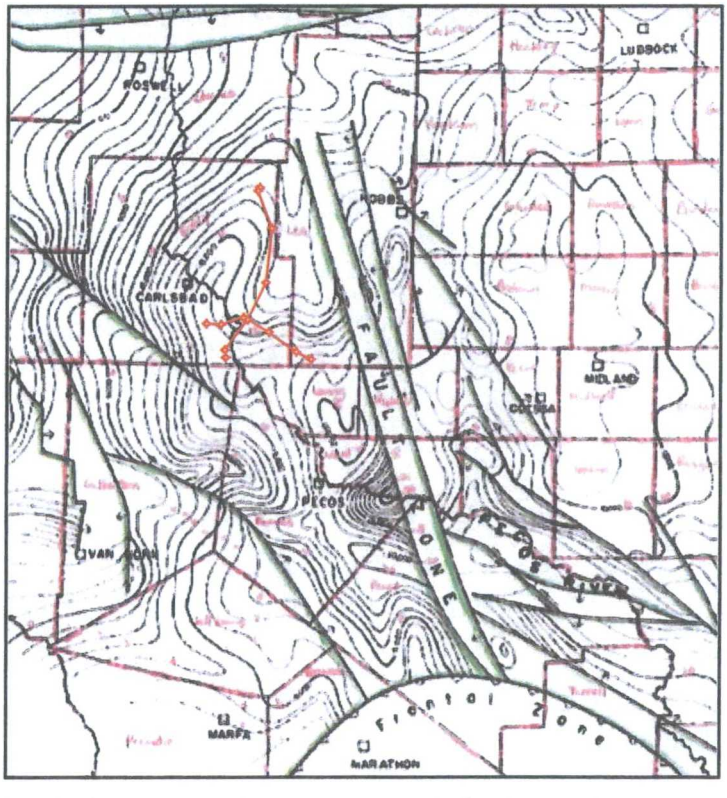
Exhibit 10



Structure map on the top of the Precambrian (white lines) in feet below sea level. Black lines are fault zones. From the Texas Bureau of Economic Geology 2009 Integrated Synthesis of the Permian Basin.

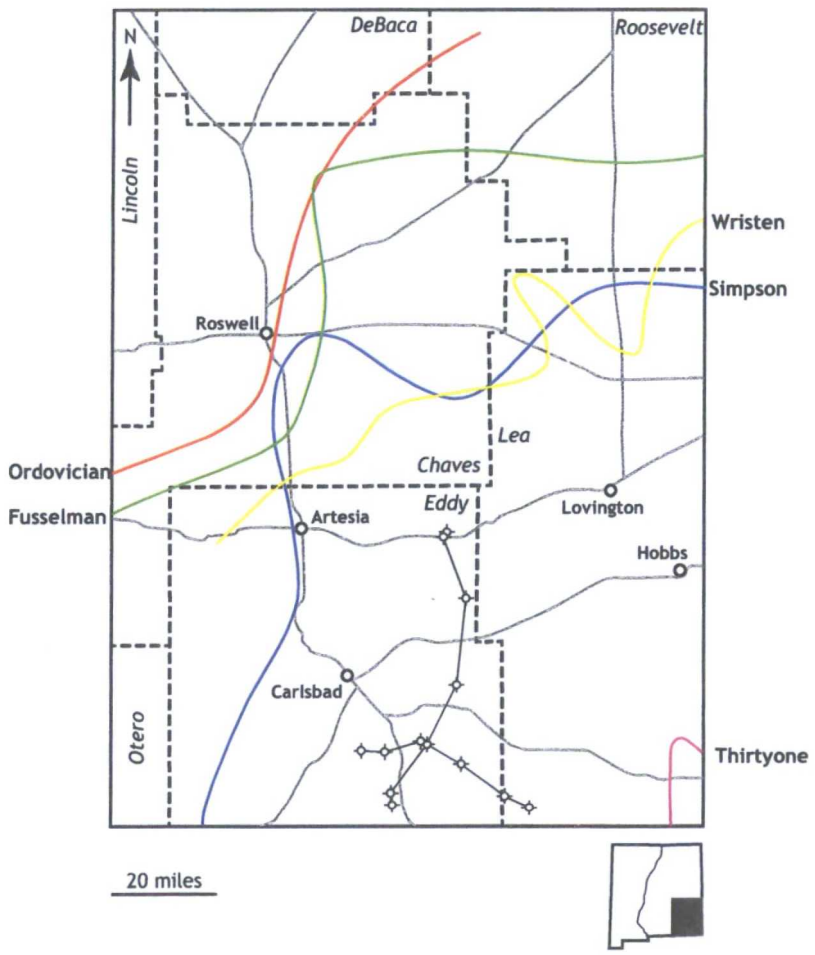


Precambrian structure contour map for southeastern New Mexico (from Broadhead, 2017). Arrow points to location of cross-sections (in green).



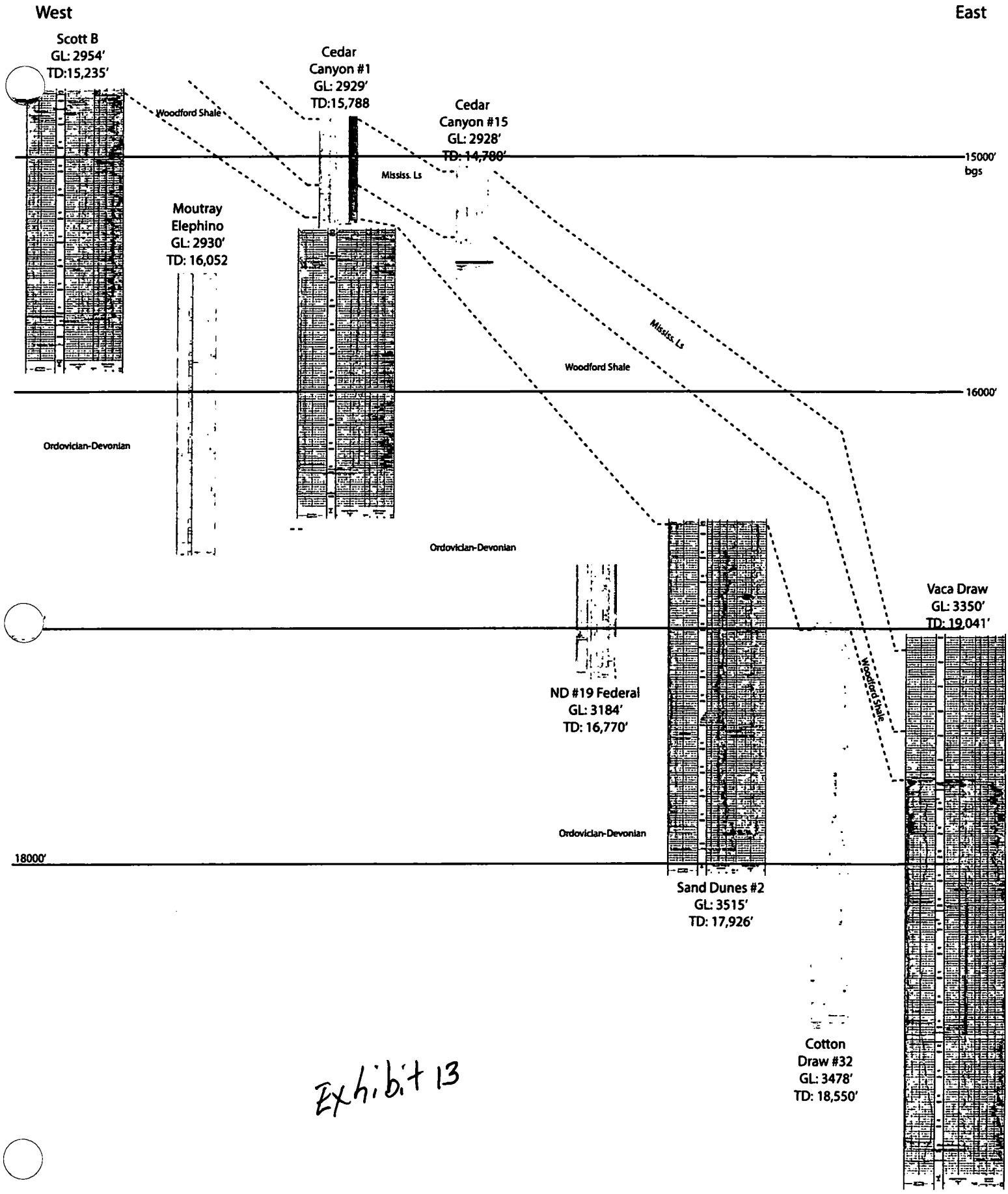
Detailed Precambrian structure contour map for Permian Basin.

Exhibit 11



Pinch-out limits for various Lower Paleozoic units in the Permian Basin (from Broadhead, 2017). Cross-section lines are located in eastern Eddy County and are within the pinch-outs of all units shown except for the Thirtyone Formation.

Exhibit 12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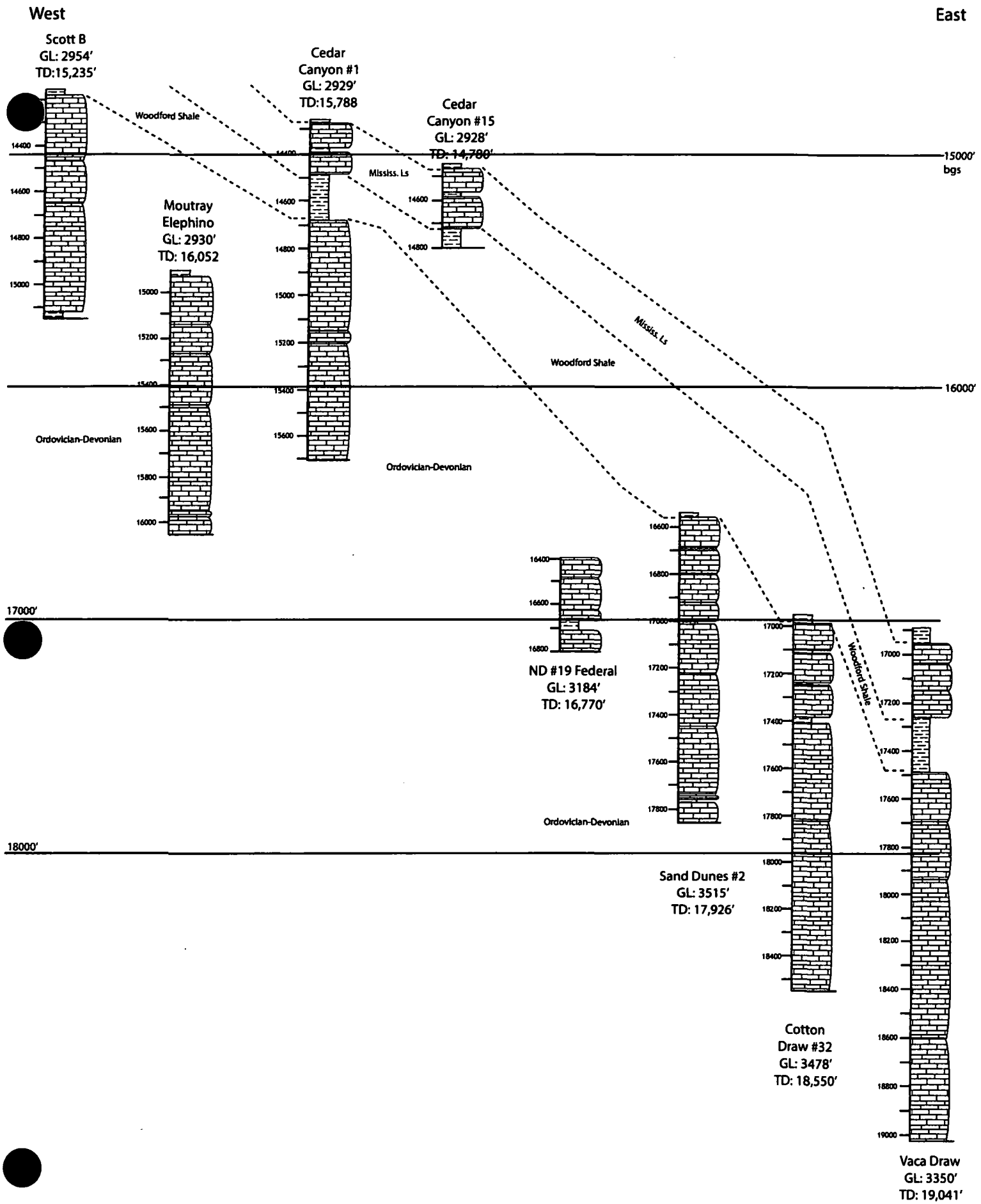
East
Scott B
GL: 2954'
TD:15,235'
Cedar
Canyon #1
GL: 2929'
TD:15,788
Cedar
Canyon #15
GL: 2928'
TD: 14,780'
Woodford Shale
Mississ. Ls
15000'
bgs
Moutray
Elephino
GL: 2930'
TD: 16,052
Mississ. Ls
Woodford Shale
16000'
Ordovician-Devonian
Ordovician-Devonian
Vaca Draw
GL: 3350'
TD: 19,041'
ND #19 Federal
GL: 3184'
TD: 16,770'
Woodford Shale
Ordovician-Devonian
18000'
Sand Dunes #2
GL: 3515'
TD: 17,926'
Cotton
Draw #32
GL: 3478'
TD: 18,550'

Exhibit 13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bgs
16000'
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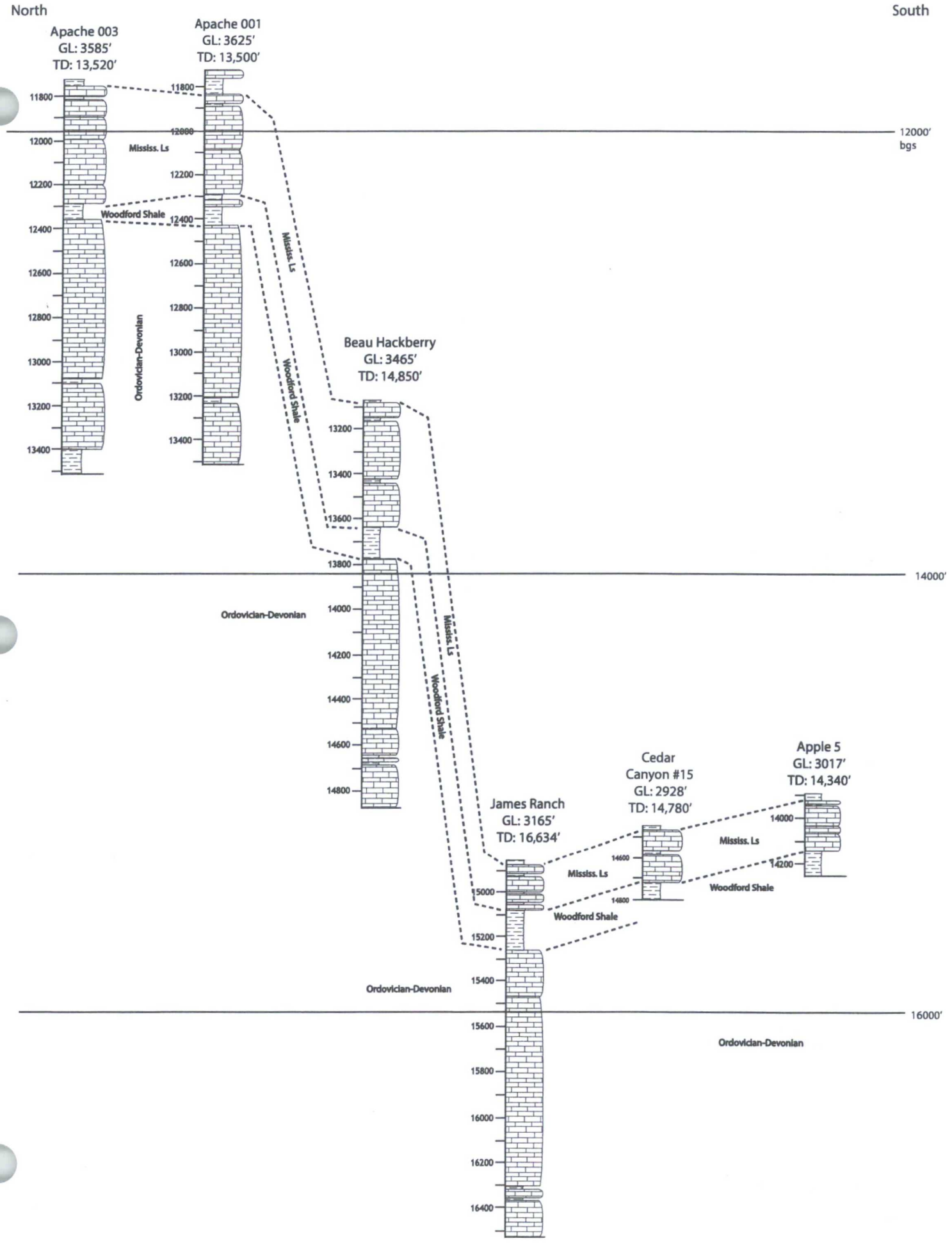
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South
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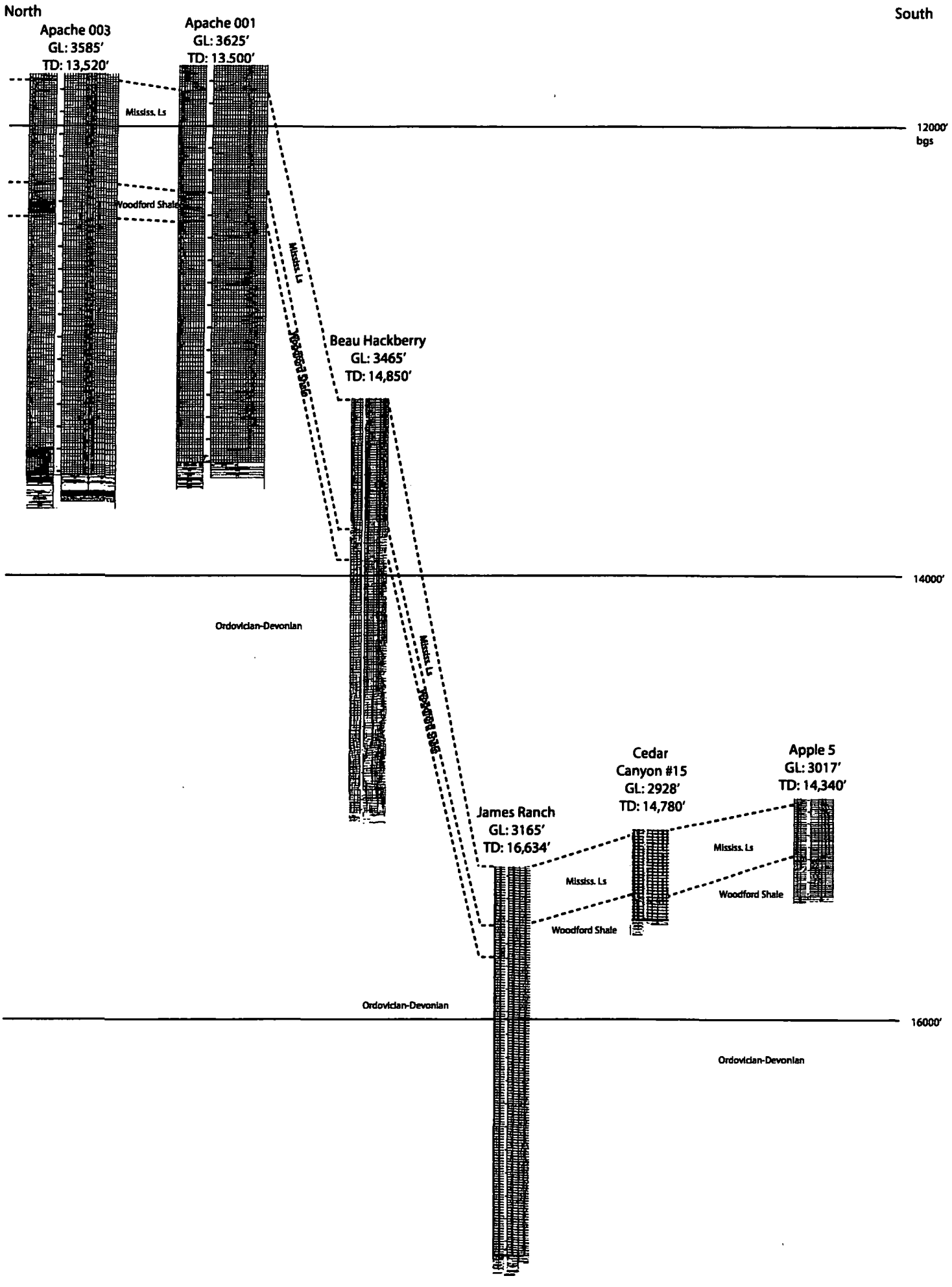
GL: 3585'
TD: 13,520'
Apache 001
GL: 3625'
TD: 13,500'
Beau Hackberry
GL: 3465'
TD: 14,850'
James Ranch
GL: 3165'
TD: 16,634'
Cedar
Canyon #15
GL: 2928'
TD: 14,780'
Apple 5
GL: 3017'
TD: 14,340'
12000' bgs
14000'
16000'
Mississ. Ls
Woodford Shale
Ordovician-Devonian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Apple 5
GL: 3017'
TD: 14,340'
Mississ. Ls
Woodford Shale
16000'
Ordovician-Devonian

MESQUITE SWD

Water Injection Modeling

White Paper Discussion

Ryder Scott

Exhibit 14

Contents

White Paper Discussion : Injector Performance Modelling

Scott Wilson, PE, MBA, Ryder Scott Co., May 3, 2017

Discussion and Summary Results

Ryder Scott Company, L.P. (RSC) has reviewed injectivity data from three wells operated by Mesquite SWD.

Table 1

Well	Tubing ID (in)	Tubing Depth (MD)	Open-Hole (MD Ft)
Vaca Draw	4.52	17,495	
Moutray SWD1	3.6	14,910	14,910-16,035
Paduca SWD1	4.5 to 9881 3.6 to 17284	17,284	17,310-18,870

This document describes the nodal analysis of each of the wells with the intent of evaluating different completion strategies for future deep injection wells. The scope of the evaluation was to review injectivity tests, match test data to nodal analysis models, with the primary focus of describing injection wellbore dynamics. Steady-state injection models were used for reservoir injection performance so no transient analysis or modelling was performed in this phase.

Given the depth of these wells, each injected barrel has to traverse roughly 3 miles of pipe before reaching the injection reservoir. These long wellbores create significant frictional pressure drop at high rates. The irreversible friction pressure drop represents lost pump horsepower and lower injection rates.

For producing wells, using too large of tubing can create a loading condition but for injectors, that problem does not exist, especially in single phase injection.

Vaca Draw Data

The Vaca Draw injectivity test (Table 2) was matched using standard Nodal analysis techniques that account for hydrostatic, friction and acceleration pressure drops within the wellbore, and injectivity both above and below fracture pressure while accounting for the very thick formation.

Table 2

Injection Rate (BWIPD)	WHP (PSIA)	FBHP (PSIA)	Injection Rate (BWIPM)
7200	630	8488	5
14400	675	8500	10
21600	1337	8774	15
28800	2017	8934	20
36000	2768	9205	25
43200	3500	9352	30

The following basic wellbore and reservoir parameters matched the observed data within measured data limits. The detailed input data listing is included as Appendix A.

Injection water Density	1.1 (sg) / 133000 ppm TDS / 67.7 PCF
Matched Hydraulic Model	Ansari
Wellbore	4.5" ID to 14960 ft
Average wellbore water viscosity	0.6 (cp)
Effective Roughness	5.e-5 (in)
Net Thickness	1500 tvd feet
Effective Reservoir pressure	8100 psia
Net Permeability	14 (md)

Vaca Draw Results

Figure 1 shows the match results with the small crosses indicating the actual data while the lines represent the model hydraulics and IPR curves. When intersections between the IPR and Hydraulics curves match the observed data (crosses) an adequate match is obtained.

Figure 1: Match case for Vaca Draw Injectivity Test

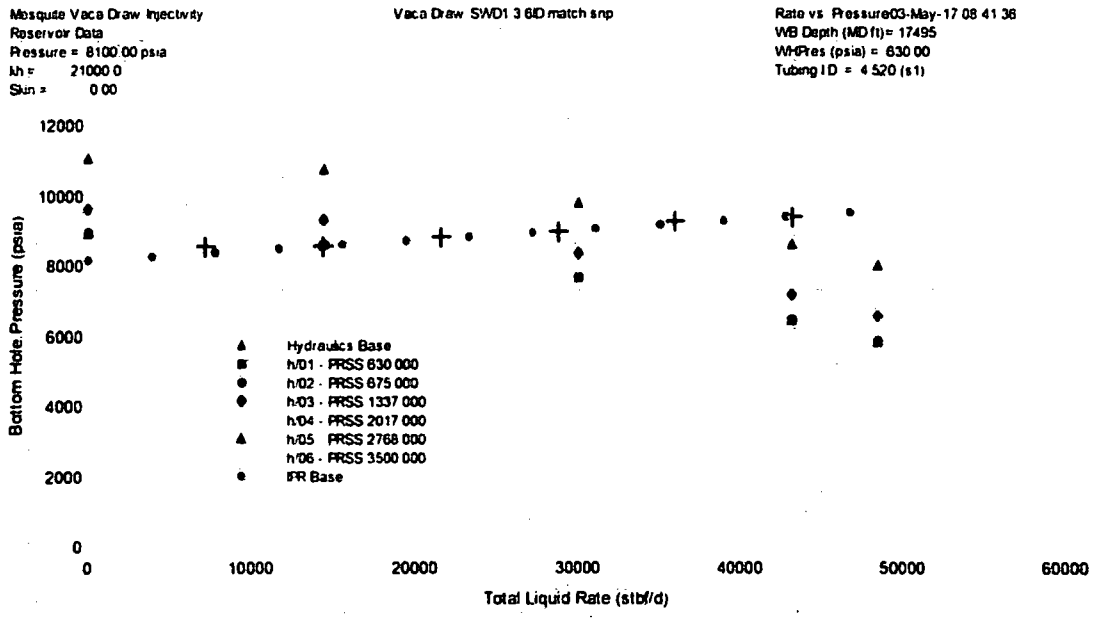
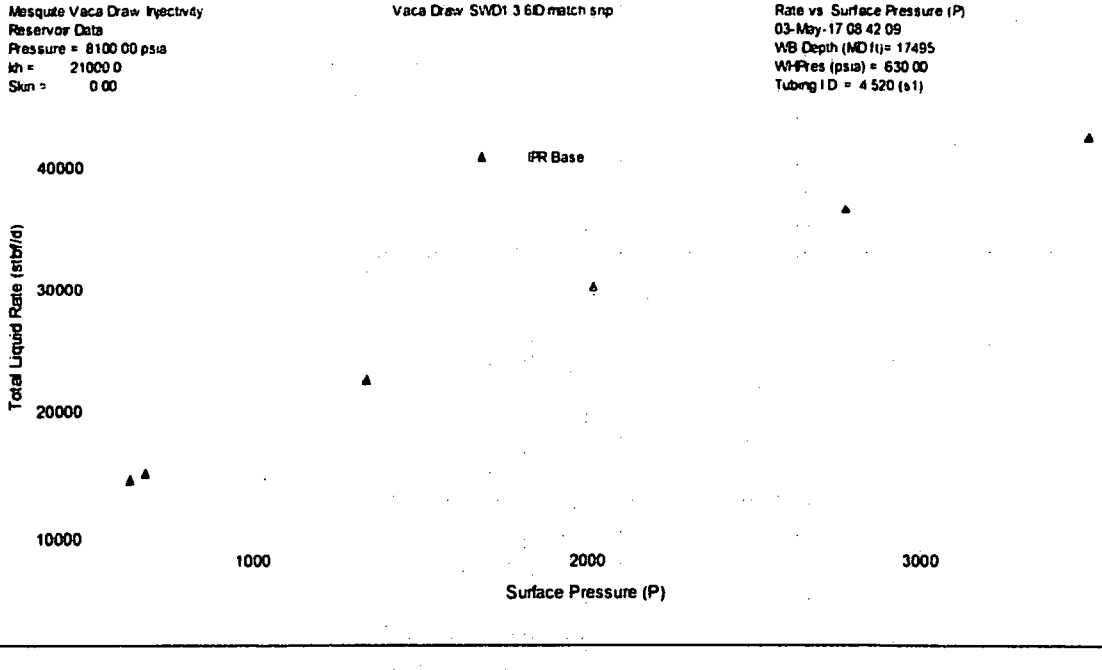


Figure 2: Surface Pressure vs. Injection Rate for Vaca Draw Injectivity Test



Moutray SWD1 Data

The Moutray SWD1 injectivity test (Table 2) was matched using standard Nodal analysis techniques that account for hydrostatic, friction and acceleration pressure drops within the wellbore, and injectivity both above and below fracture pressure while accounting for the very thick formation. .

Table 3

Injection Rate (BWIPD)	WHP (PSIA)	FBHP (PSIA)	Injection Rate (BWIPM)
7200	621	7585	5
14400	1727	8020	10
21600	3270	8250	15

The following basic wellbore and reservoir parameters matched the observed data within measured data limits. The detailed input data listing is included as Appendix A.

Injection water Density	1.155 (sg) / 202000 ppm TDS / 71.2 PCF
Matched Hydraulic Model	Ansari
Wellbore	3.6" ID to 14960 ft
Average wellbore water viscosity	0.6 (cp)
Effective Roughness	100.e-5 (in)
Net Thickness	1500 tvd feet
Effective Reservoir pressure	7400 psia
Net Permeability	11 (md)

Moutray SWD1 Results

Figure 3 shows the match results with the small crosses indicating the actual data while the lines represent the model hydraulics and IPR curves. When intersections between the IPR and Hydraulics curves match the observed data (crosses), an adequate match is obtained.

Figure 3: Match case for Moutray SWD1 Injectivity Test

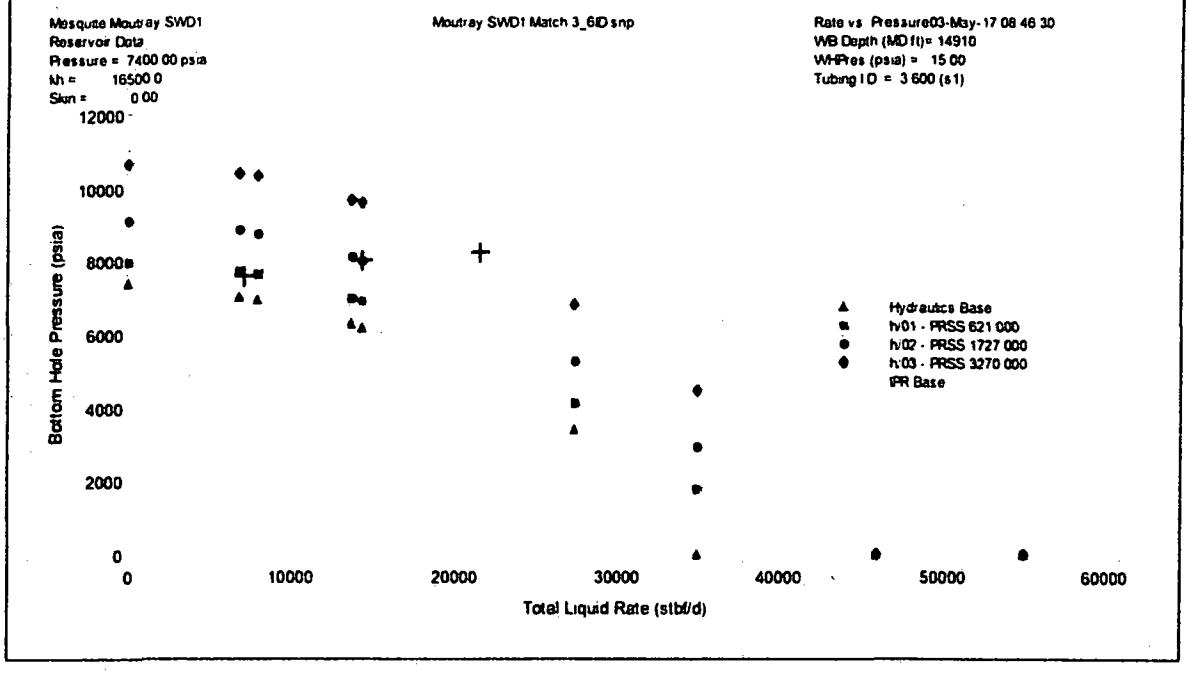
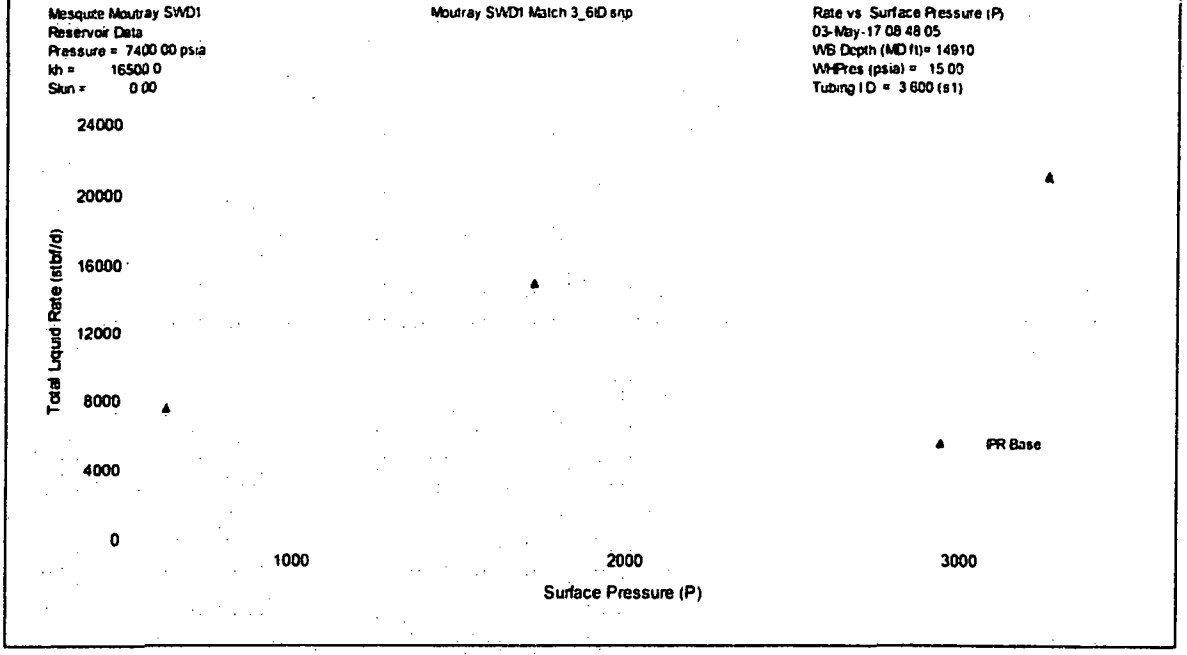


Figure 4: Surface Pressure vs. Injection Rate for Moutray SWD1 Injectivity Test



Paduca SWD1 Data

The Paduca SWD1 injectivity test (Table 2) was matched using standard Nodal analysis techniques that account for hydrostatic, friction and acceleration pressure drops within the wellbore, and injectivity both above and below fracture pressure while accounting for the very thick formation. .

Table 4

Injection Rate (BWIPD)	WHP (PSIA)	FBHP (PSIA)	Injection Rate (BWIPM)
21600	1406	8155	15
28800	2449	8190	20
36000	2449*	8194	25

* Datapoint may not be stabilized.

The following basic wellbore and reservoir parameters matched the observed data within measured data limits. The detailed input data listing is included as Appendix A.

Injection water Density	1.06 (sg) / 81000 ppm TDS / 65.7 PCF
Matched Hydraulic Model	Ansari
Wellbore	4.5 to 9881 ft, 3.6 to 17284 ft (Taper)
Average wellbore water viscosity	0.6 (cp)
Effective Roughness	1.e-5 (in)
Net Thickness	1500 tvd feet
Effective Reservoir pressure	8050 psia
Net Permeability	50 (md), -3 skin

Paduca SWD1 Results

Figure 5 shows the match results with the small crosses indicating the actual data while the lines represent the model hydraulics and IPR curves. When intersections between the IPR and Hydraulics curves match the observed data (crosses) an adequate match is obtained.

Figure 5: Match case for Paduca SWD1 Injectivity Test

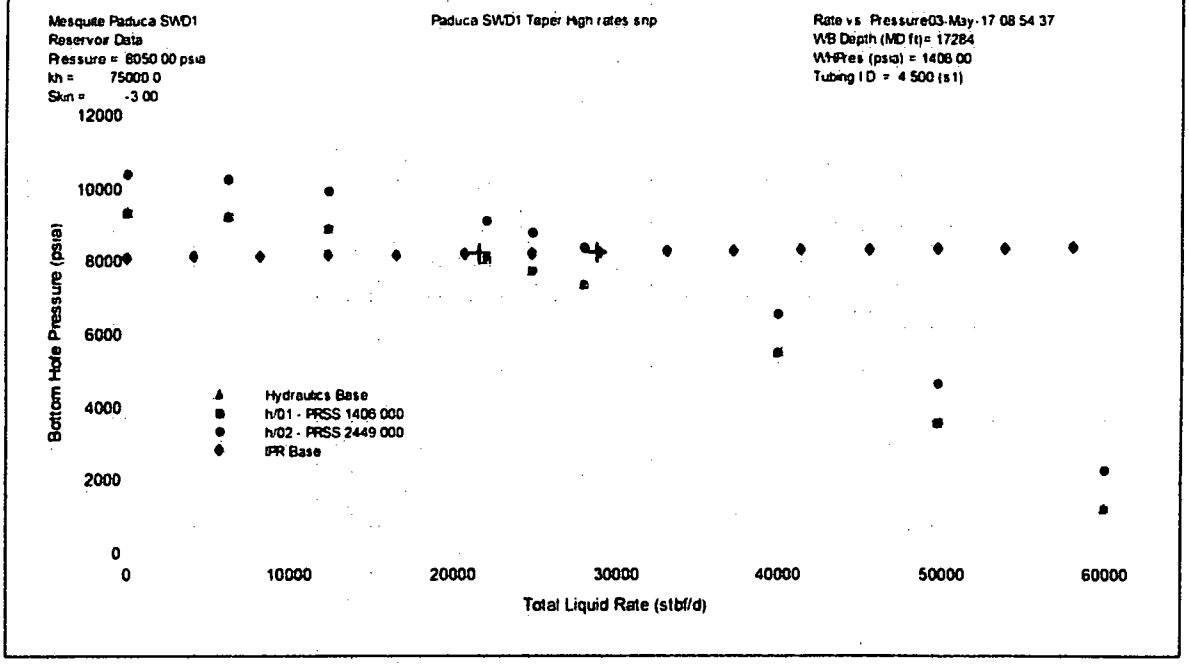
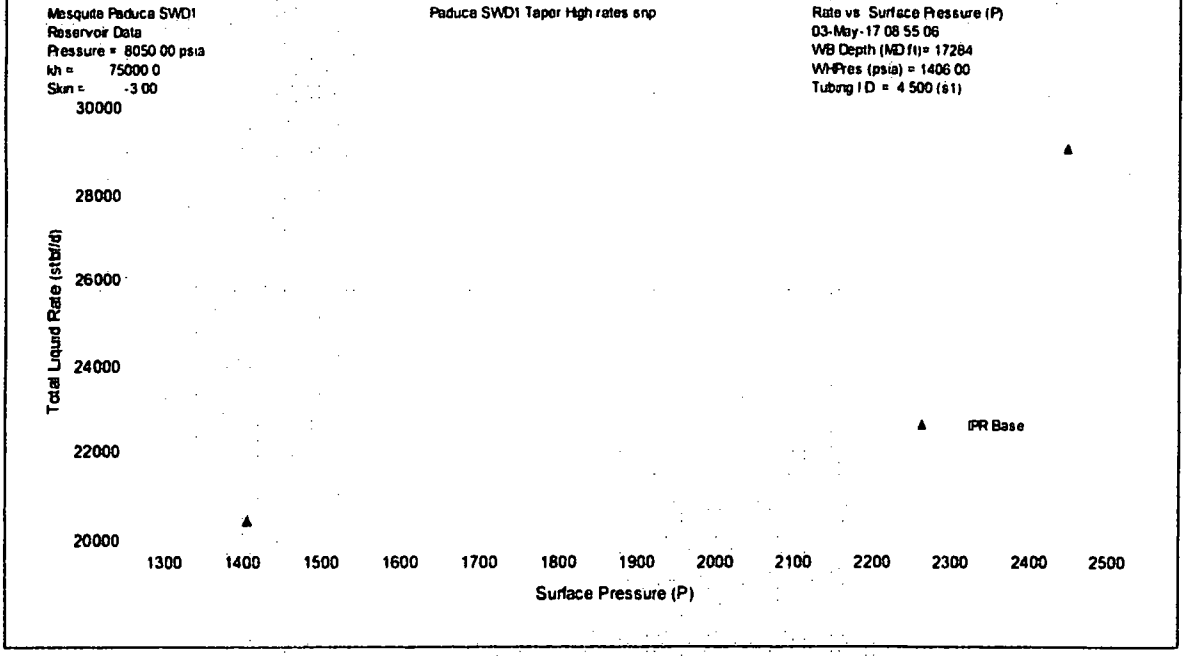


Figure 6: Surface Pressure vs. Injection Rate for Paduca SWD1 Injectivity Test



Review of Completion Options

Using the match results from injectivity tests for each well, predictions of the performance of the other 3 completion options were reviewed for each well. Table 5 shows the results of injectivity testing and estimates of performance under different completion conditions. These same results are shown graphically in Figures 7-9.

Table 5 : Predicted Injection rates at 3400 psia WHP

Well	3.6" ID (MBWTPD)	4.5 x 3.6" ID (MBWTPD)	4.5" ID (MBWTPD)
Vaca Draw	24.5	33.2	41.1
Moutray SWD1	21.4	28.8	35.6
Paduca SWD1	27.5	35.2	48.5

Based on our review of the relevant pressure and rate data, a significant injection rate improvement can be obtained by using 4.5" ID tubing. Given the depth of these wells, each injected barrel has to traverse roughly 3 miles of pipe before reaching the injection reservoir. These long wellbores create significant frictional pressure drop at high rates. The irreversible friction pressure drop represents lost pump horsepower and lower injection rates.

For producing wells, using too large of tubing can create a loading condition but for injectors, that problem does not exist, especially in single phase injection.

Figure 7: Nodal plot for Vaca Draw using 3 completion assumptions

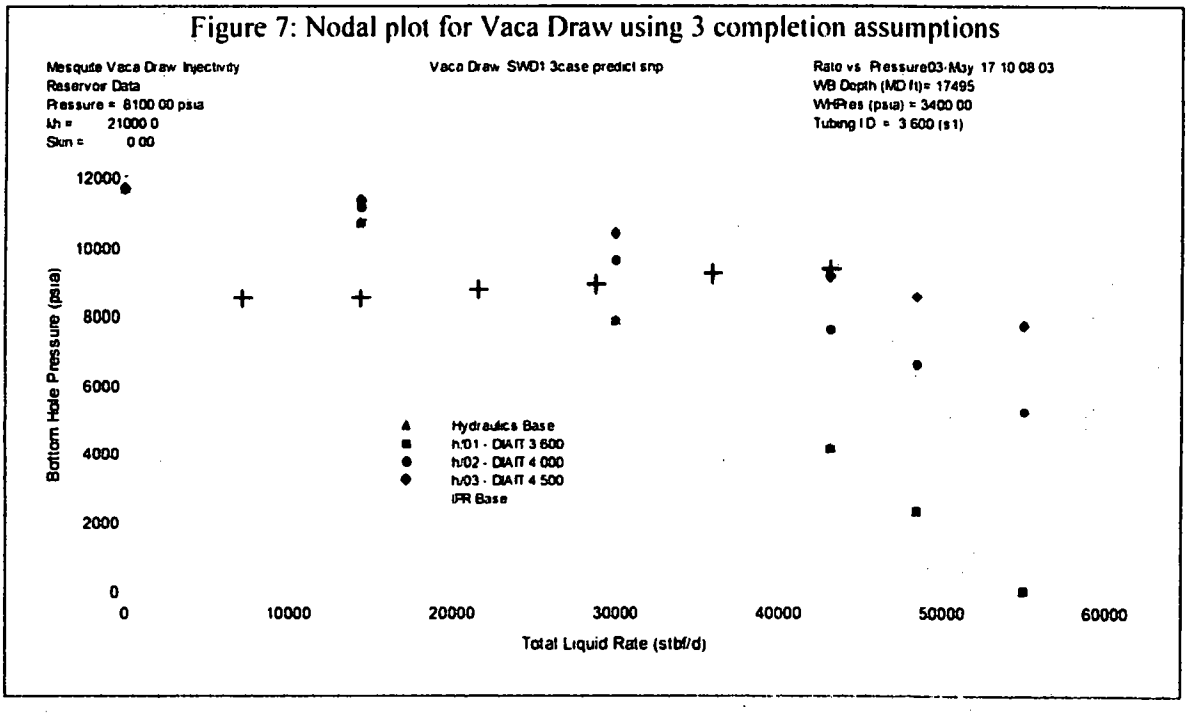


Figure 8: Nodal plot for Paduca SWD1 using 3 completion Assumptions

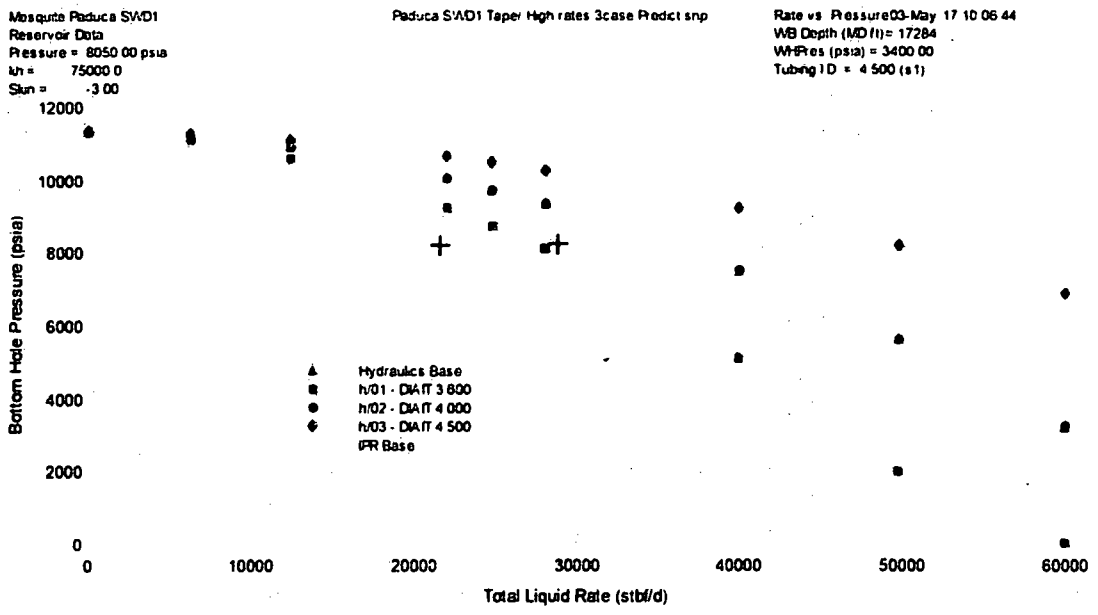
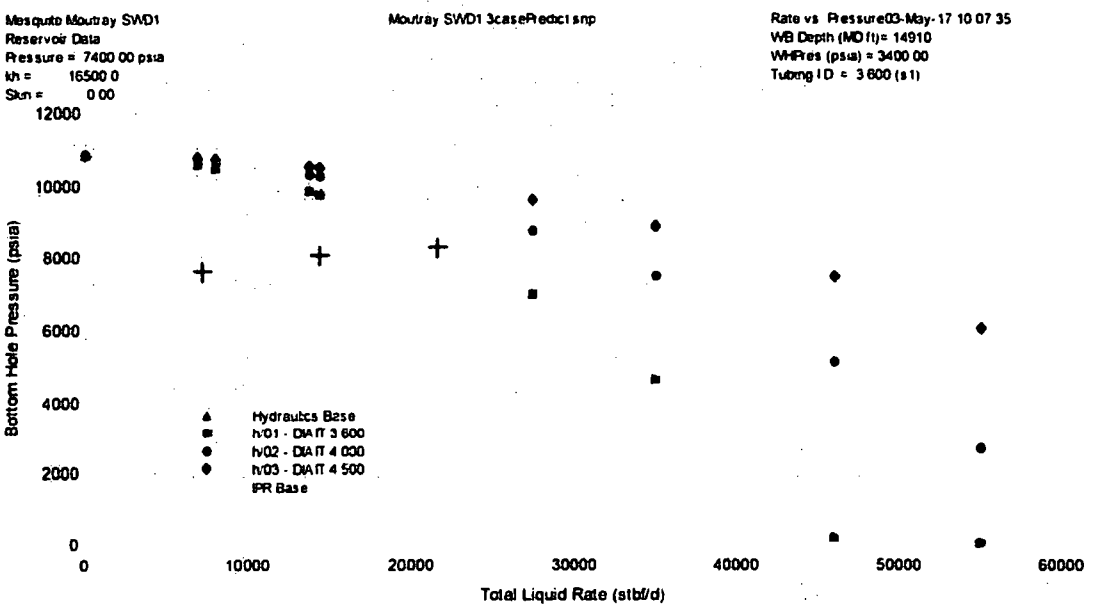


Figure 8: Nodal plot for Moutray SWD1 using 3 completion assumptions



Goetze, Phillip, EMNRD

From: Jennifer L. Bradfute <jlb@modrall.com>
Sent: Monday, May 8, 2017 4:56 PM
To: Jones, William V, EMNRD; Goetze, Phillip, EMNRD; McMillan, Michael, EMNRD; Brooks, David K, EMNRD
Cc: Michael Feldewert (MFeldewert@hollandhart.com); darnold@matadorresources.com
Subject: Case No. 15654 Engineering Data
Attachments: Mesquite SWD Nodel (W2931418x7A92D).pdf

All: Please find the engineering data which was requested in Case No. 15654 from Mesquite SWD. Mesquite has respectfully requested an expedited review of its application in this case, as stated at the hearing. Please note that several figures in this report reference the ID for the tubing. Where noted a 3.6" ID is associated with a 4.5" tubing, the 4.5 x 3.6 " ID is associated with a tapered string of tubing, and the 4.5" ID is associated with 5 1/2" tubing (which is the subject of the application). Please let me know if you need anything else or if you have questions concerning this information.

Thank you,
Jennifer Bradfute

MODRALL SPERLING

Jennifer L. Bradfute
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P.O. Box 2168 | Albuquerque, NM 87103-2168
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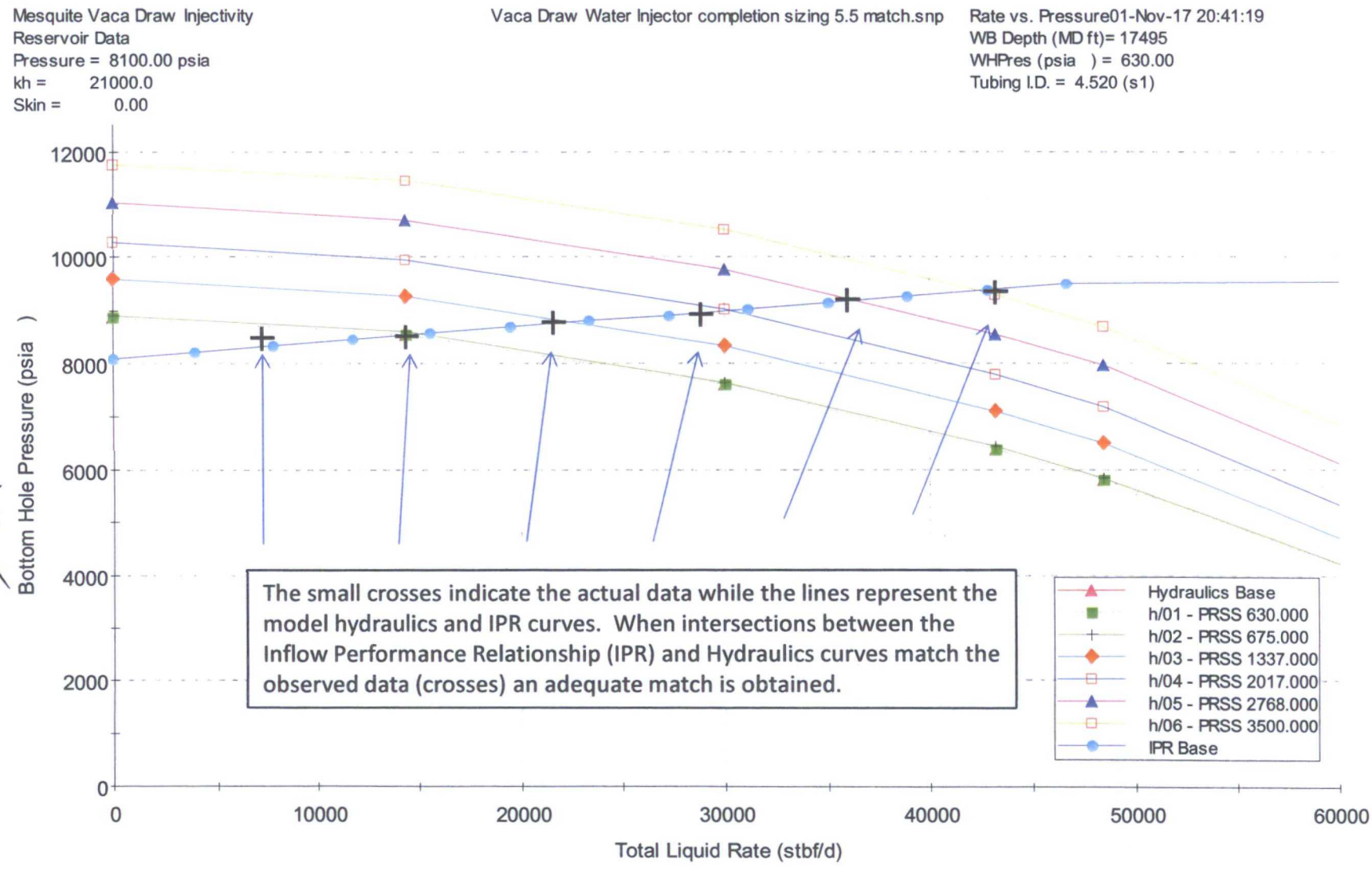
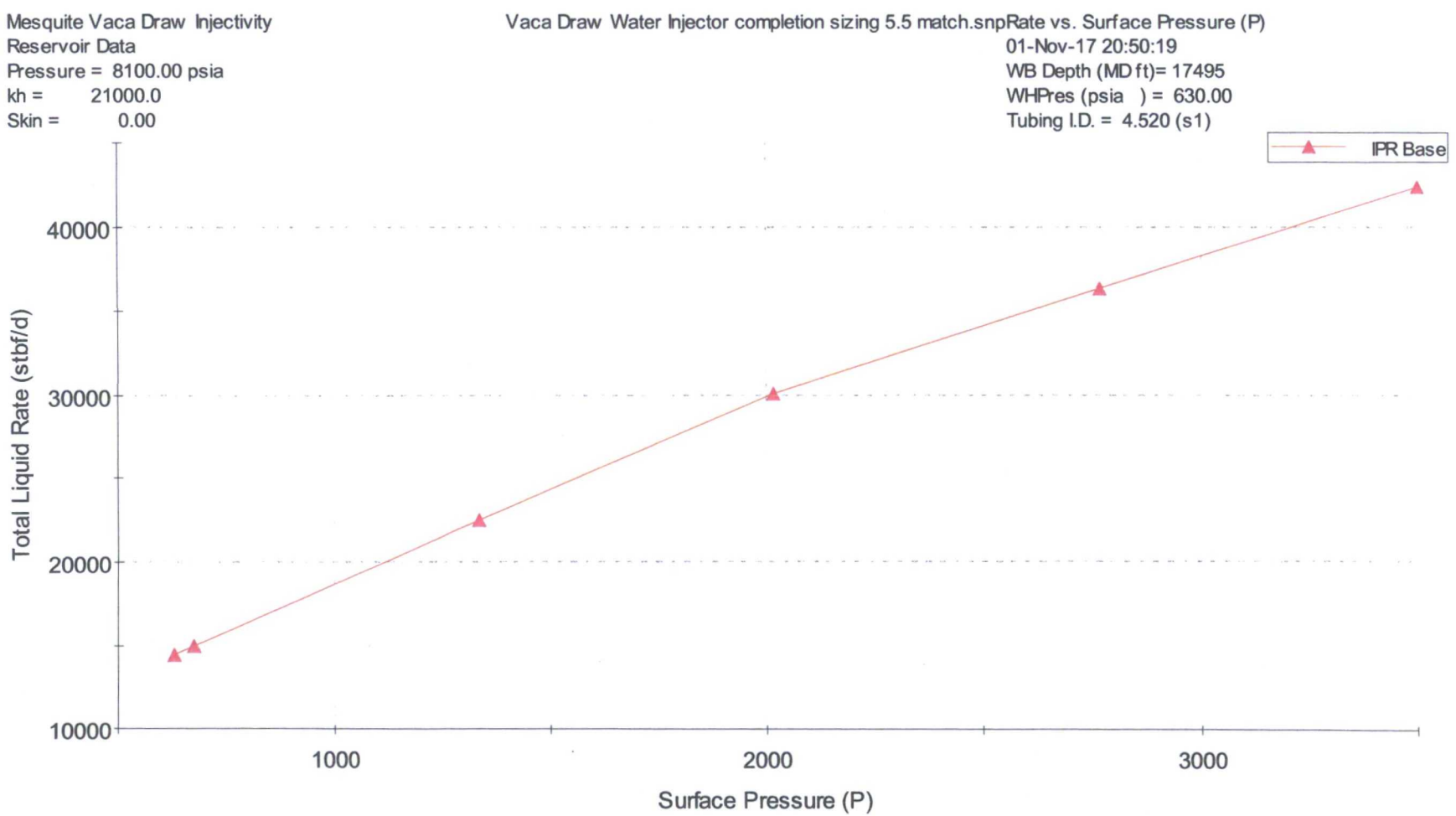
Nodal Analysis Match : Mesquite Vaca Draw Step-Rate Test.

Measured bottomhole pressure data was matched against a nodal analysis model



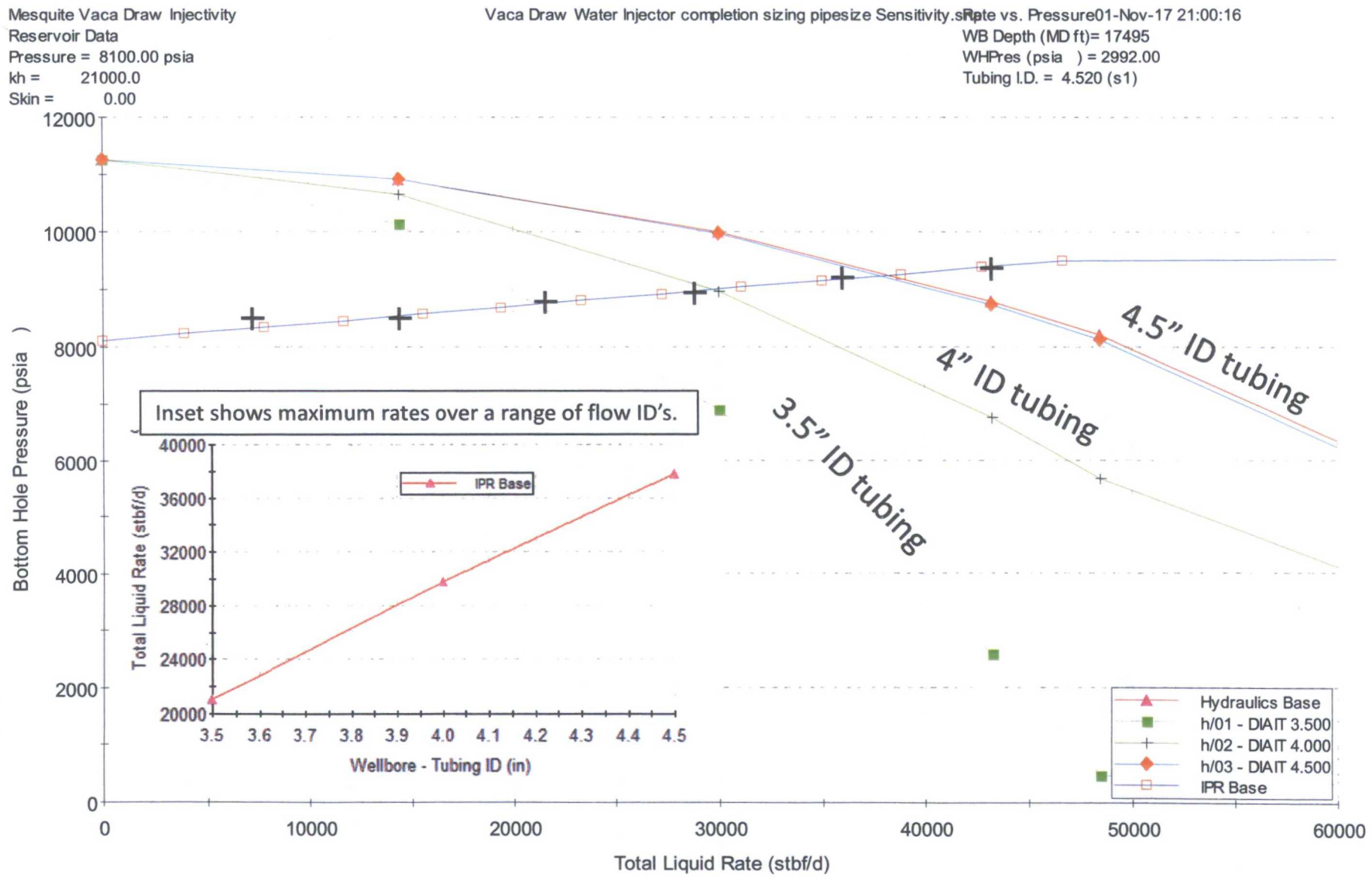
Nodal Analysis Match : Mesquite Vaca Draw Step-Rate Test.

Measured bottomhole pressure data was matched against a nodal analysis model



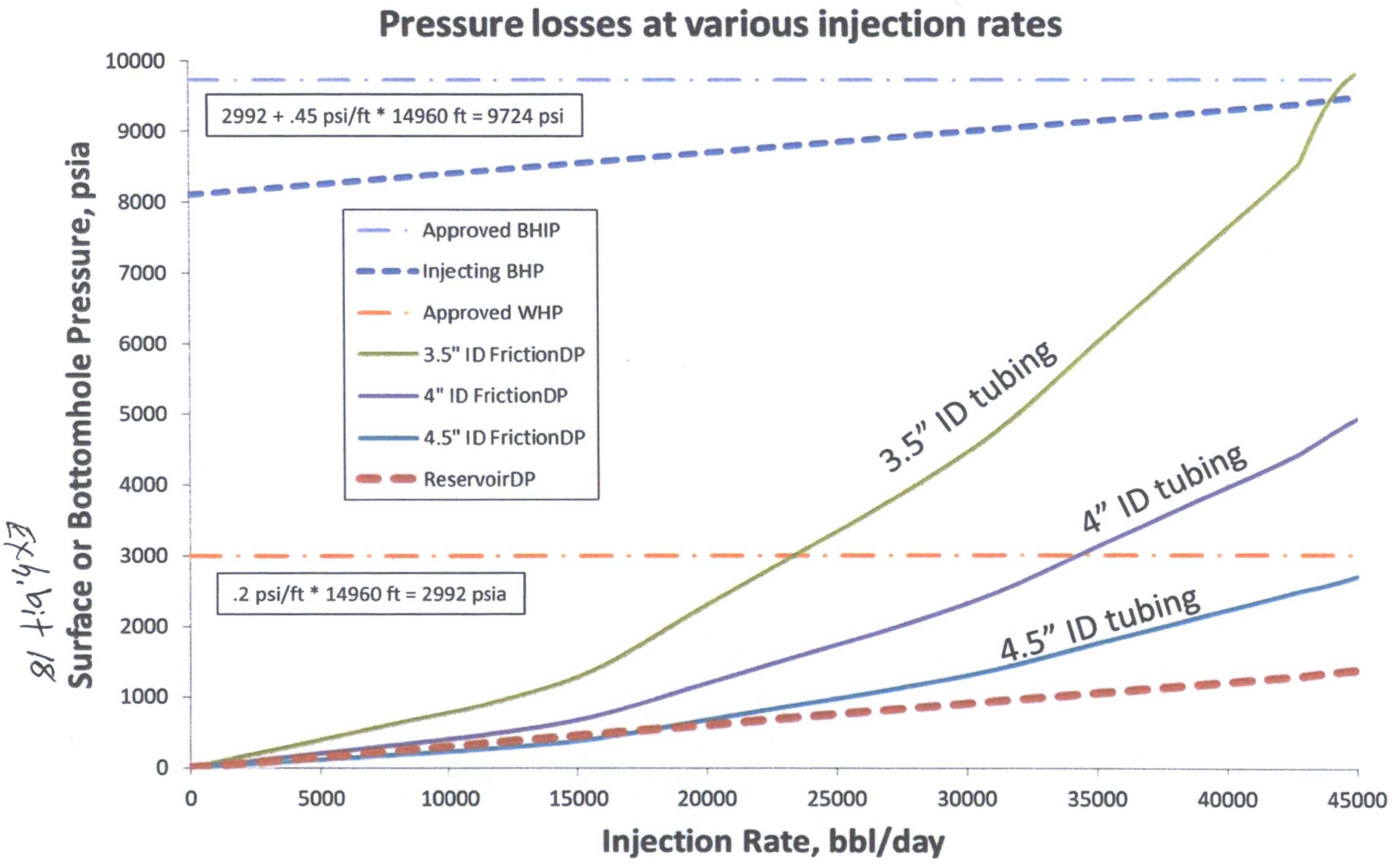
Increasing tubing size will decrease friction losses and conserve horsepower

3 example tubing sizes and their impact on friction losses



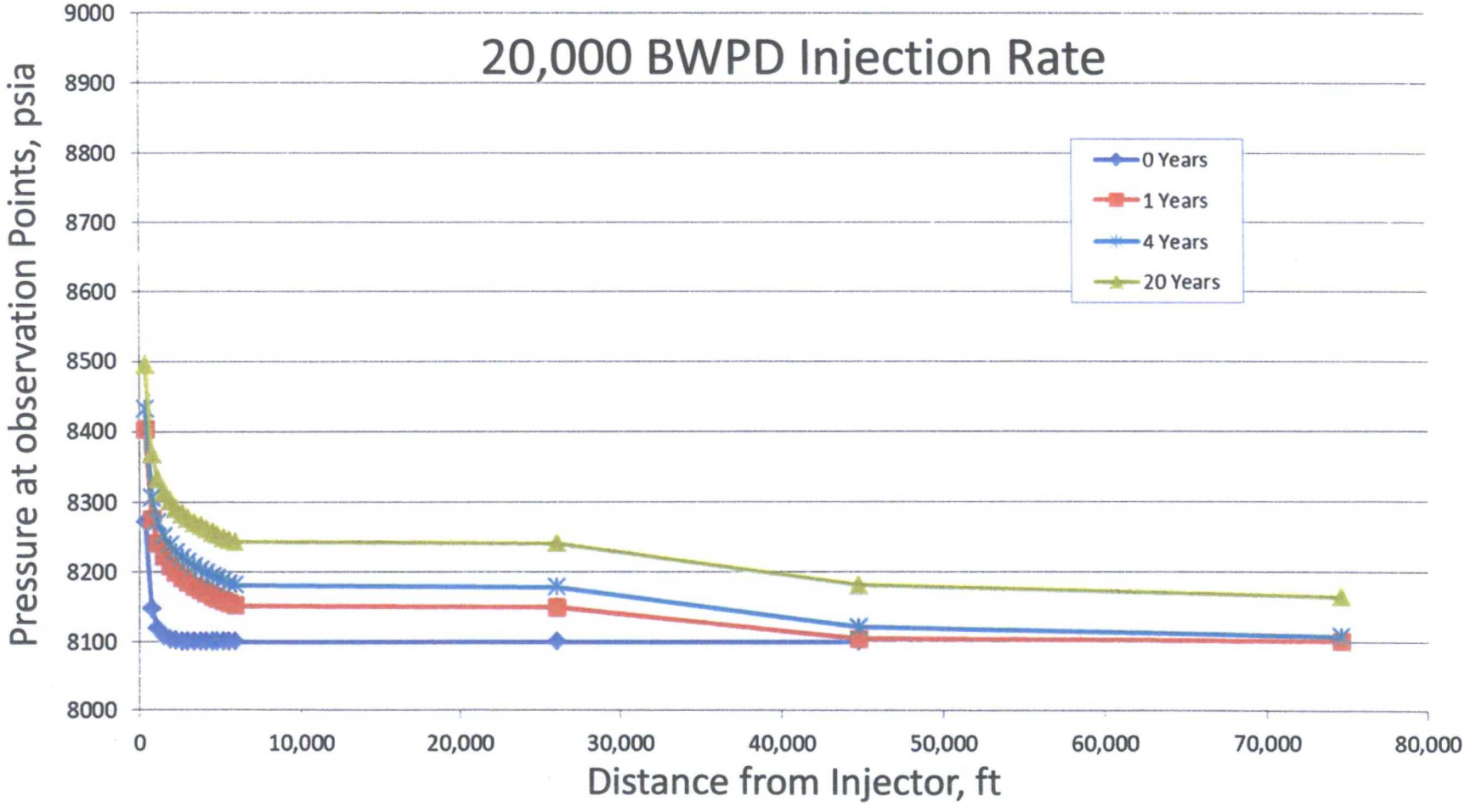
Increasing tubing size will decrease friction losses and conserve horsepower

3 example tubing sizes and their impact on friction losses



Pore Pressure Impact over 20 years

High permeability-thickness disperses injected fluids



Pore Pressure Impact over 20 years

High permeability-thickness disperses injected fluids

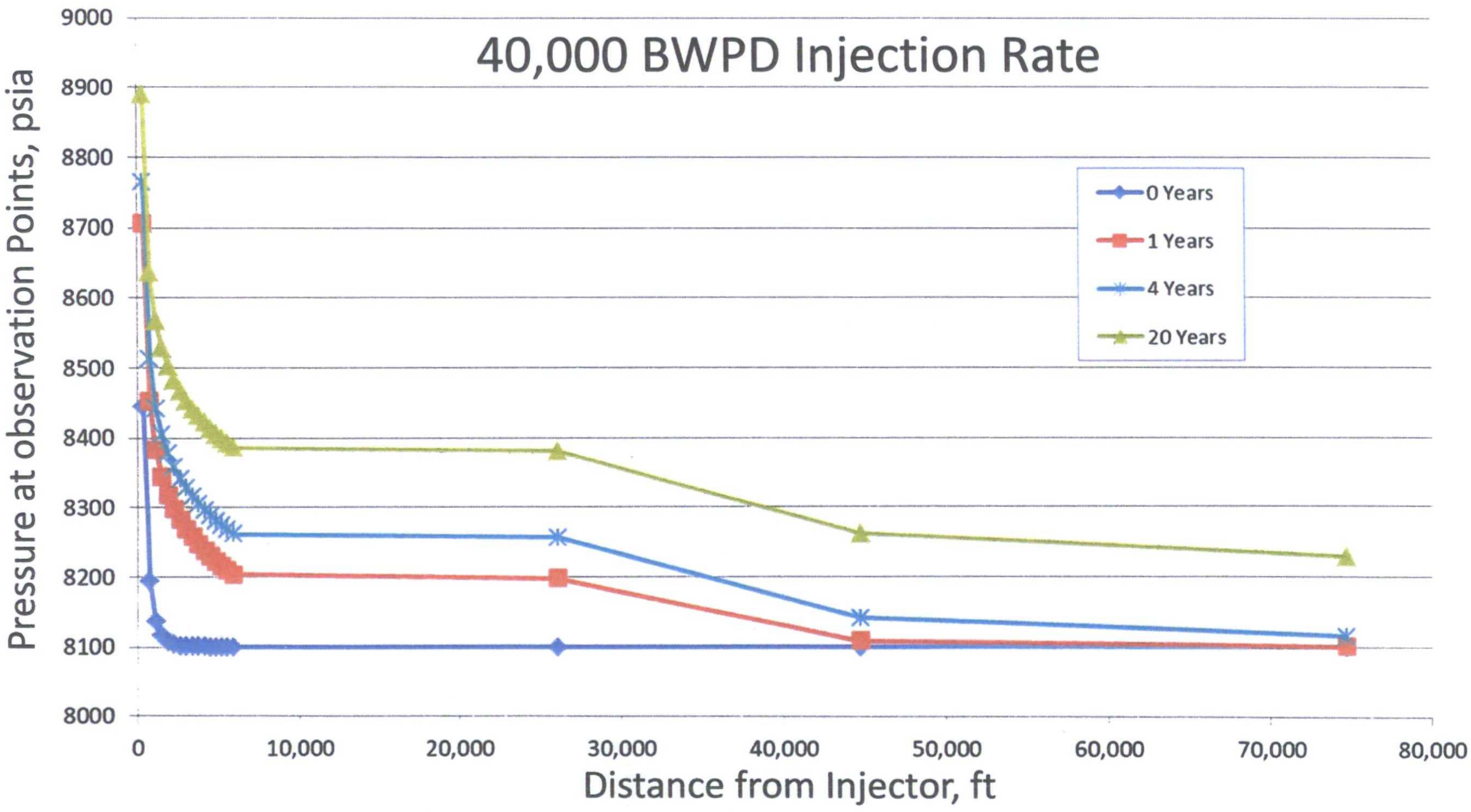
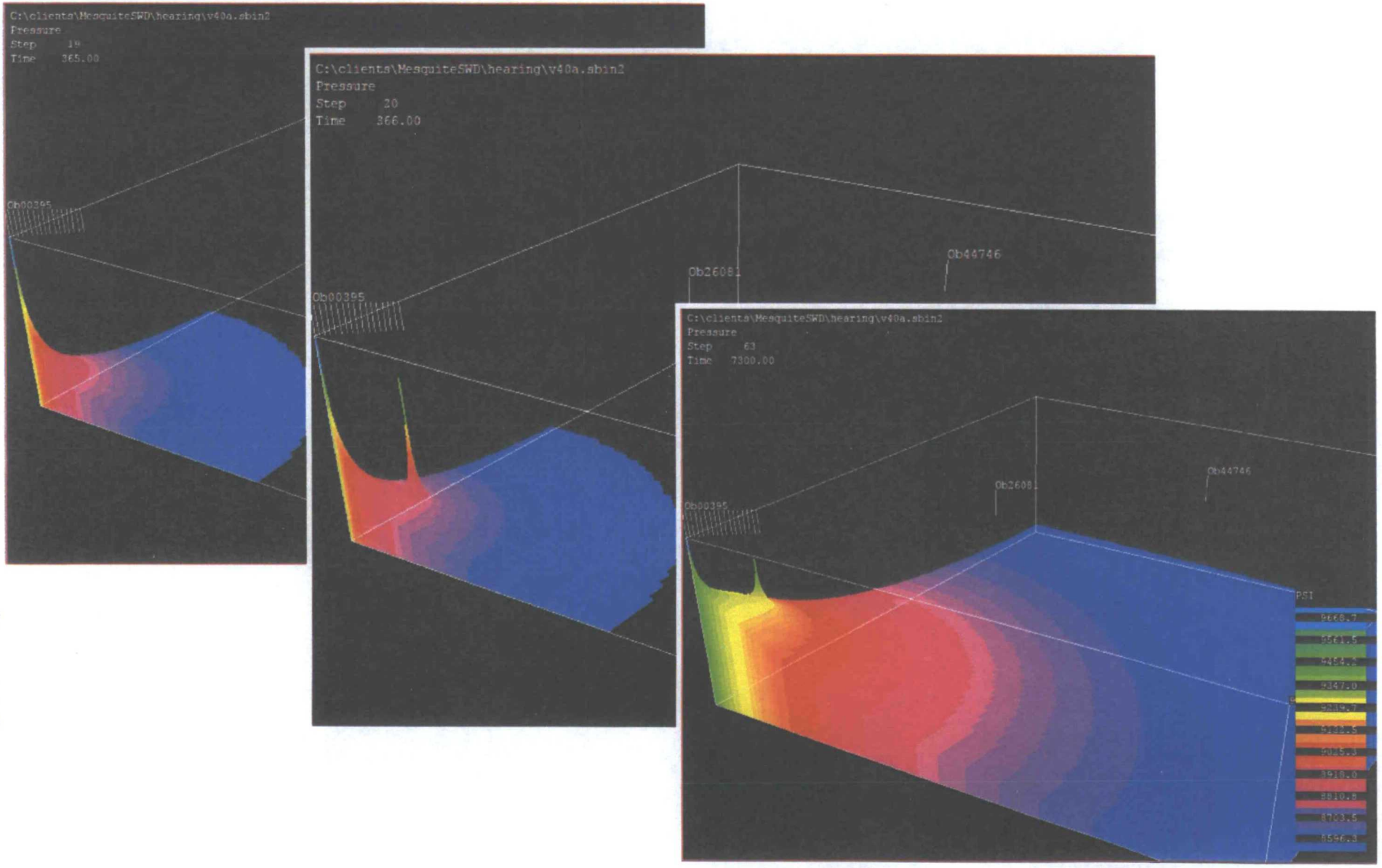


Exhibit 20

Pore Pressure Impact over 20 years

Adding a second injector 1 mile away does not materially affect pressures in the larger area.



Exh. 9.121

Pore Pressure Impact over 20 years

Adding a second injector 1 mile away from the first does not materially affect pressures in the larger area.

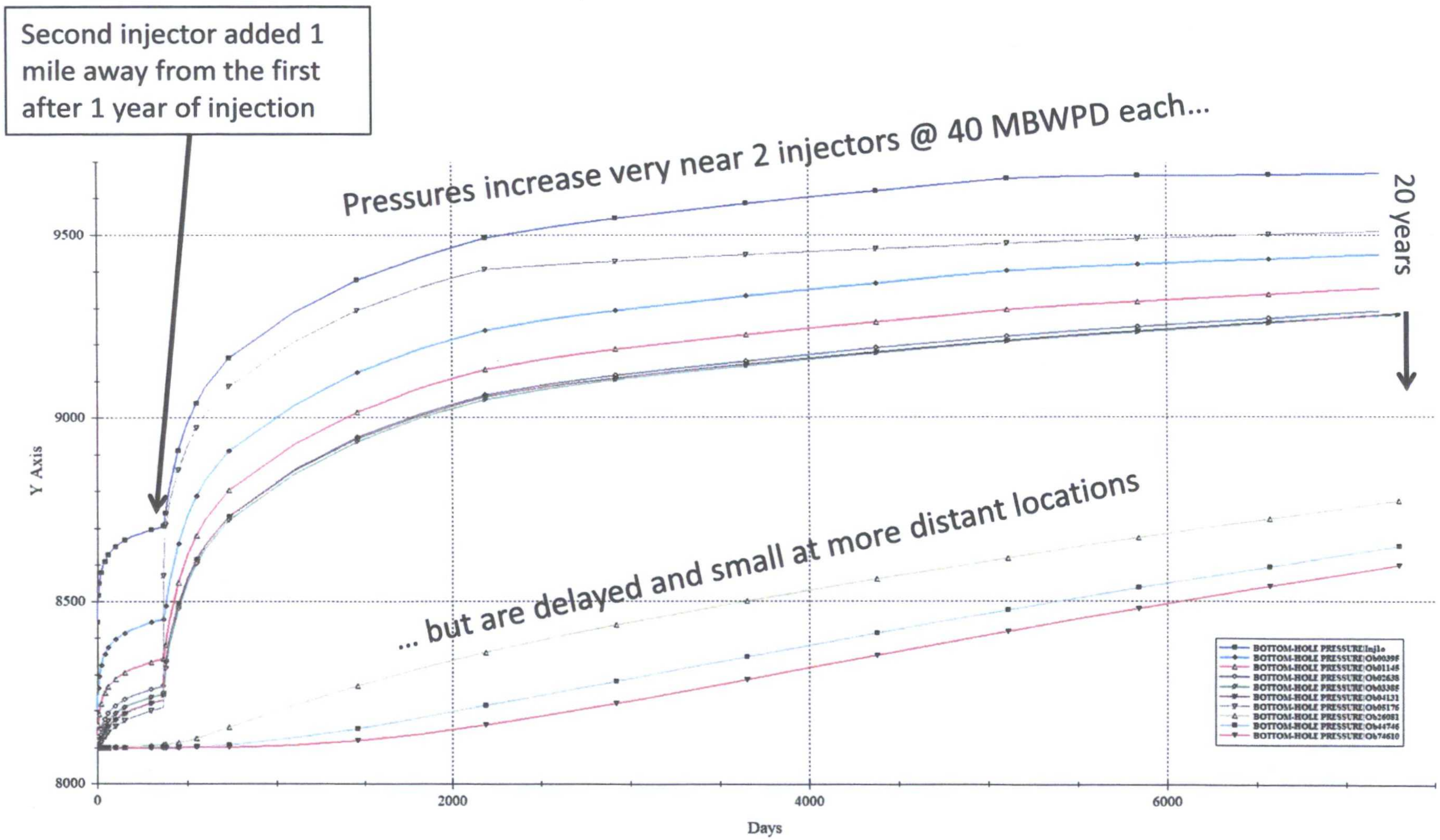


Exhibit 22

Seismic Catalog Analysis:

Analysis based on NMT seismicity analysis using data from seismic network station within the SE New Mexico region.

Published catalogs span 1962-2009 (Sanford et al., 2002, Sanford et al., 2006, Stankova-Pursley et al., 2013) and unpublished catalogs from 2009 – September 2017.

Total of 15 events within 25 km of any well between 1962-September 2017

Catalog from 1962-2004: minimum magnitude 2.0, maximum magnitude 3.2
Closest event to well locations: 10.2 km (magnitude 3.2 event)

Catalog from 2005-2017: minimum magnitude 0.5, maximum magnitude 2.4
Closest event to well locations: 3.6 km (magnitude 2.4 event)

Yearly summary of earthquakes
1962_1998: 1 (1 earthquake with magnitude greater than 2)
1998_2004:0
2005-2014: 8 (1 earthquake with magnitude greater than 2)
2015: 0
2016: 1 (0 > M2)
2017: 5 (0 > M2)

YYYYMMDD	HH:MM:SS.S	LATITUDE	LONGITUDE	MAGNITUDE
19971019	11:12:09.7	32.3347	-103.936	3.2
20070705	16:44:01.0	32.283	-104.217	1.1
20081004	05:29:39.0	32.400	-104.200	0.6
20081226	18:19:28.0	32.383	-104.183	1.1
20090417	01:40:29.0	32.367	-104.067	1.4
20101007	03:51:24.0	32.350	-104.183	1.0
20110902	13:29:30.0	32.150	-104.200	1.2
20111227	23:10:37.0	32.367	-103.950	1.6
20120318	10:57:22.0	32.300	-103.867	2.4
20161202	06:54:45.2	32.432	-104.252	0.53
20170302	11:38:53.4	32.374	-103.881	1.66
20170211	14:34:27.4	32.291	-103.920	1.46
20170524	00:28:20.6	32.188	-104.128	1.8
20161202	06:54:45.2	32.432	-104.252	0.53
20170318	00:05:00.5	32.234	-104.258	0.7

Earthquake depths are unconstrained.

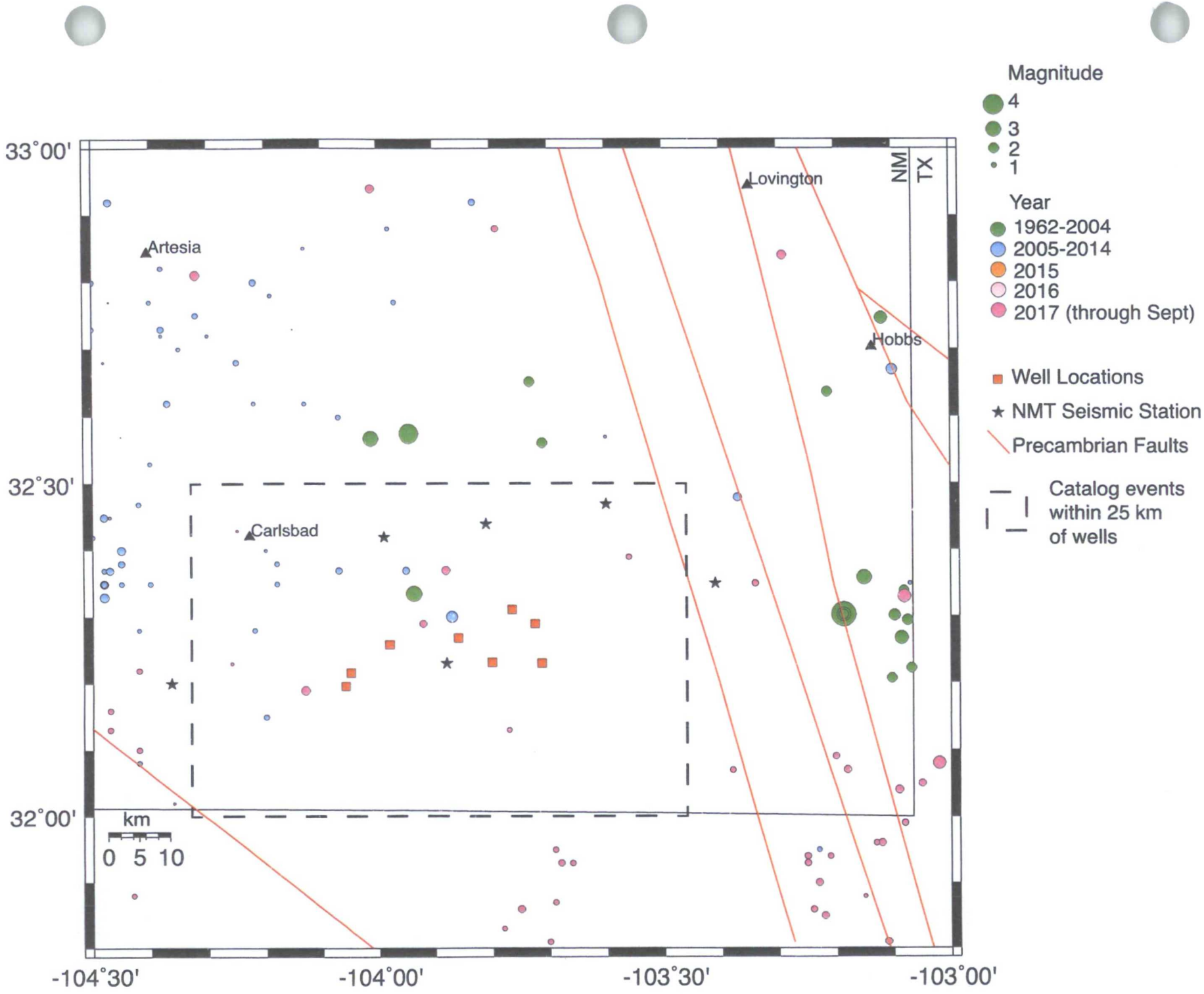
Exh. b. # 23

References:

Sanford, A. R., Lin, K-w., Tsai, I., and Jaksha, L. H., 2002, Earthquake catalogs for New Mexico and bordering areas: 1869–1998: New Mexico Bureau of Geology and Mineral Resources, Circular 210, 104 pp.

Sanford, A. R., Mayeau, T. M., Schlue, J. W., Aster, R. C., and Jaksha, L. H., 2006, Earthquake catalogs for New Mexico and bordering areas II: 1999–2004: New Mexico Geology, v. 28, no. 4, pp. 99–109.

Pursley, J., Bilek, S.L., and Ruhl, C.J., 2013, Earthquake catalogs for New Mexico and bordering areas: 2005–2009, New Mexico Geology, v. 35, no. 1, pp. 3–12;


33°00'
32°30'
32°00'
-104°30'
-104°00'
-103°30'
-103°00'
Artesia
Carlsbad
Lovington
Hobbs
NM
TX
km
0 5 10
Magnitude
4
3
2
1
Year
1962-2004
2005-2014
2015
2016
2017 (through Sept)
Well Locations
NMT Seismic Station
Precambrian Faults
Catalog events within 25 km of wells

Analysis of Fault Slip Potential, using FSP 1.0 software from Stanford Center for Induced and Triggered Seismicity

Key Parameters	Range Tested	
SH_max	60,70,80,90	based on ranges from World Stress Map in SE NM, west TX
APhi	0.2,0.5.0.7	based on data from Hurd and Zoback, 2012
Injection thickness	1500 ft	
%porosity	10	
permeability (mD)	15,50	
fault dip	40,50,60,70,80	
fault friction	0.3,0.4,0.58	0.4-0.6 commonly used, 0.3 would require very high clay content

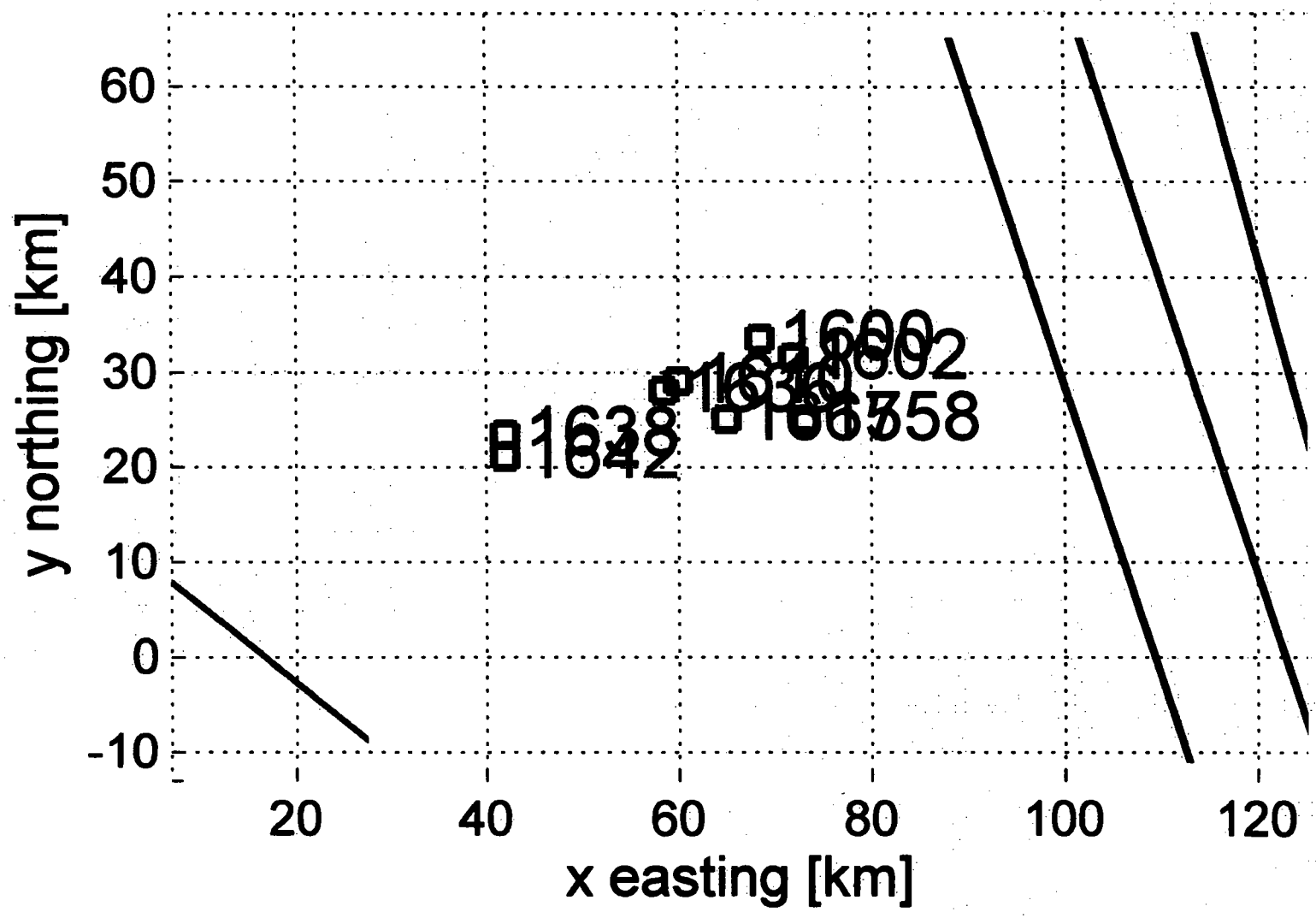
Exh. 6, 7, 24

Majority of models tested led to 0% fault slip potential (FSP) on the mapped faults included in model

Results panels included here show range of fault slip potential from 0-16%, using parameters consistent with regional geology, stress conditions, and hydrologic parameters. Reducing fault friction to very low values could increase FSP, depending on fault and stress geometry

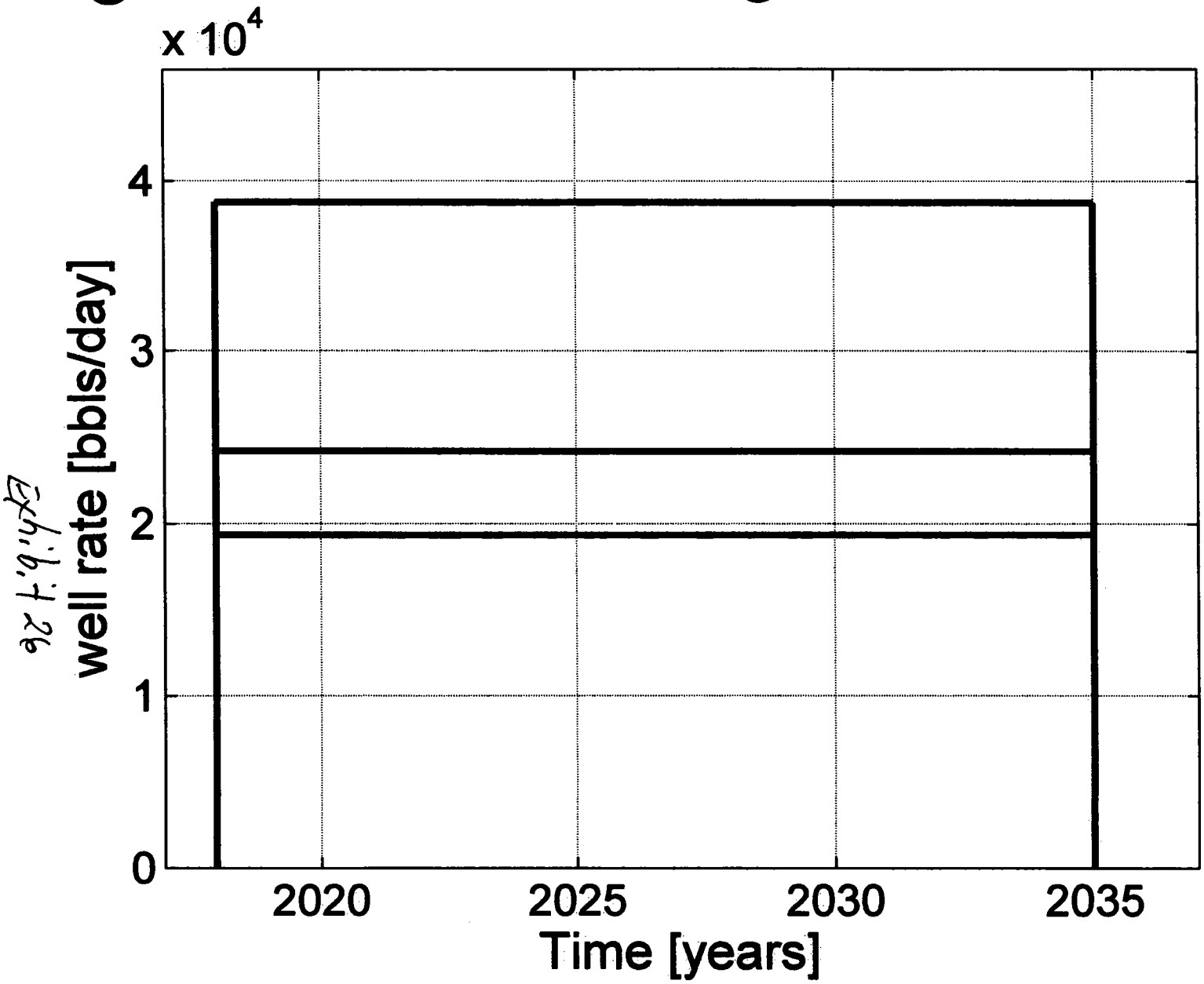
Other tests of permeability and porosity ranges increased the pressure change on fault, but did not significantly change FSP.

At very low fault friction (0.3), FSP results sensitive to fault geometry and SH_max. At friction greater than or equal to 0.4 , FSP was 0.

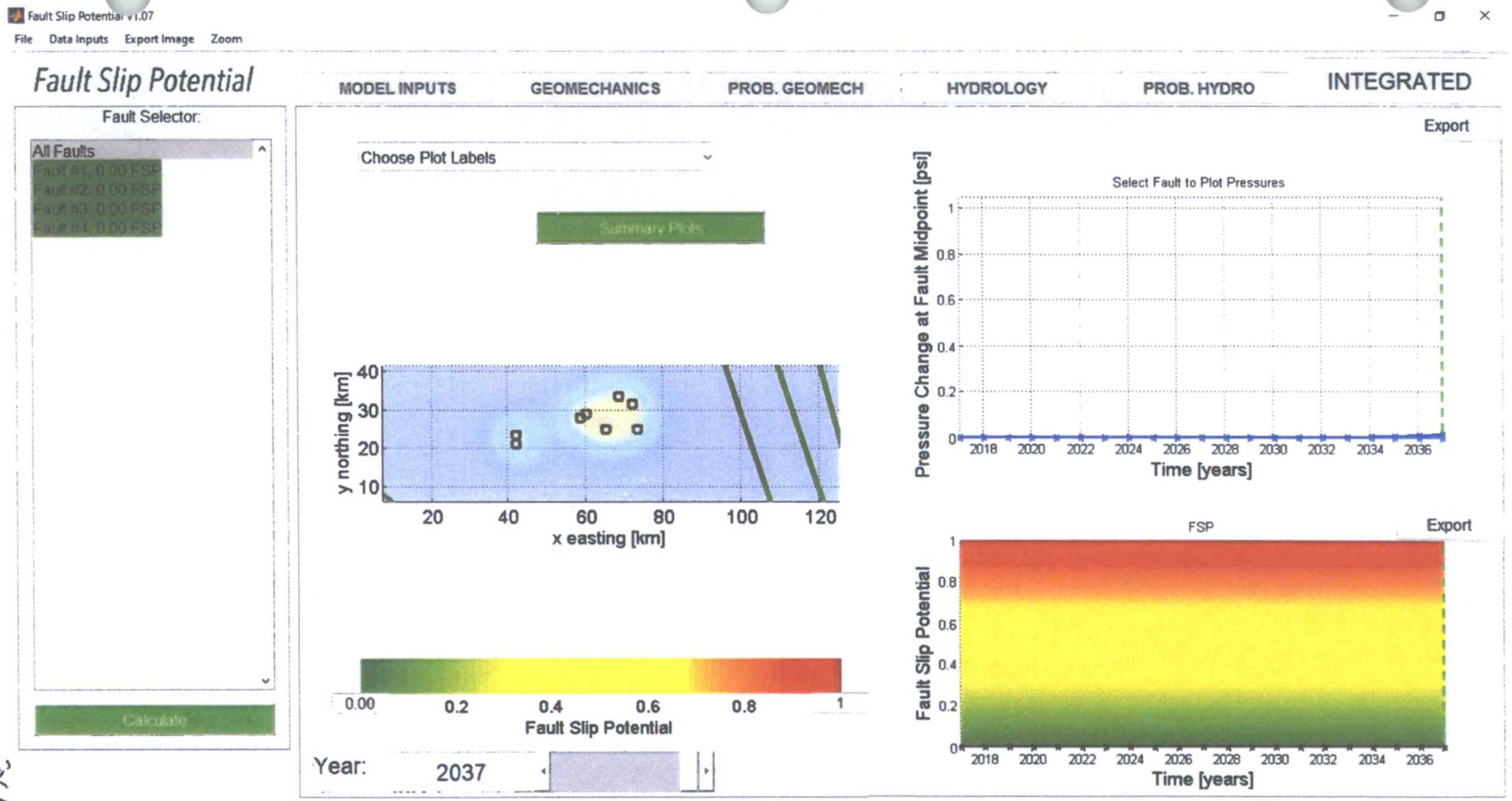


Exh. 6.1 + 25

Model geometry, with faults (black lines) and wells (squares)



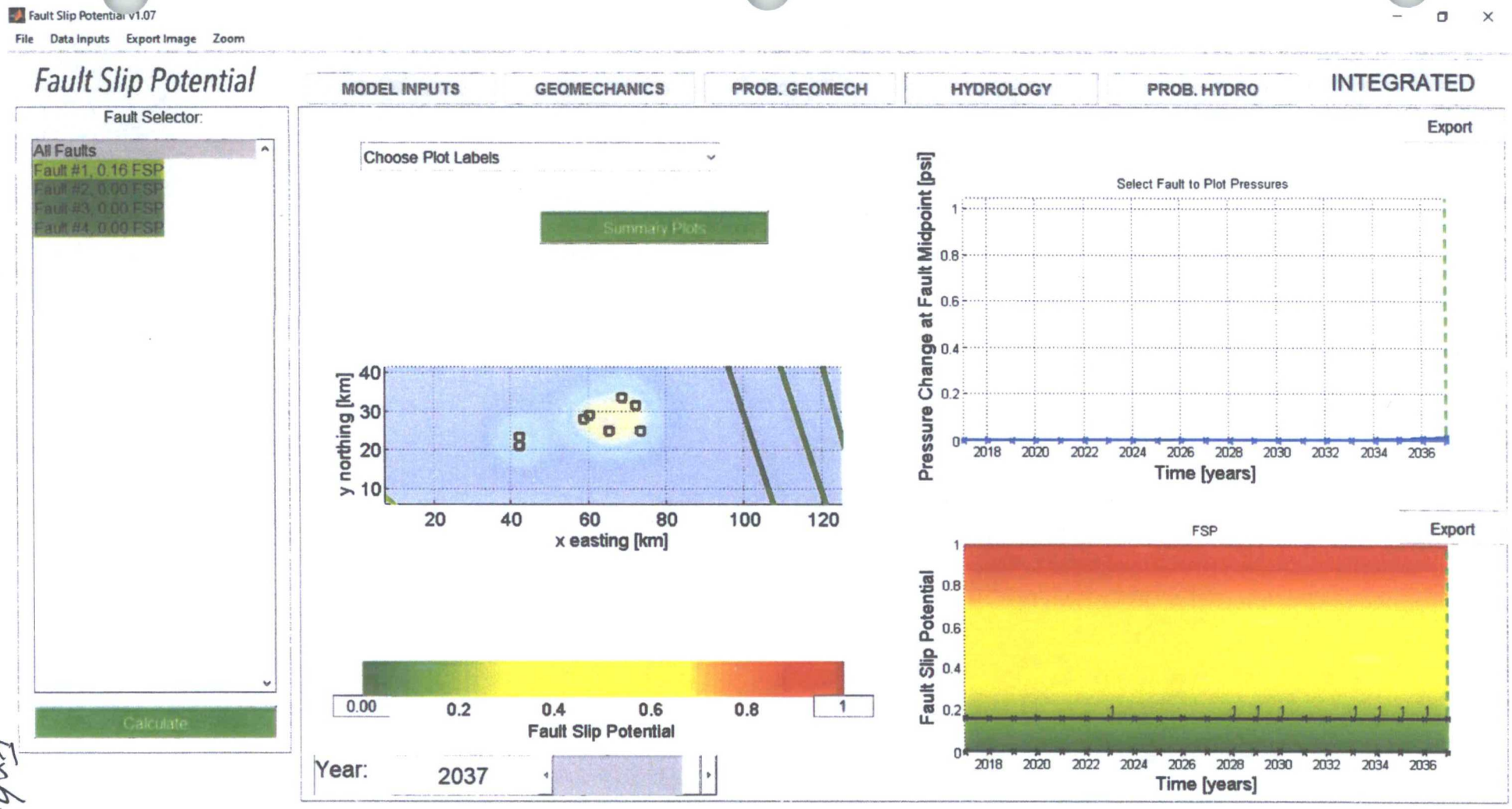
Modeled injection rate for each well through time of model domain



Results using
SH_max: 90°
APhi: 0.5
Fault dip: 40°
Fault friction: 0.4 (results at 0.58 are same)

Fault slip potential on all 4 mapped faults is 0

Friction values based on laboratory experiments for various rock types (from Ikari et al., 2011, On the relation between fault strength and frictional stability, *Geology, 39*, p. 83-86.)



Ex 6.1.7 #8

Results using :
SH_max: 90°
APhi: 0.5
Fault dip: 40°
Fault friction: 0.3

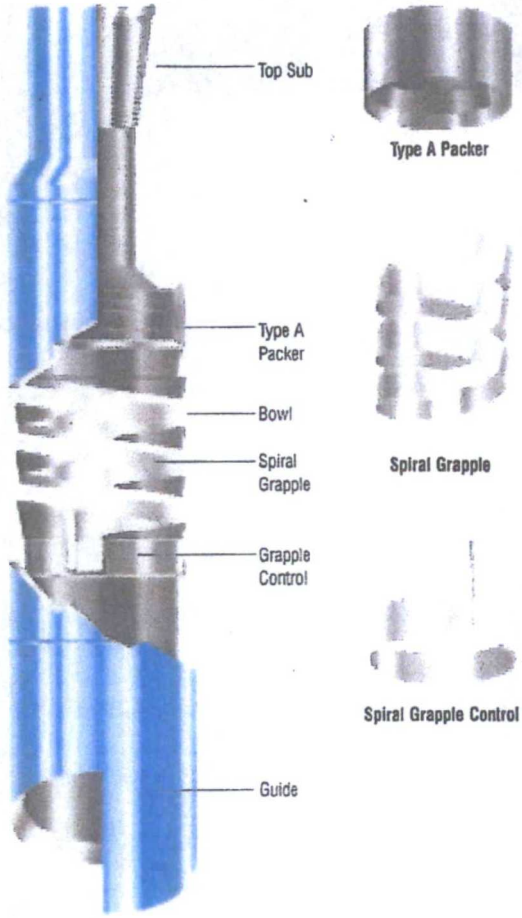
Fault slip potential on 3 mapped faults is 0,
fault #1 (SW) has FSP of 0.16

SERIES 150 OVERSHOTS

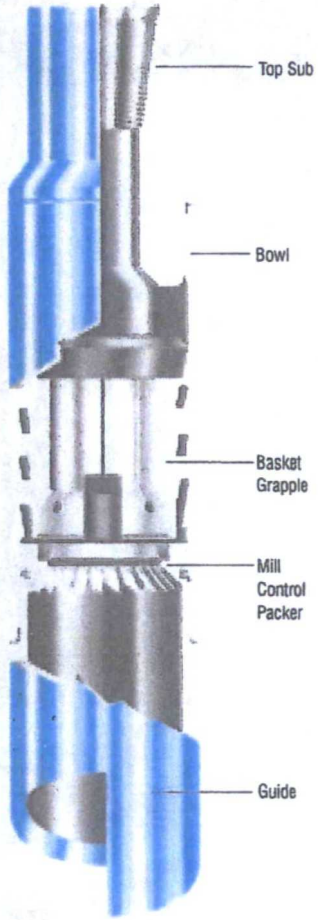
Instruction Manual 1150

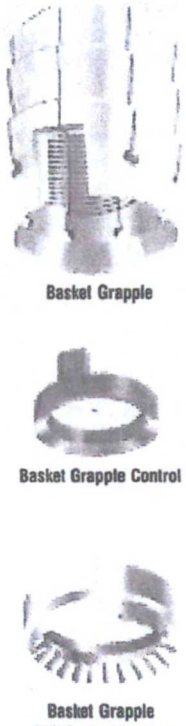
Series 150 Releasing and Circulating Overshots

Exhibit 30



Series 150 Releasing and Circulating Overshot
Dressed with Spiral Grapple and Parts





Series 150 Releasing and Circulating Overshot
Dressed with Basket Grapple and Parts

General Description

The **Bowen Series 150 Releasing and Circulating Overshot** provides the strongest tool available to externally engage, pack-off, and pull a fish. The basic simplicity and rugged construction with which it is designed have made it the standard of all external catch fishing tools.

The **Bowen Series 150 Releasing and Circulating Overshot** has gained worldwide acceptance for fishing by means of external engagement of a fish. Each Overshot is a carefully engineered unit. In service, it takes a positive grip over a large area of fish and is therefore capable of withstanding extremely heavy pulling, torsional and jarring strains without damage or distortion to either the tool or the fish.

Bowen Overshots are continually developed to new standards of strength and efficiency and are expertly constructed of the highest quality material.

Each Bowen Series 150 Releasing and Circulating Overshot is a compact unit designed to engage, pack off and pull a specific size of tubing, pipe, coupling, tool joint, drill collar or smooth O.D. tool. Through the installation of proper undersize parts, they may be adapted to engage and pack off any smaller size.

Specifications

Maximum Catch Size *(Spiral)*		4-3/4	4-3/4	5	5	5-1/8	5-1/4	5-3/8	5-1/2	6-1/4	6-1/4	6-1/4
Maximum Catch Size *(Basket)*		4-1/4	4-1/4	4-1/2	4-3/8	4-5/8	4-5/8	4-3/4	4-7/8	5-5/8	5-9/16	5-1/2
Overshot O.D.		5-5/8	5-3/4	5-29/32	6-1/8	5-3/4	6-3/8	6-1/2	6-5/8	7-3/8	7-5/8	7-7/8
Standard Box Connection		Per Customer Order										
Type		SH	FS	SH	SFS	SH	SH	SH	SH	SH	SFS	FS
Complete Assembly	**Part No.**	C-5168	8975	C-5171	7787	C-11823	6655	4773	8625	9692	8741	C-2108
(Dressed with Spiral Parts)	**Weight**	133	138	140	157	160	176	182	185	216	241	261

Replacement Parts

Top Sub	**Part No.**	A-5169	8976	A-5172	7789	A-11824	6656	4774	8626	9693	8742	B-2106
	Weight	62	64	65	69	69	78	79	78	87	99	105
Bowl	**Part No.**	B-5170	8977	B-5173	7788	B-11825	4503	9205	8617	9694	1641	B-2109
	Weight	32	33	34	40	33	52	53	54	62	69	76
Packer	**Part No.**	B-2199	6114	L-5950	5950	B-11826	94505	9209	8618	9689	1642	L-1680
	Weight	3/4	3/4	3/4	3/4	3/4	33/4	7/8	3/4	1-1/8	1-1/8	1-1/8
Packer Seat Ring	**Part No.**	A-2200	6120	A-4368	5945	LA-11827	4510	9210	8622	9690	1643	A-2072
	Weight	1/8	1/8	1/8	1/4	1/8	3/8	3/8	3/8	1/4	3/8	3/8
Spiral Grapple	**Part No.**	B-2021	6112	B-4369	5942	B-11828	4498	9207	8619	9687	1644	B-2073
	Weight	2-1/2	2-3/4	2-1/2	2-1/2	2-1/2	33	3	4	5	5-1/4	5-3/4
Spiral Grapple Control	**Part No.**	B-2202	6113	B-4370	5944	A-11829	4499	9208	8620	9688	1645	A-2074
	Weight	2	2-1/4	2	2-1/4	2	2-1/2	2-1/2	2-1/2	3	3-1/4	3-1/2
Standard Guide	**Part No.**	B-2203	6121	B-4371	5946	A-11830	4504	4775	8621	9691	5525	A-2075
	Weight	33	34	34	42	33	39	43	45	58	63	69

Basket Parts

Basket Grapple	**Part No.**	B-2201	6112	B-4369	5942	B-11828	4498	9207	8619	9687	1644	B-2073
	Weight	12-1/2	13-1/2	12-1/2	14	12-1/2	15	16	20	25	27	28-3/4
Basket Grapple Control	**Part No.**	B-2202	6113	B-4370	5944	A-11829	4499	9208	8620	9688	1645	A-2074
	Weight	6	6-1/2	6	7	6	7-1/2	8	7-1/2	9	10	10-1/2
Mill Control Packer	**Part No.**	B-2199-R	6114-R	L-5950-R	5950-R	11826-R	4505-R	L9209-R	L-8618-R	9689-R	1642-R	L-1680-R
	Weight	8	8	8	9	18	10	10	10	12	13	14

How to Order

Specify:

(1) Name and number of assembly or part
(2) Size and type of fish to be caught
(3) Top connection
(4) O.D., if other than standard

RECOMMENDED SPARE PARTS:

Spiral:

(1) 3 Packers
(2) 2 Grapples for each size
(3) 1 Control

Basket:

(1) 2 Grapples
(2) Mill Control Packers for each size

Mill Control Packer:

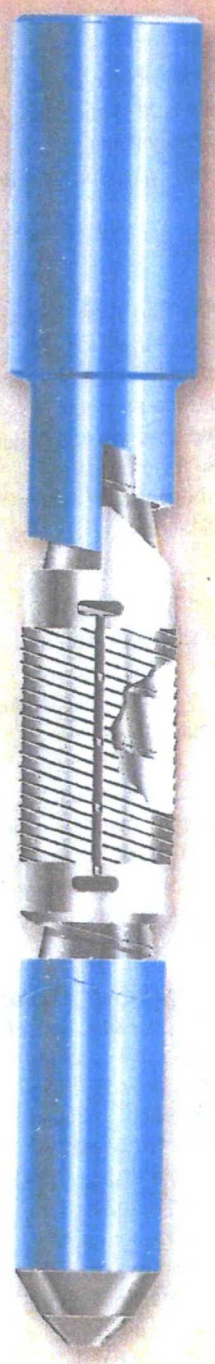
(1) 3 Inner and 3 Outer Seals

SPECIAL NOTES:

FS (Full Strength) ..... *Engineered to withstand all pulling, torsional, and jarring strain.*
XFS (Extra Full Strength) ..... *Engineered for extreme abuse.*
SFS (Semi Full Strength) ..... *Engineered for special hole conditions commensurate with maximum strength.*
SH (Slim Hole) ..... *Engineered to withstand heavy pulling strain only.*
XSH (Slim Hole) ..... *Engineered for pickup jobs only.*

ITCO TYPE RELEASING SPEARS

Instruction Manual 2300



Itco Type Releasing Spears

NOV NATIONAL OILWELL VARCO

One Company | Unlimited Solutions

Exhibit 3R

General Description

The **Bowen Itco Type Releasing Spear** is a superior fishing spear which is designed to assure positive internal engagement with the fish. It is ruggedly built to withstand severe jarring and pulling strains. It engages the fish over a large area without damage to, or distortion of the fish. The simple design eliminates any small parts which could become lost or damaged in the hole. If the fish cannot be pulled, the spear may easily be released and disengaged.

Use

The Bowen Itco Type releasing Spear is used to internally engage and to retrieve all sizes of tubing, drill pipe and casing. It may be used in conjunction with cutters, spear pack-offs and other tools, where this is desirable.

Construction

The Bowen Itco Type Releasing Spear consists of a Mandrel, Grapple, Release Ring and Nut. The Mandrel may be ordered in ether a Flush Type or a Shoulder Type. Mandrel top connections are furnished to order.

The flexible one-piece Grapple has an internal helix matching the Mandrel helix. The tang of the Grapple rests against a stop on the Mandrel when the Spear is in the engaged position. The large engaging surface of the Grapple permits heavy jarring and pulling strains without distorting the fish.

The helix of the Mandrel ends at the point where the Release Ring is mounted. The cam of the Release Ring matches the cam on the face of the Nut. The matching cams of the Release Ring and the Nut are a safety device which resists locking, freezing or jamming of the Spear, assuring an easy release.

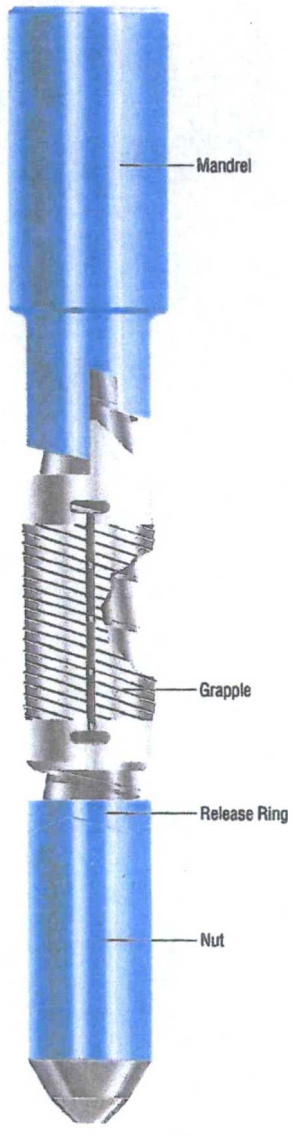
The standard plain bull-nose nut is furnished on the tool when ordered unless an alternate type is specified. Also available as accessory items at extra cost are Mill Type, Sub Type and Side-hill Type nuts.

Heavy Duty Itco Type Releasing Spears

Bowen Heavy Duty Itco Type Releasing Spears have a relatively longer Mandrel and Grapple than the Standard Spear resulting in twice as much supported wickered area in engagement with the fish. These assemblies are listed, along with the standard assemblies, in the specifications found below in this manual.

The Heavy Duty Itco Type Spear is intended for use in situations where swelling of the fish is a problem. This spear, which has a much longer mandrel and grapple, distributes the swelling forces over a greater area and thus substantially reduces these forces. While the tensile strength of the mandrel is the same as the standard spear, the Heavy Duty Spear is far less prone to damage from swelling of the fish and is actually much stronger in this sense.

Since the swelling forces being delivered to the fish vary with grapple size, type of lubrication used, straight pull or jarring, etc.; it is very difficult to provide meaningful strength data for each condition. While such calculations are possible, it would mean providing a different strength for each casing or tubing size, weight, and material grade for each spear size. Since it would require many pages of published data, many hours of calculations, many assumptions regarding coefficient of friction and condition of casing, we have never attempted to provide such data.



Shoulder Type in Engaging Position

Sidehill Type Nut

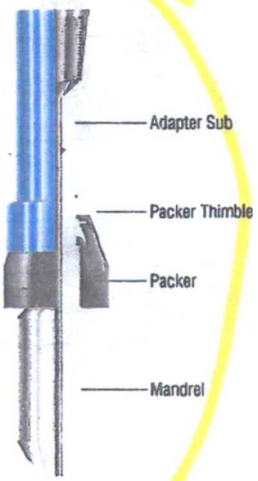
Sidehill Type Nut

The Sidehill Type Nut is used in place of the standard bullnose nut to align the Spear with a fish that is imbedded in the side wall of the hole.

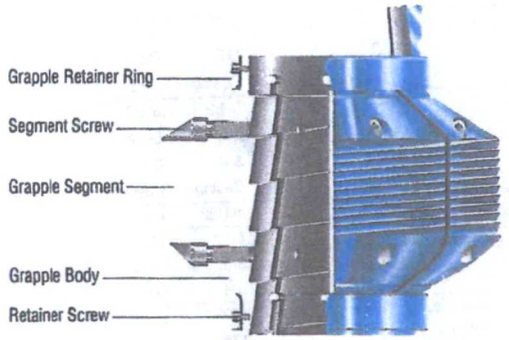
Sub Type Nut

Sub Type Nut

The Sub Type Nut is used in place of the standard bullnose nut to provide the connection required to utilize other tools below the Spear, such as the Spear Pack-Off or Internal Cutters.



Spear Pack-Off Assembly



Segment-Type Spear Grapple Assembly for 8-5/8 Casing Spear, Part No. 9380

Segment-Type Spear Grapple Assembly

The Segment-Type Spear Grapple is used in place of the standard one-piece Grapple on the 8$^5/_8$" and 9$^5/_8$" size Spears to convert them to Spears capable of engaging up to 20" casing. The Segment Type Spear Grapple consists of a Grapple Body, eight grapple segments and 16 Grapple Segment Screws. The helix of the Grapple Body matches the helix of the Spear Mandrel making the action of the Spear the same as with the standard Grapple.

Spear Pack-Off Assembly

The Spear Pack-Off Assembly is attached to the Sub Type Nut below the Spear to pack off the fish in order to circulate through the fish. The Spear Pack-Off Assembly consists of an Adapter Sub, Packer Thimble, Packer and Mandrel. The Adapter Sub of the Spear Packoff will be furnished with a box connection to match the pin connection of the Sub Type Nut on which it is to be used, or as otherwise ordered. The Mandrel of the Spear Pack-Off may be ordered plain bullnose or with a pin connection for attachment of other tools, as specified.

Bowen Internal Cutters For Use in Cut and Pull Operations

Bowen Internal Cutters may be run below the Bowen Releasing Spear and are spaced as desired, depending upon the length of the fish and the length of the cut to be made. The Spear should be spaced far enough above the cutter so that the Spear is clear of the fish during cutting operations. After cutting is completed, the Spear can be lowered to retrieve the cut-off section. Bowen Internal Cutters are fully described in Instruction Manual No. 5600.

Operation

Examine and assure that the Bowen Releasing Spear is the correct size for the pipe to be caught and is properly assembled. Refer to the Specification Chart and to the Grapple Range Chart in this manual.

Connect the Spear to the fishing string. Set the Spear in released position by screwing the Grapple down the helix against the Release Ring as far as it will go by hand. In this position the Grapple is caused to contract inward and will not engage the pipe as it is run in.

Specifications

Nominal Catch Size		5 O.D. Casing	5 O.D. Casing	5 O.D. Casing	5 O.D. Casing	6 O.D. Casing	6 O.D. Casing	6 O.D. Casing	7 O.D. Casing	7 O.D. Casing	7 O.D. Casing
Additional Catch Size		5-1/2, 5-3/4, & 6 Casing	5-1/2, 5-3/4, & 6 Casing	5-1/2, 5-3/4, & 6 Casing	5-1/2, 5-3/4, & 6 Casing	6-5/8 & 7 Casing	6-5/8 & 7 Casing	6-5/8 & 7 Casing	7-5/8, 8, & 8-1/8 Casing	7-5/8, 8, & 8-1/8 Casing	7-5/8, 8, & 8-1/8 Casing
Spear O.D. (H)		4-1/32	4-1/32	4-1/32	4-1/32	5	5	5	5-11/16	5-11/16	5-11/16
Spear I.D.		7/8	1	1	7/8	1	1	1	2	2	2
Class		Light Duty	Std.	Std. L.H.	Light Duty, L.H	Light Duty	Std.	Std. L.H.	Std.	Std. L.H.	Heavy Duty
Complete Assembly	Part No.	1332	9680	18270	20115	9715	17234	58292	9266	20890	17237
	Weight	110	115	175	117	150	186	186	241	241	310

Replacement Parts

Mandrel – Flush Type	Part No.	1333	9681	18271	20116	9716	17235	58293	9267	20891	17238
	Weight	65	72	85	73	110	118	118	141	141	205
Mandrel – Shoulder Type (A)	Part No.	1333	9681	18271	20116	9716	17235	58293	9267	20891	17238
	Weight	67	77	91	80	115	123	123	146	146	214
Grapple	Part No.	1334	9682	18272	20117	9717	17236	58294	9268	20892	17239
(For weights and catch ranges, see Calculated Strength Chart.)											
Release Ring	Part No.	1336	1336	20119	20119	9718	9718	9718	9279	152677	9279
	Weight	1	1	1	1	2	2	2	3-1/2	3-1/2	3-1/2
Bullnose Nut	Part No.	1335	1335	20118	20118	9719	9719	58295	9269	20893	9269
	Weight	28	28	28	29	48	48	48	65	65	65

Accessories

Mill Type Nut	Part No.	1335-A	1335-A	1335-A	20118-A	9719-A	9719-A	58295-A	9269-A	20893-A	9269-A
	Weight	28	28	28	29	48	48	48	65	65	65
Sub Type Nut	Part No.	1335-B	1335-B	1335-B	20118-B	9719-B	9719-B	58295-B	9269-B	20893-B	9269-B
	Weight	28	28	28	29	48	48	48	65	65	65
Side Hill Type Nut	Part No.	1335-C	1335-C	1335-C	20118-C	9719-C	9719-C	58295-C	9269-C	20893-C	9269-C
	Weight	28	28	28	29	48	48	48	65	65	65

Stop Subs - Stop Rings

Stop Sub Body O.D.		4-1/32	4-1/32	4-1/32	4-1/32	5	5	5	5-11/16	5-11/16	5-11/16
Stop Sub Stop O.D.		5	5	5	5	6	6	6	7	7	7
Stop Ring O.D.		5-1/2	5-1/2	5-1/2	5-1/2	6-5/8	6-5/8	6-5/8	7-5/8	7-5/8	7-5/8
Stop Sub Type F	Part No.	19056	19056	19056	19056	19057	19057	19057	19058	19058	19058
Stop Ring Type S	Part No.	18804	18804	18804	18804	18805	18805	18805	18806	18806	18806

How to Order

Specify:

(1) Name and part number of assembly or part
(2) Size and type of top connection
(3) Size and weight or weights of pipe to be caught
(4) Flush or shoulder type
(specify O.D. of shoulder – A)
(5) Mandrel length desired (C)
(6) Thread size and type of nut, if wanted

See page 8 for dimensions

RECOMMENDED SPARES:

(1) 2 Grapples for Each Catch Size

How to Order Type F Stop

Specify:

(1) O.D. of Stop Sub Body
(2) Length from Stop to thread connection
(3) Top and bottom connection desired
(4) Number of spear on which Stop Sub will be used

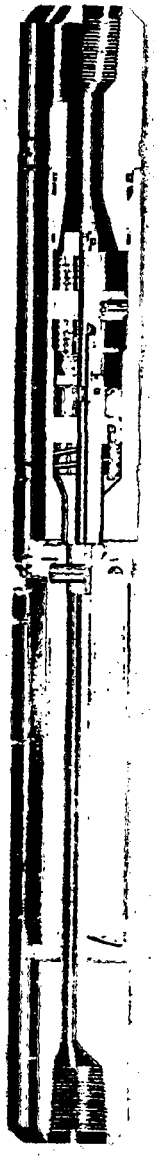
How to Order Type S Stop Ring

Specify:

(1) O.D. of Ring
(2) O.D. on Spear shoulder or Stop Sub shoulder with which Stop Ring is to be used

PRESSURE PIPE CUTTER

Instruction Manual 5680



Pressure Pipe Cutter

One Company | Unlimited Solutions

Exhibit 32

General Description

The **Bowen Pressure Pipe Cutter** is designed to cut single and multiple strings of pipe from 4" O.D. to 36" O.D., using pump pressure to actuate three (3) Itcoloy coated Knives. Different lengths of Knives are used, depending on the size of pipe to be cut. The Cutter works on the principle of flow restriction across an orifice while cutting, and pressure drop when the pre-set diameter of the Knives is reached. This tells the operator that the pipe has been severed.

Operation

A drill bit is attached to the bottom of the Cutter for stabilizing purposes, if desired, and the Cutter is then attached to the Drill Pipe or Tubing. Use bailing wire in the O.D. grooves provided on the Body to keep the Knives in a closed position while the Cutter is lowered to the desired depth. Begin rotation before mud pump is turned on.

The continued downward movement of the Piston reacting to the pump pressure forces the Knives to pivot about their pins. When the Knives reach their pre-set diameter, the Piston will separate from the Bit Jet Retainer Stem, causing an increase in mud flow through the tool. This, in turn will cause a decrease in pump pressure, indicating the Knives have severed the pipe.

Complete Disassembly

Refer to page 4 for proper location of parts.

National Oilwell recommends an assembly drawing of the size Pressure Pipe Cutter being serviced be available when disassembling and reassembling.

Secure the Bowen Pressure Pipe Cutter in an appropriate vise on the Body just above the Knives. Using a pipe wrench and V-Belt Pulley Assembly, break Top Sub connection and remove Top Sub. Using a screwdriver, remove Top Sub O-Ring.

After the Top Sub is removed, reach inside the Body and remove Valve Assembly. The Valve Assembly consists mainly of Bit Jet, Bit Jet Retainer, Bit Jet Retainer Stem and Stop Spider. Lay Valve Assembly on clean shop table. Using retainer ring pliers, remove retainer ring from Bit Jet Retainer. Insert drill rod or brass bar through Bit Jet Retainer Stem and remove Bit Jet by tapping it out. Remove I.D. O-Ring from Bit Jet Retainer.

Remove three (3) set screws from Stop Spider. Remove Bit Jet Retainer Stem from Bit Jet Retainer. Remove Bit Jet Retainer from Stop Spider. Next, remove the three (3) Knives from Body by first, removing the three (3) retaining screws at the head of each knife pin. Using a screwdriver or metal punch, remove the three (3) Knife Pins. Remove Knives from Body.

Insert pipe or brass bar into one of the Knife grooves on Body and tap out Piston. Remove Piston Spring from Body also. Lay Piston on clean shop table and remove Piston I.D. Retainer Ring with retainer ring pliers. Remove Piston Bushing with a screwdriver and also the I.D. O-Ring inside Piston Bushing bore. Secure Piston in a bench vise on small diameter using soft jaws (brass or copper).

NOTE: Do not score or mark any O.D. surface on piston.

With a screwdriver, remove O.D. seal Retainer Ring, Plate and O.D. seal (on $3\frac{5}{8}$" O.D. and $5\frac{9}{16}$" O.D. tools, Piston O.D. seal consists of an O-Ring only). The Bowen Pressure Pipe Cutter is now completely disassembled.

Carefully clean and inspect all parts for wear and damage. Replace all worn and damaged parts with new parts.

Complete Reassembly and Knife Cutting Diameter Adjustment

Refer to page 4 for proper location of parts.

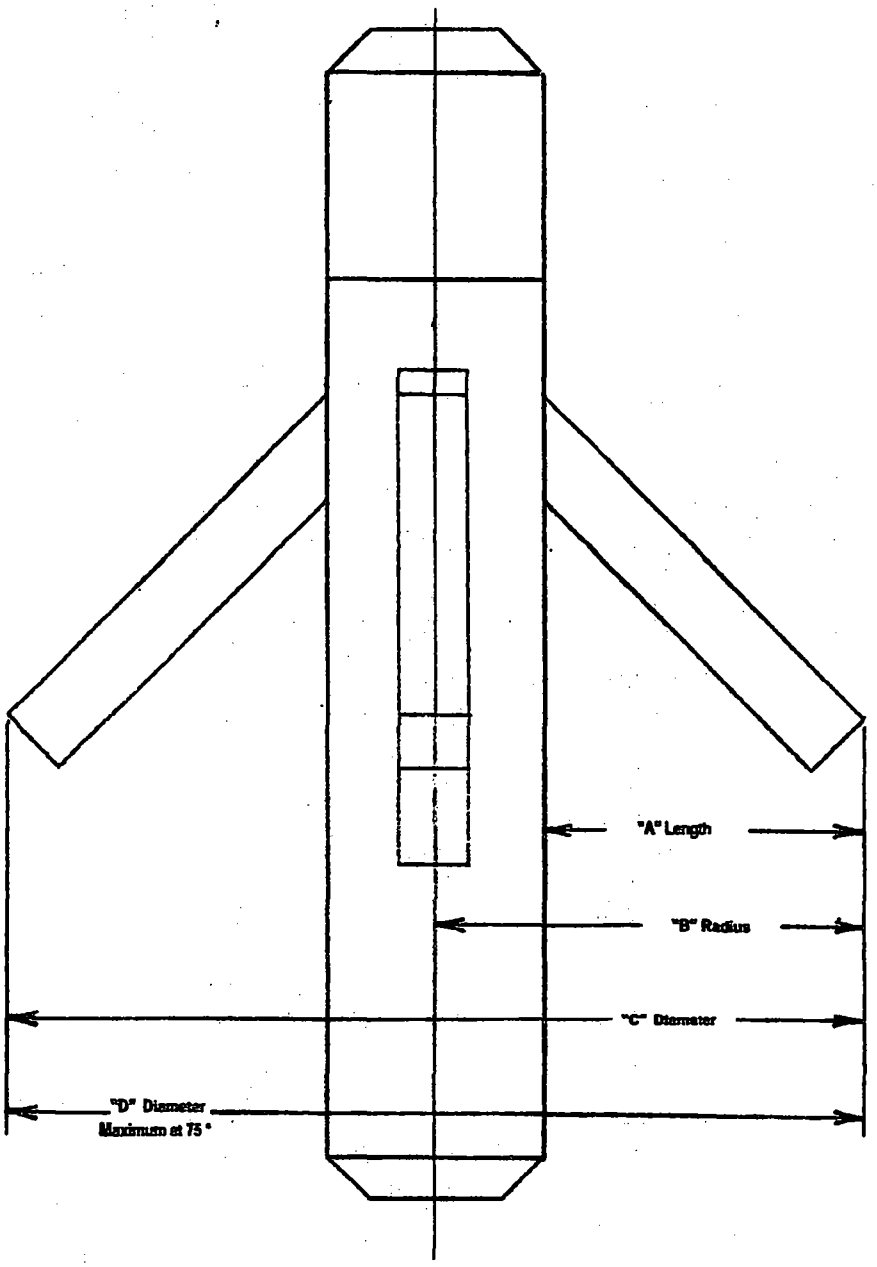
National Oilwell recommends an assembly drawing of the size Pressure Pipe Cutter being serviced be available when disassembling and reassembling.

The Bowen Pressure Pipe Cutter is easy to reassemble. The Body is dressed with the appropriate length of Knives, Knife Pins and set screws. The Knives are inserted into the three (3) Knife slots with the Itcoloy surfaces facing outward and holes in Knives and Body aligned. The Knife Pins are inserted into each of the through drilled holes on the Body. With the head of the Knife Pin inserted into the slot on the Body, the three (3) retaining screws are then installed to hold the Knife Pin in place. The Knives are then checked, assuring they hinge freely.

The Piston O.D. Seal is fitted, then Plate and Retainer Ring installed, (install appropriate Piston O.D. O-Ring on $3\frac{5}{8}$" and $5\frac{9}{16}$" O.D. tools). Install Piston I.D. O-Ring inside Piston bore and insert Piston Bushing until it rests on the shoulder of the Piston. The Retainer Ring is inserted in the groove, locking the Piston Bushing into the I.D. of the Piston. The Piston Assembly is inserted into the Body until it touches the Knives.

NOTE: Piston spring is not installed at this time.

The Bit Jet Retainer Stem is screwed and tightened securely to the Bit Jet Retainer. Next, install I.D. O-Ring inside the Bit Jet Retainer, followed by the Bit Jet and Retainer Ring in that order. The Stop Spider is then threaded onto the Bit Jet Retainer.


"A" Length
"B" Radius
"C" Diameter
"D" Diameter
Maximum at 75 °

Single Cut Operation Running Chart

3-1/4" (83 mm) O.D. Pressure Pipe Cutter

Casing or Pipe Size	Part No.	Knife "A" Length	Knife "B" Radius	"C" Diameter	"D" Max. Diameter @ 75°*	Rotary Speed	Orifice Pressure Differential	Orifice I.D. Std.
4 O.D. Pipe	150446	.625 (16 mm)	2-1/4 (57 mm)	4-1/2 (114 mm)	5-3/8 (136 mm)	80	180 psi (13 Kg/cm²)	1/4

3-5/8" (92 mm) O.D. Pressure Pipe Cutter

Casing or Pipe Size	Part No.	Knife "A" Length*	Knife "B" Radius*	"C" Diameter*	"D" Max. Diameter @ 75°*	Rotary Speed	Orifice Pressure Differential	Orifice I.D. Std.
4-1/2 (114 mm)	80357	9/16 (14 mm)	2-3/8 (60 mm)	4-3/4 (121 mm)	6-1/2 (165 mm)	80	180 psi (13 kg/cm²)	
5 (127 mm)	80357	13/16 (21 mm)	2-5/8 (67 mm)	5-1/2 (133 mm)	6-1/2 (165 mm)	80	180 psi (13 kg/cm²)	
5-1/2 (140 mm)	80357	11/16 (27 mm)	2-7/8 (73 mm)	5-3/4 (146 mm)	6-1/2 (165 mm)	80	240 psi (17 kg/cm²)	1/4
6 (152 mm)	80357	15/16 (33 mm)	3-1/8 (79 mm)	6-1/4 (159 mm)	6-1/2 (165 mm)	80	240 psi (17 kg/cm²)	

5-9/16" (141 mm) O.D. Pressure Pipe Cutter

Casing or Pipe Size	Part No.	Knife "A" Length*	Knife "B" Radius*	"C" Diameter*	"D" Max. Diameter @ 75°*	Rotary Speed	Orifice Pressure Differential	Orifice I.D. Std.
6-5/8 (168 mm)	80717	5/8 (17 mm)	3-7/16 (87 mm)	6-7/8 (175 mm)	8-3/4 (222 mm)	80	750 psi (53 kg/cm²)	
7 (178 mm)	80717	13/16 (21 mm)	3-5/8 (92 mm)	7-1/4 (184 mm)	8-3/4 (222 mm)	80	750 psi (53 kg/cm²)	
7-5/8 (194 mm)	81896	1-1/8 (29 mm)	3-15/16 (100 mm)	7-7/8 (200 mm)	10-1/2 (267 mm)	70	800 psi (56 kg/cm²)	1/4
8-5/8 (219 mm)	81896	1-5/8 (42 mm)	4-7/16 (113 mm)	8-7/8 (225 mm)	10-1/2 (267 mm)	60	900 psi (63 kg/cm²)	
9-6/8 (244 mm)	81896	2-1/8 (55 mm)	4-15/16 (125 mm)	9-7/8 (251 mm)	10-1/2 (267 mm)	60	900 psi (63 kg/cm²)	

7-3/8" (187 mm) O.D. Pressure Pipe Cutter

Casing or Pipe Size	Part No.	Knife "A" Length	Knife "B" Radius	"C" Diameter	"D" Max. Diameter @ 75°*	Rotary Speed	Orifice Pressure Differential	Orifice I.D. Std.
8-5/8 (219 mm)	151023	7/8 (22 mm)	4-9/16 (115 mm)	9-1/8 (231 mm)	10-9/16 (268 mm)	70	450 psi (32 kg/cm²)	
9-5/8 (244 mm)	151023	1-3/8 (34 mm)	5-9/16 (128 mm)	10-1/8 (257 mm)	10-9/16 (268 mm)	70	450 psi (32 kg/cm²)	
10-3/4 (273 mm)	151029	1-15/16 (49mm)	5-5/8 (142 mm)	11-1/4 (285 mm)	19-1/2 (495 mm)	60	450 psi (32 kg/cm²)	3/8
11-3/4 (298 mm)	151029	2-7/16 (61 mm)	61/8 (155 mm)	12-1/4 (311 mm)	19-1/2 (495 mm)	60	500 psi (35 kg/cm²)	
13-3/8 (340 mm)	151029	3-1/4 (82 mm)	6-15/16 (176 mm)	13-1/8 (333 mm)	19-1/2 (495 mm)	60	600 psi (42 kg/cm²)	

* See drawing on page 8.

OD Inches	Wt/Ft w/ Couplings	ID (Inches)	Capacity Bbl/Ft	Disp. Bbl/Ft	Capacity plus Disp.
4 1/2	9.50	4.090	0.01625	0.00346	0.01971
4 1/2	10.50	4.052	0.01595	0.00382	0.01977
4 1/2	11.60	4.000	0.01554	0.00422	0.01976
4 1/2	13.50	3.920	0.01493	0.00491	0.01984
4 1/2	15.10	3.826	0.01422	0.00549	0.01971
5	11.50	4.560	0.02020	0.00418	0.02438
5	13.00	4.494	0.01962	0.00473	0.02435
5	15.00	4.408	0.01888	0.00546	0.02434
5	18.00	4.276	0.01776	0.00655	0.02431
5 1/2	14.00	5.012	0.02440	0.00509	0.02949
5 1/2	15.50	4.950	0.02380	0.00564	0.02944
5 1/2	17.00	4.892	0.02325	0.00619	0.02944
5 1/2	20.00	4.778	0.02218	0.00728	0.02946
5 1/2	23.00	4.670	0.02119	0.00837	0.02956
6	18.00	5.424	0.02858	0.00655	0.03513
6 5/8	24.00	5.921	0.03406	0.00873	0.04279
6 5/8	28.00	5.791	0.03258	0.01019	0.04277
6 5/8	32.00	5.675	0.03129	0.01164	0.04293
7	17.00	6.538	0.04152	0.00619	0.04771
7	20.00	6.456	0.04049	0.00728	0.04777
7	23.00	6.366	0.03937	0.00837	0.04774
7	26.00	6.276	0.03826	0.00946	0.04772
7	29.00	6.184	0.03715	0.01055	0.04770
7	32.00	6.094	0.03608	0.01164	0.04772
7	35.00	6.004	0.03502	0.01273	0.04775
7	38.00	5.920	0.03405	0.01383	0.04788
7 5/8	24.00	7.025	0.04794	0.00873	0.05667
7 5/8	26.40	6.969	0.04718	0.00960	0.05678
7 5/8	29.70	6.875	0.04592	0.01081	0.05673
7 5/8	33.70	6.765	0.04446	0.01226	0.05672
7 5/8	39.00	6.624	0.04262	0.01419	0.05681
8	26.00	7.386	0.05299	0.00946	0.06245
8 1/8	35.00	7.285	0.05156	0.01273	0.06429
8 5/8	28.00	8.017	0.06244	0.01019	0.07263

OD Inches	Wt/Ft w/ Couplings	ID (Inches)	Capacity Bbl/Ft	Disp. Bbl/Ft	Capacity plus Disp.
8 5/8	32.00	7.921	0.06095	0.01164	0.07259
8 5/8	36.00	7.825	0.05948	0.01310	0.07258
8 5/8	40.00	7.725	0.05797	0.01455	0.07252
8 5/8	44.00	7.625	0.05648	0.01601	0.07249
8 5/8	49.00	7.511	0.05480	0.01783	0.07263
9	40.00	8.150	0.06453	0.01455	0.07908
9 5/8	32.30	9.001	0.07870	0.01175	0.09045
9 5/8	36.00	8.921	0.07731	0.01310	0.09041
9 5/8	40.00	8.835	0.07583	0.01455	0.09038
9 5/8	43.50	8.755	0.07446	0.01583	0.09029
9 5/8	47.00	8.681	0.07321	0.01710	0.09031
9 5/8	53.50	8.535	0.07077	0.01946	0.09023
10	33.00	9.384	0.08554	0.01201	0.09755
10 3/4	32.75	10.192	0.10091	0.01192	0.11283
10 3/4	40.50	10.050	0.09812	0.01473	0.11285
10 3/4	45.50	9.950	0.09617	0.01655	0.11272
10 3/4	51.00	9.850	0.09425	0.01856	0.11281
10 3/4	55.50	9.760	0.09254	0.02019	0.11273
11 3/4	42.00	11.084	0.11935	0.01528	0.13463
11 3/4	47.00	11.000	0.11754	0.01710	0.13464
11 3/4	54.00	10.880	0.11499	0.01965	0.13464
11 3/4	60.00	10.772	0.11272	0.02183	0.13455
12	40.00	11.384	0.12589	0.01455	0.14044
13	45.00	12.360	0.14841	0.01637	0.16478
13 3/8	48.00	12.715	0.15705	0.01746	0.17451
13 3/8	54.50	12.615	0.15459	0.01983	0.17442
13 3/8	61.00	12.515	0.15215	0.02219	0.17434
13 3/8	68.00	12.415	0.14973	0.02474	0.17447
13 3/8	72.00	12.347	0.14809	0.02620	0.17429
16	65.00	15.250	0.22592	0.02365	0.24957
16	75.00	15.124	0.22220	0.02729	0.24949
16	84.00	15.010	0.21887	0.03056	0.24943
20	94.00	19.124	0.35528	0.03420	0.38948
20	106.50	19.000	0.35069	0.03875	0.38944
20	133.00	18.730	0.34079	0.04839	0.38918

Exhibit 33