BEFORE THE OIL CONSERVATION DIVISION
EXAMINER HEARING FEBRUARY 6, 2020

CASE NO. 21020

GAS CAPTURE PILOT PROJECT

SALADO DRAW 19 26 33 FEDERAL COM #2H
SD EA 19 FEDERAL P 6 #005H

LEA COUNTY, NEW MEXICO

Chevron

Project need and background

Problem

- Market interruptions in 3rd party gas takeaway generally require Permian operators to shut down wells or flare gas to produce, resulting in waste.

Solution

- During interruptions, occasionally re-inject produced gas into (2) producing wells to avoid broad shutdowns and/or capture gas that could potentially go to flare, preventing waste
- Once temporary constraints are lifted, produce back captured gas through existing production equipment in the same two wells

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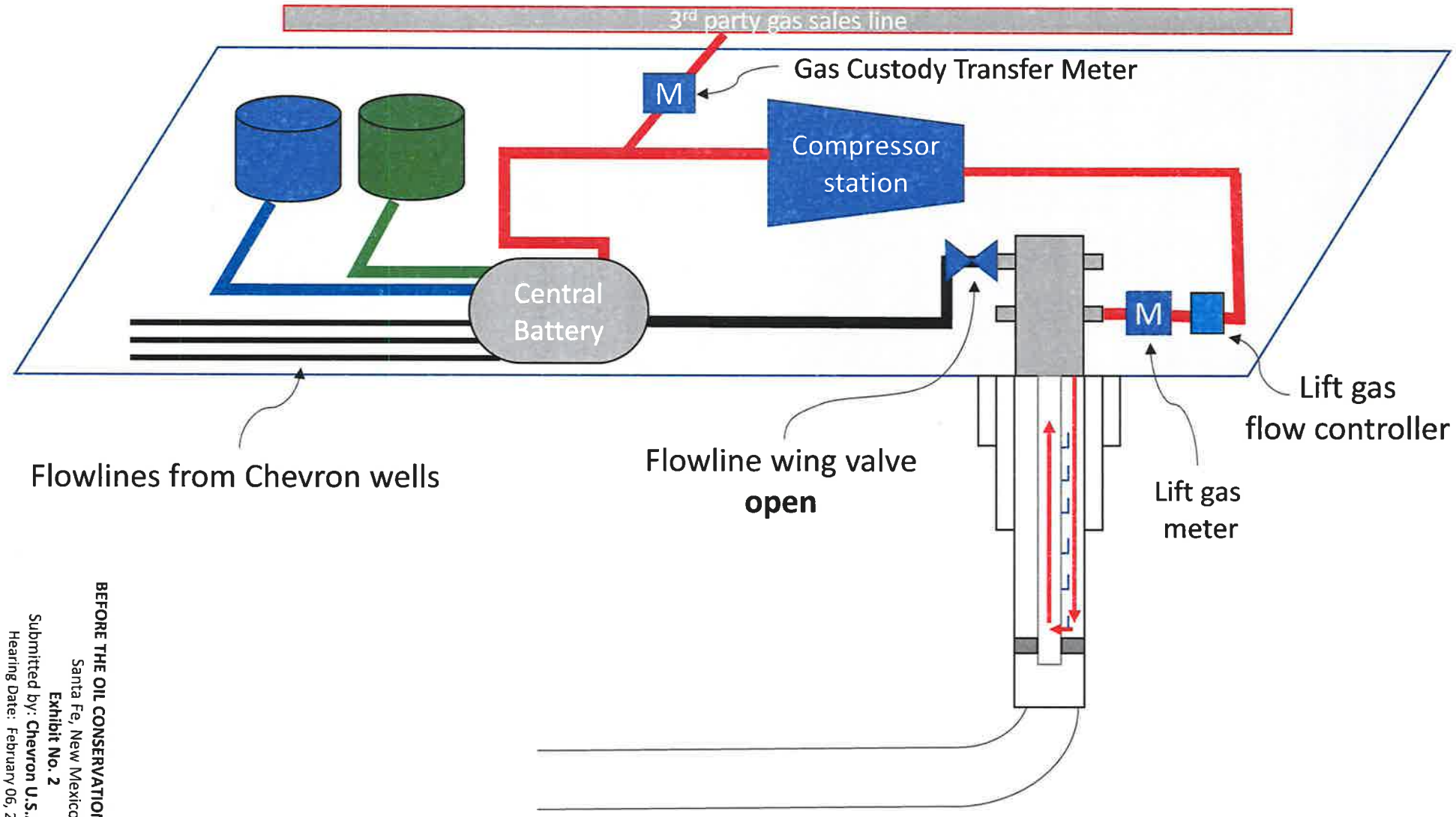
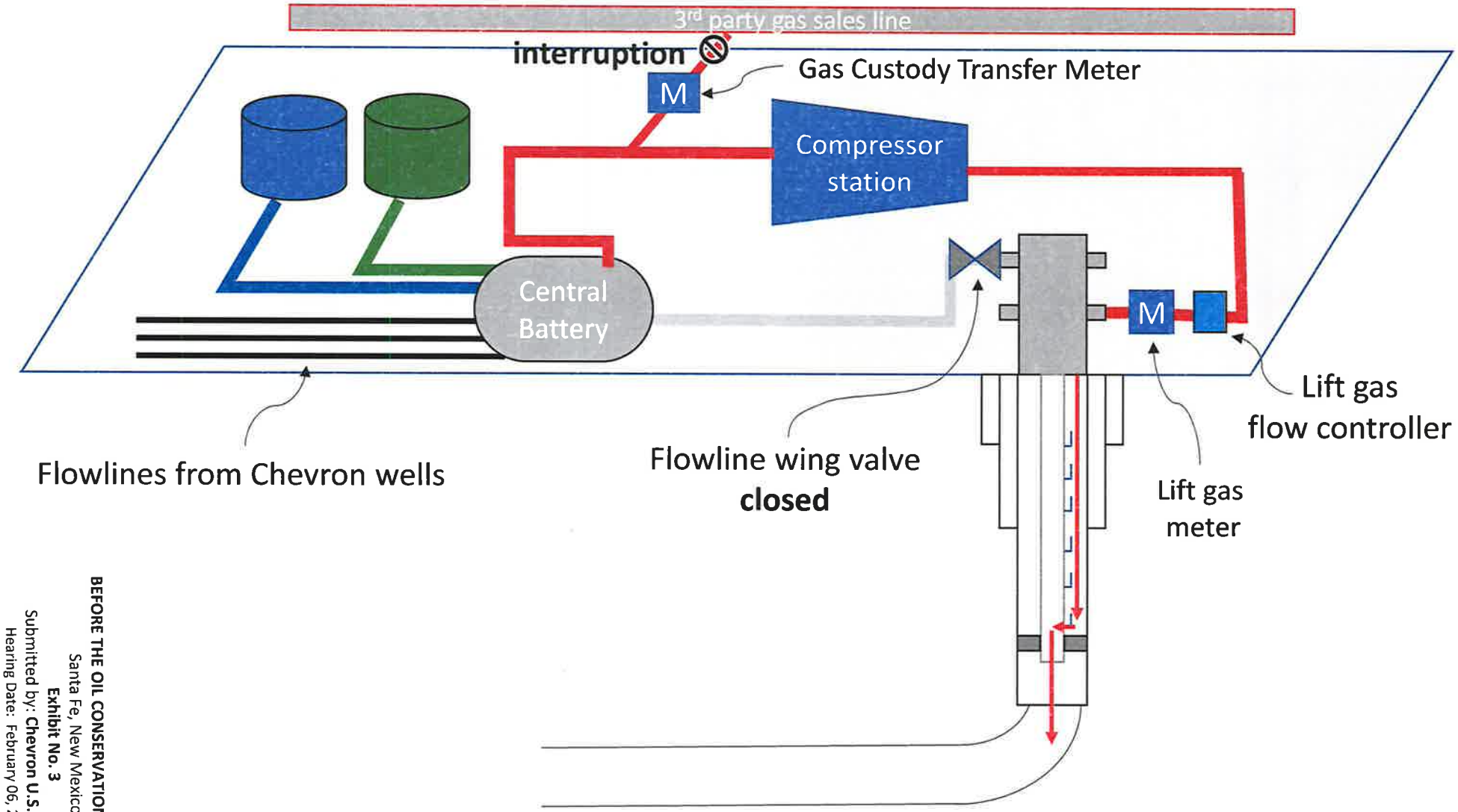
Santa Fe, New Mexico
Exhibit No. 1
Submitted by: **Chevron U.S.A. Inc.**
Hearing Date: February 06, 2020
Case No. 21020

Simplified diagram – typical production operation



Simplified diagram – proposed operation during 3rd party interruption



Project goals

1) **Determine gas injection capacity for each well**
2) **Determine achievable injection rate for each well**
3) **Determine recovery period of injected gas**
4) Assess whether this project can **effectively reduce the frequency of well shutdowns and associated lost production** due to midstream gas takeaway interruptions.

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Exhibit No. 4
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Hearing Date: February 06, 2020
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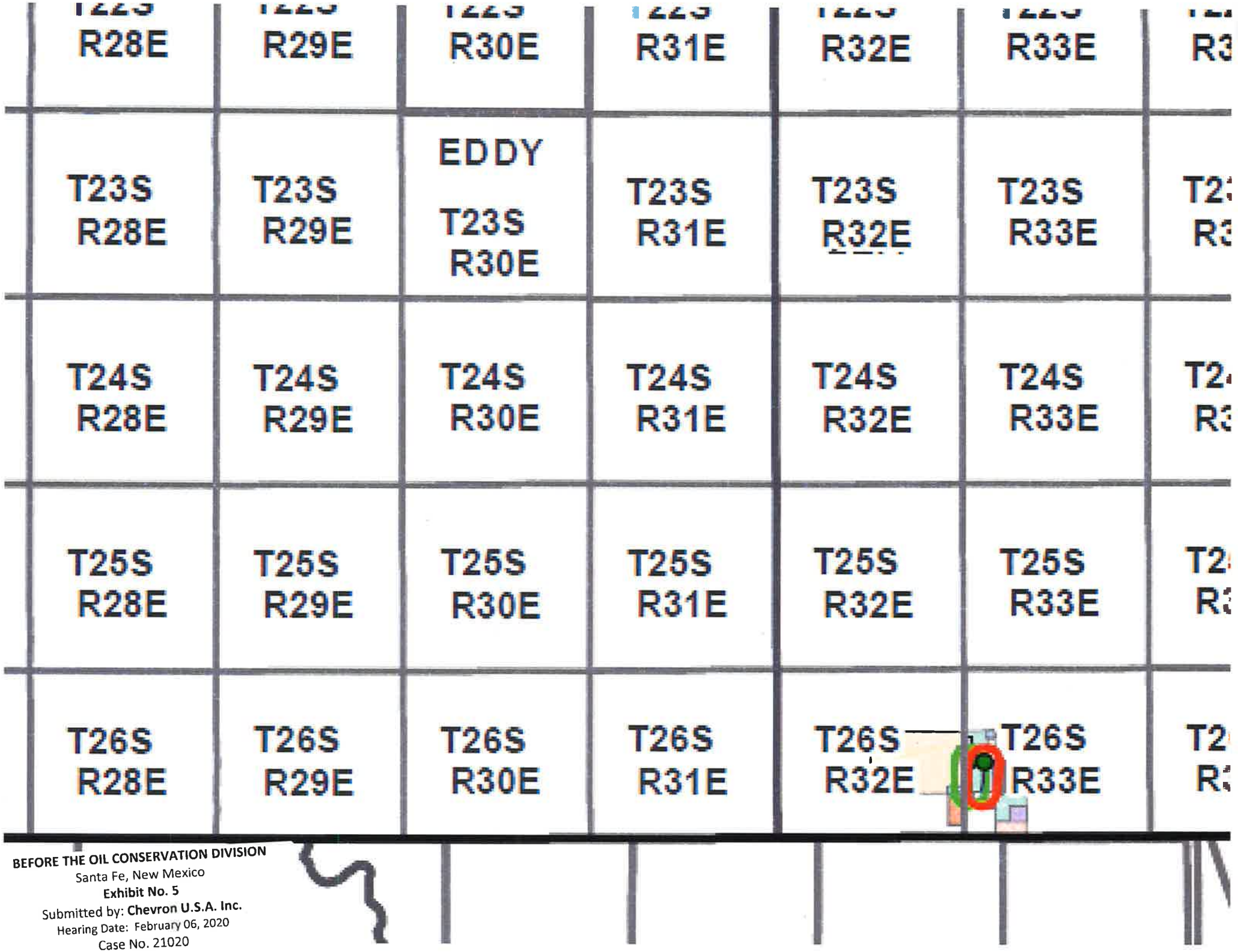

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Exhibit No. 5
Submitted by: **Chevron U.S.A. Inc.**
Hearing Date: February 06, 2020
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Timeline

- 1-4 months from approval
  - Begin to conduct injection tests and collect data
  - utilize pilot wells for occasional, short-term injection during takeaway constraints
- 4-10 months from approval
  - Continue utilizing pilot wells for occasional, injection during takeaway constraints; continue data collection
  - Analyze data acquired throughout injection periods
  - Inject using different scenarios (rate, duration)
  - Prepare post project report
- 8-10 months from approval
  - Post-project report provided to Division

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd E. Leahy, JD, PhD
Deputy Secretary

Adrienne Sandoval, Director
Oil Conservation Division

October 24, 2019

Chevron U.S.A., INC.
Attention: Fred Verner
6301 Deauville Blvd, Midland, TX 79706

Re: Chevron Gas Capture Pilot Project

Dear Fred Verner,

This letter responds to your request for guidance regarding the procedure for requesting approval from the Oil Conservation Division ("OCD") for the Chevron Gas Capture Pilot Project ("Pilot Project"). On October 9, 2019, Chevron gave a presentation to OCD regarding the Pilot Project, which does not appear to fall within the types of injection wells regulated under 19.15.26 NMAC. Accordingly, the OCD Director will exercise her authority under the Oil and Gas Act, NMSA 1978, Section 70-2-11(A), to consider an application for an order to implement the Pilot Project, subject to the following conditions:

1) No later than sixty (60) days after the date of this letter, submit an application for hearing containing or agreeing to provide the following information:

Project Description

i) Describe the need and background for the project.
ii) Summarize the project goals and steps to obtain them.

Duration

i) Provide a project timeline that does not extend more than 1 year after the date of issuance of an order.

Technical Information and Standards for Installation and Operation

i) Supply a reservoir characterization and justification of reservoir suitability including the formation's lithology, and the general stratigraphy of the injection interval.
ii) Provide reservoir modeling and technical analysis to analyze whether the injected gas will migrate from the formation, interfere with other wells, or affect underground sources of drinking water.
iii) Provide a technical analysis to evaluate whether the injected gas will have a net positive, neutral, or negative effect on the pool's ultimate recovery.

iv) Provide a well diagram, casing information, drilling reports, and CBL for the well.

v) Confirm that the well will meet the following minimum requirements: (a) the casing burst pressure shall be at least 120% of the maximum allowable surface pressure plus the hydrostatic pressure from a full column of reservoir fluid; and (b) the drilling reports and CBL reflect complete cement coverage for the entire vertical length of the well.

vi) Perform an assessment of the surrounding wells to ensure they meet the requirements in subsection (v).

vii) Demonstrate that the mechanical integrity of the well complies with 19.15.26.11(A)(1) NMAC to a minimum pressure of 110% of the maximum allowable surface pressure.

viii) Demonstrate that the injected gas does not contain corrosive gas such as H_2S or CO_2 that may damage the casing.

ix) If the proposed maximum allowable surface pressure is greater than 0.14 psi/ft, comply with the following requirements:

(a) Justify the proposed maximum allowable surface pressure.

(b) Demonstrate with appropriate data the fracture and propagation pressure for the targeted horizon.

(c) Provide the expected bottom hole hydrostatic pressure generated by a fluid column consisting of the injected gas.

(d) Demonstrate with appropriate data that the maximum allowable surface pressure will not exceed 90% of the horizon's propagation pressure minus the expected bottom hole hydrostatic pressure generated by a fluid column consisting of the injected gas.

(e) Install equipment to prevent the downhole pressure from exceeding 90% of the reported propagation pressure.

x) Provide any additional information requested by the OCD Director.

Monitoring

i) Install equipment to prevent the surface pressure from exceeding the maximum allowable surface pressure.

ii) If operations will be conducted remotely, establish a SCADA system to collect all relevant data for safe operations, including the production flow rate, injection gas flow rate, surface pressure, and downhole pressure.

Reporting

i) Submit a C-115 form each month which identifies the production and injection volumes, pressures, and days in operation.

Corrective Action

i) Provide a plan of action for environmental and engineering emergencies.

Post-Project Report

ii) Submit a compilation of the following data: injection rates, injection volumes, injection interval durations, maximum pressure reached during injection intervals (surface and downhole), production rates, gas recovery rate, and delta pressures for adjacent wells during injection.

2) Give notice of the application and the hearing in accordance with 19.15.26.8(B)(2) NMAC.

3) Interested persons may attain party status in the hearing pursuant to 19.15.4.10 & 11 NMAC.

4) The hearing will be conducted in accordance with 19.15.4.13 through 26 NMAC.

5) The OCD Director may approve this application and impose conditions in the order as she deems necessary to prevent waste, protect correlative rights, and protect the public health and environment.

6) OCD will determine the process for broader implementation of the technology used in the Pilot Project after review of the results and further consideration of the regulatory and technical issues.

7) This procedure is applicable only to the Pilot Project.

We look forward to working with you on this Pilot Project. If you have any questions about this letter, please call Phil Goetz, UIC Coordinator, at (505)476-3466.

Sincerely,

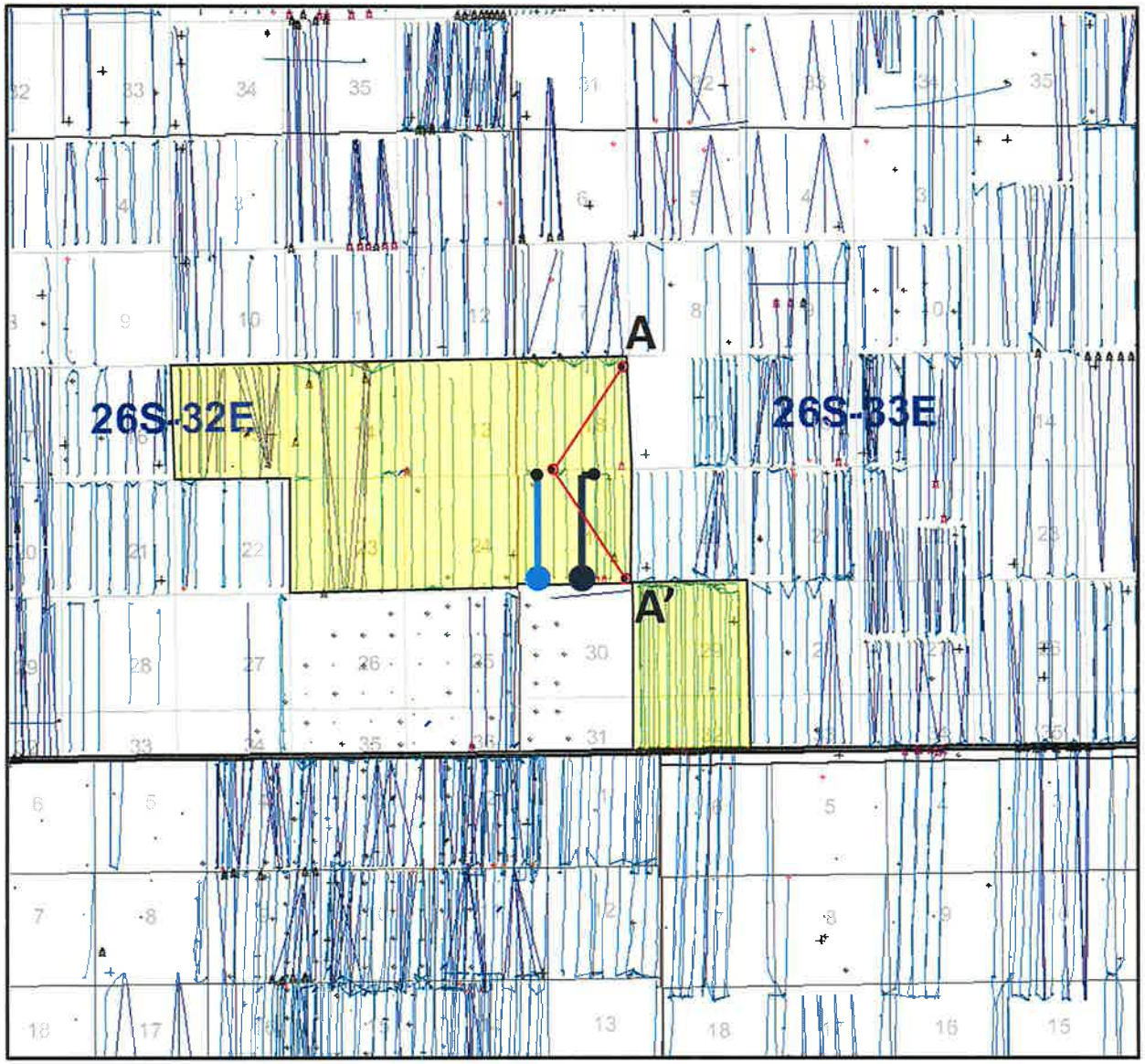
Adrienne Sandoval
Director

cc: Phil Goetz

Reservoir characterization

- Target injection interval is the Avalon shale, a productive interval within the Bone Spring Formation.
- The injection interval has a TVD of ~9122 ft. to ~ 9196 ft.
- Wireline log and core analysis indicate the reservoir consists of:
  - faintly laminated, siliceous, silty mudstones
  - Interbedded and interlaminated with
    - argillaceous siltstones
    - Carbonate (limestone) thinly bedded.
- Air permeabilities measurements from core indicate reservoir matrix permeabilities of ~400 nanoDarcies to ~5 microDarcies.
- Reservoir thickness: ~250'
- bottom hole pressures range from ~550 psig to ~650 psig following a 12-hr build up in the proposed project injectors.

Salado Draw Area – Cross Section Index Map



Legend

- SHL / BHL — Salado Draw 19 26 33 Fed Com #002H
- SHL / BHL — SD EA 19 Federal P6 #005H
- Chevron Acreage
- Cross Section Trace

N

1 mile

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Santa Fe, New Mexico
Exhibit No. 9
Submitted by: **Chevron U.S.A. Inc.**
Hearing Date: February 06, 2020
Case No. 21020

Salado Draw Area – Structural Cross Section

North **A**

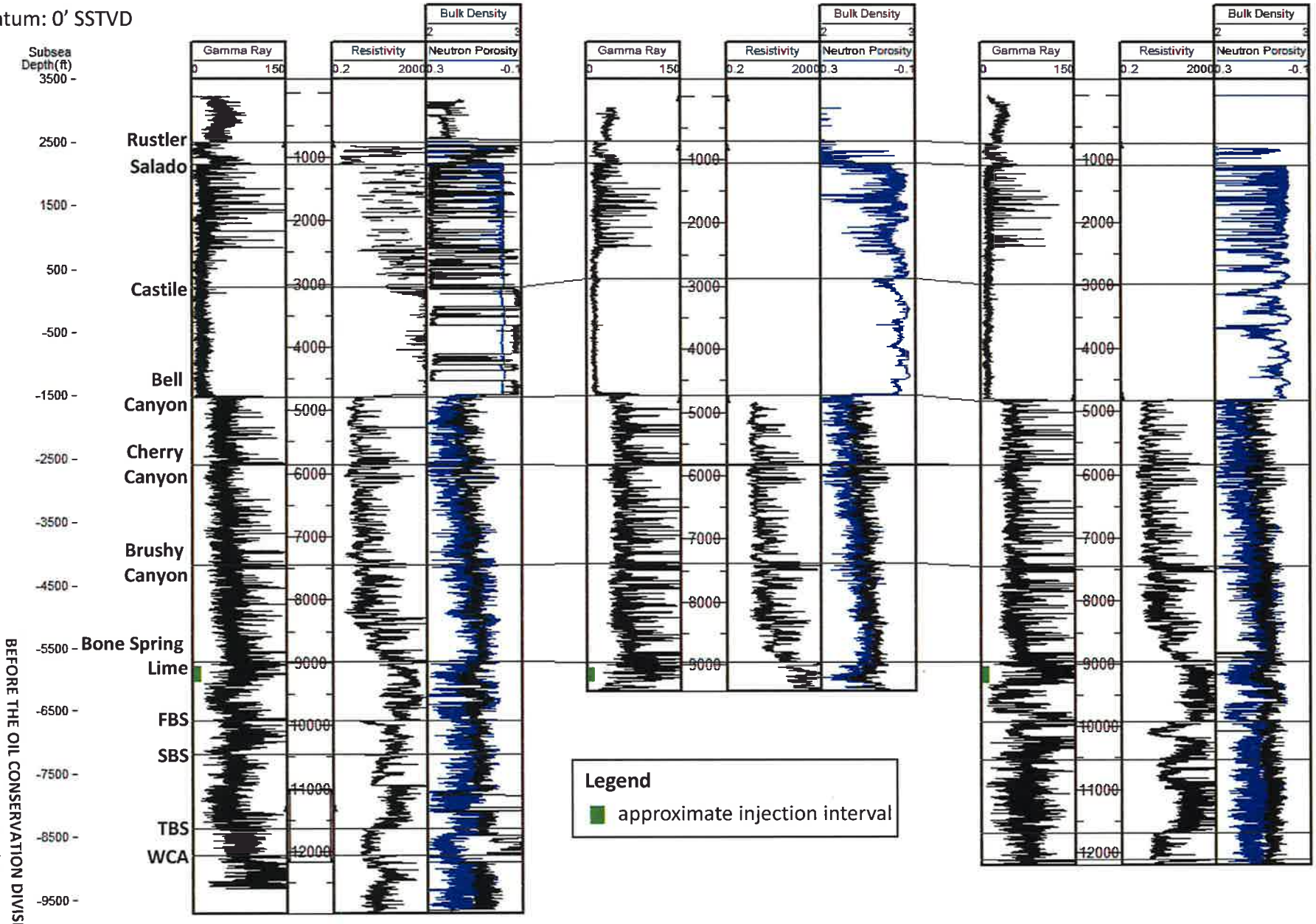
South **A'**

30025441670000
SD EA 18 19 P15 FED COM 019H
T26S R33E S18

30025422780000
SALADO DRAW 18 26 33 FEDERAL 3H
T26S R33E S19

30025408020000
PORTER BROWN 1H
T26S R33E S19

Datum: 0' SSTVD



BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. 10
Submitted by: **Chevron U.S.A. Inc.**
Hearing Date: February 06, 2020
Case No. 21020

Salado Draw Area – Structural Cross Section – Reservoir Interval

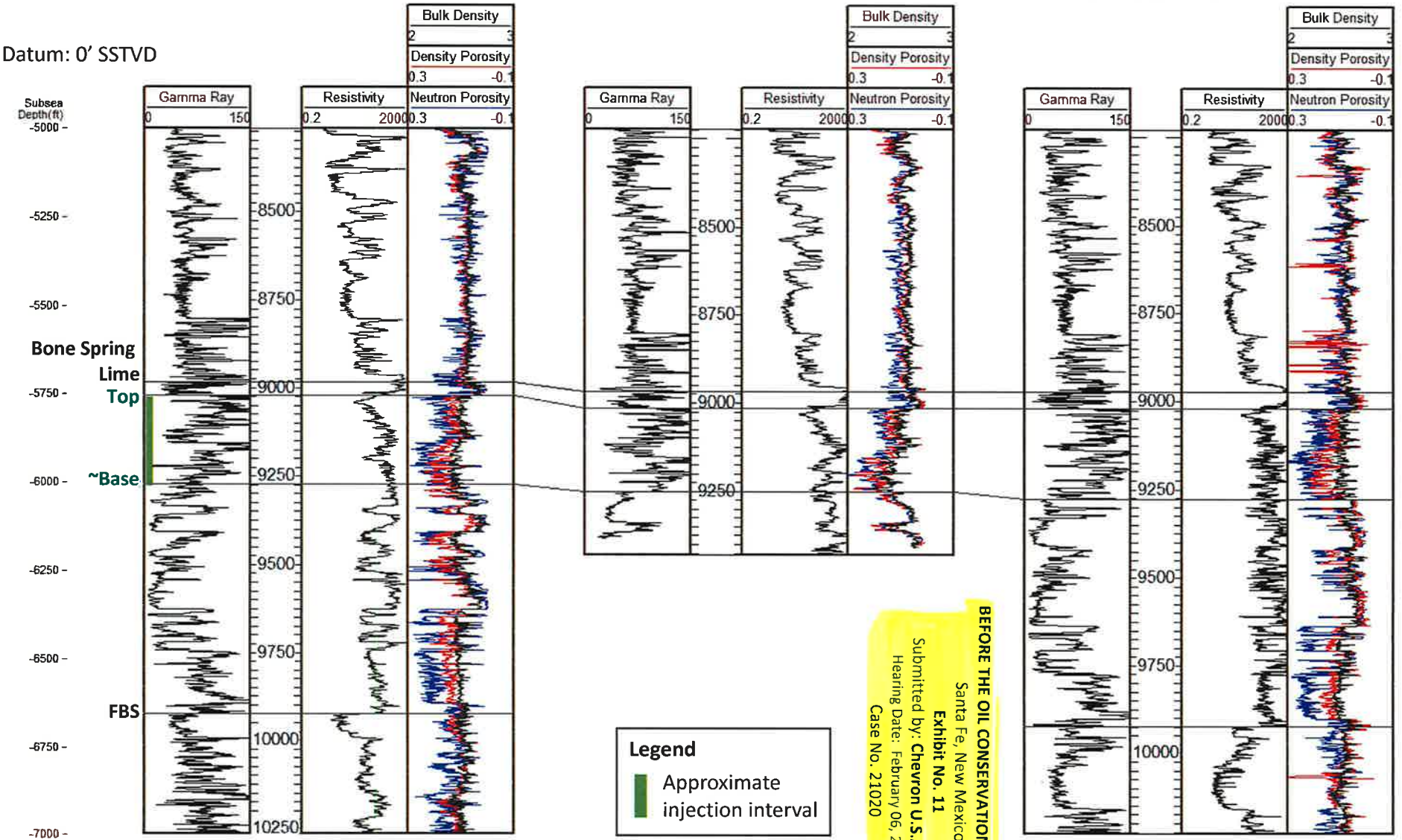
North **A** — South **A'**

Datum: 0' SSTVD

30025441670000
SD EA 18 19 P15 FED COM 019H
T26S R33E S18

30025422780000
SALADO DRAW 18 26 33 FEDERAL 3H
T26S R33E S19

30025408020000
PORTER BROWN 1H
T26S R33E S19

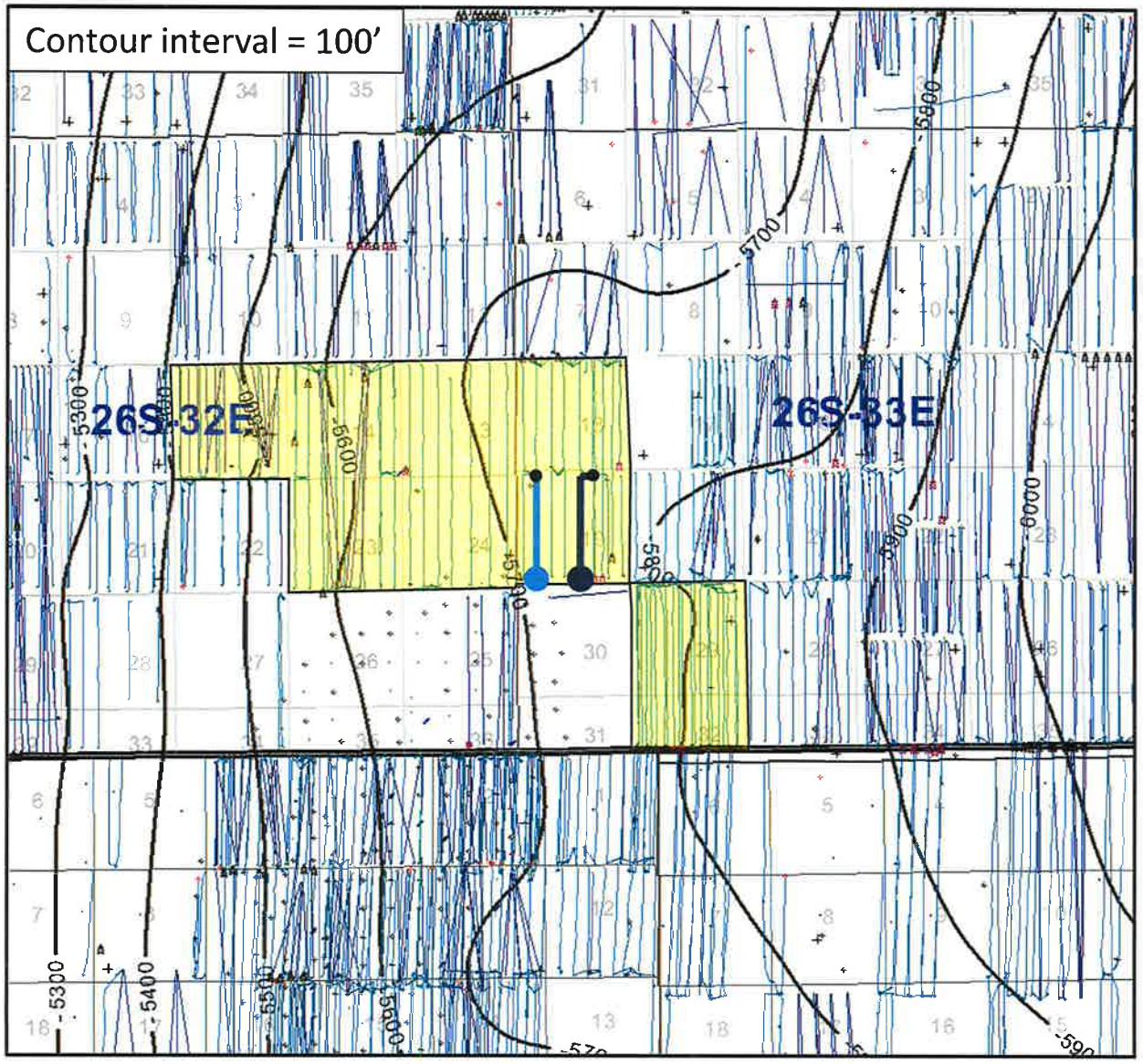


Legend

Approximate injection interval

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. 11
Submitted by: **Chevron U.S.A. Inc.**
Hearing Date: February 06, 2020
Case No. 21020

Salado Draw Area – Top Bone Spring Lime Structure (SSTVD)



Legend

- SHL / BHL — Salado Draw 19 26 33 Fed Com #002H
- SHL / BHL — SD EA 19 Federal P6 #005H
- Chevron Acreage

N

1 mile

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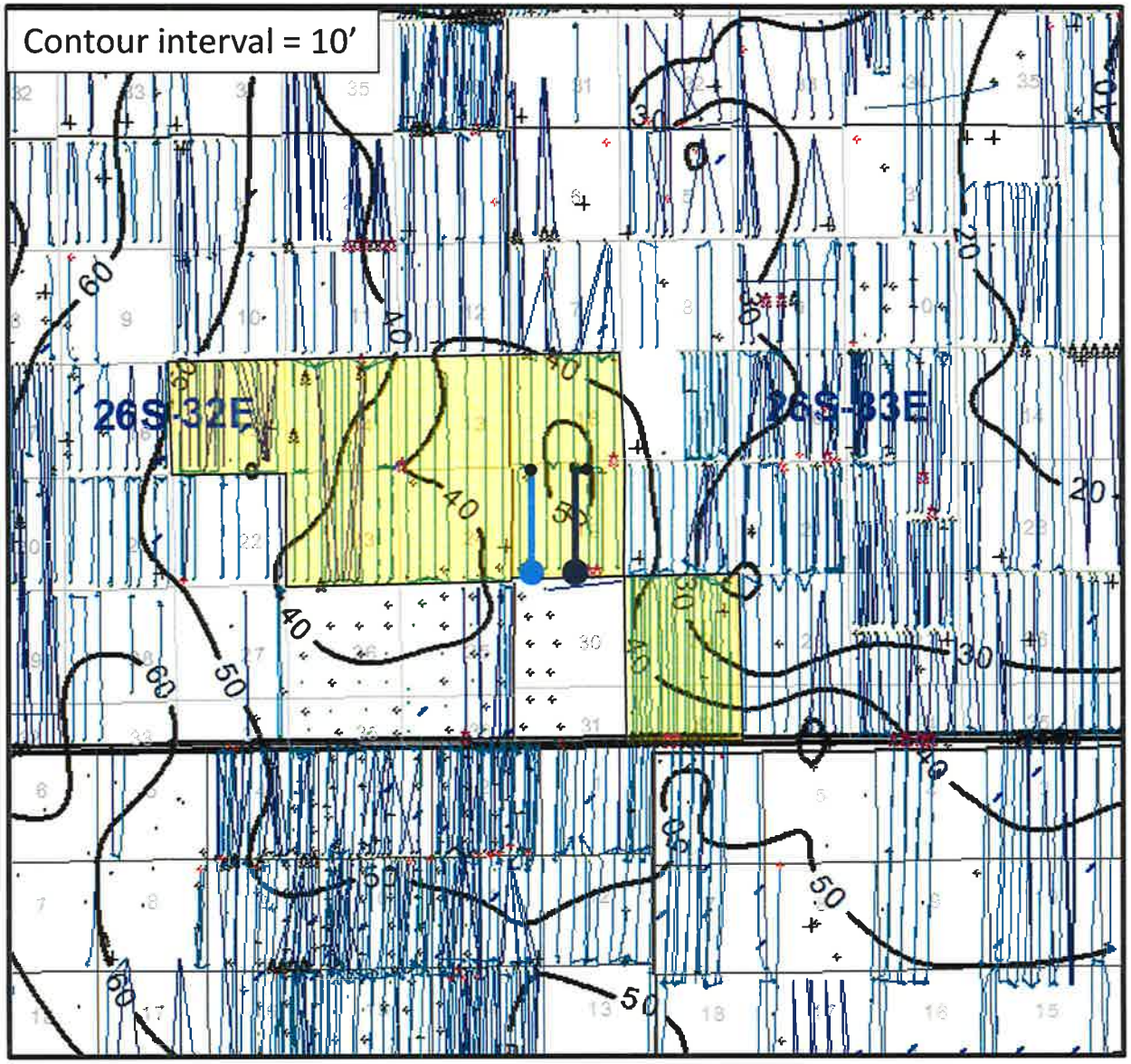
Santa Fe, New Mexico
Exhibit No. 12
Submitted by: **Chevron U.S.A. Inc.**
Hearing Date: February 06, 2020
Case No. 21020

Salado Draw Area – Isochore Bone Spring Lime (TVT)



Legend

SHL — BHL: Salado Draw 19 26 33 Fed Com #002H

SHL — BHL: SD EA 19 Federal P6 #005H

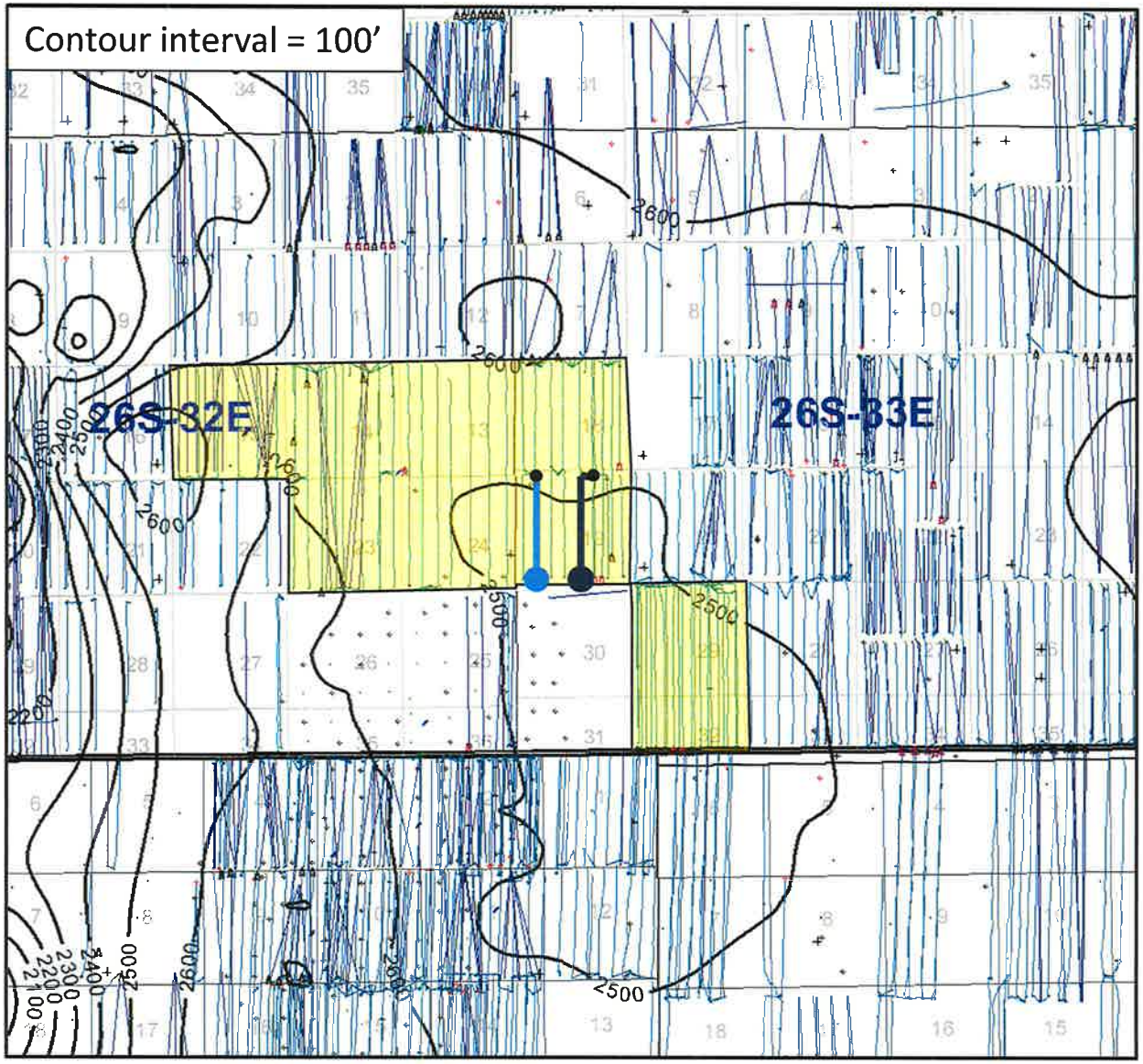
Chevron Acreage

N

1 mile

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. 13
Submitted by: **Chevron U.S.A. Inc.**
Hearing Date: February 06, 2020
Case No. 21020

Salado Draw Area – Top Rustler Structure (SSTVD)



Legend

SHL — BHL: Salado Draw 19 26 33 Fed Com #002H

SHL — BHL: SD EA 19 Federal P6 #005H

Chevron Acreage

N

1 mile

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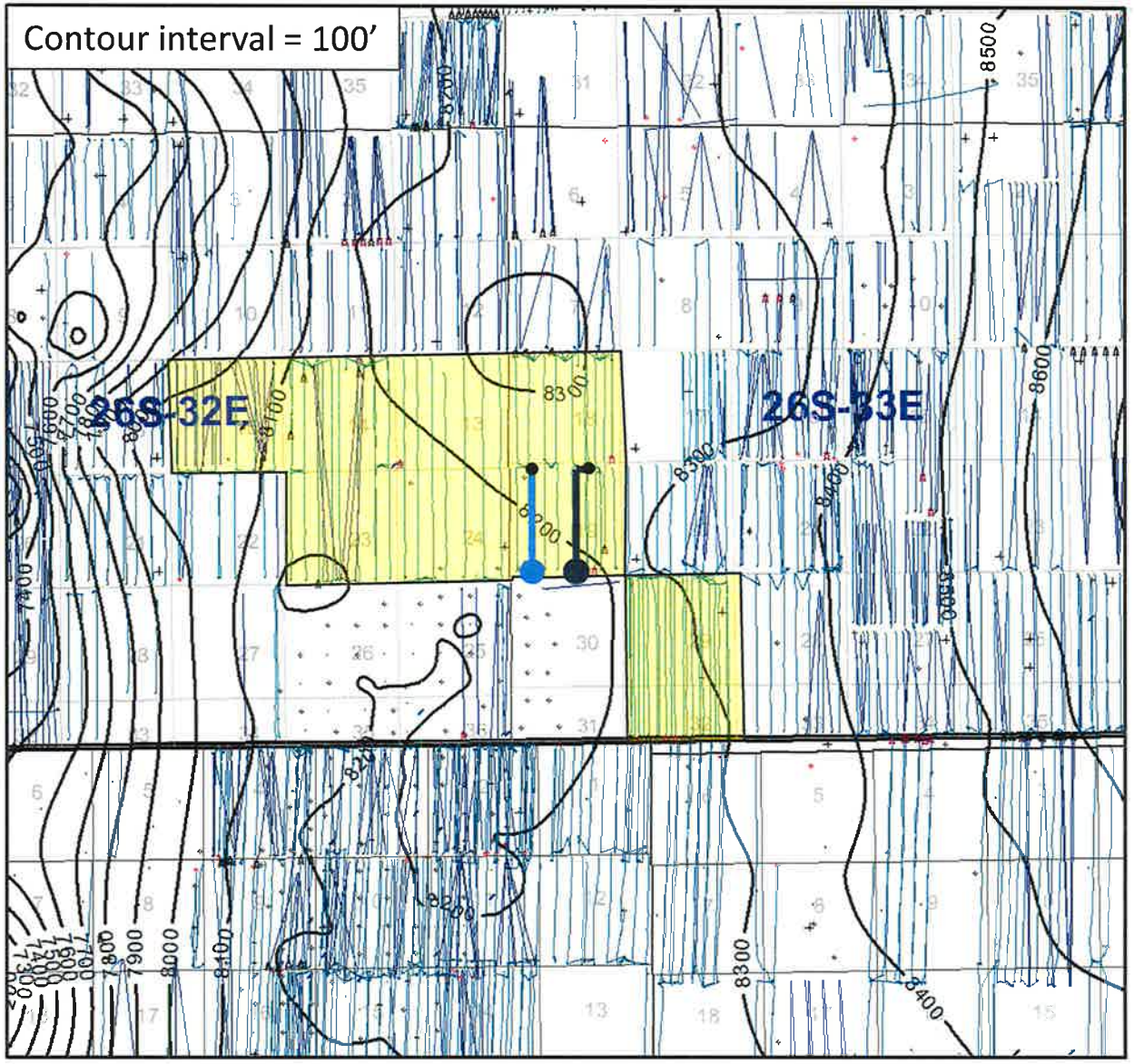
Santa Fe, New Mexico
Exhibit No. 14
Submitted by: **Chevron U.S.A. Inc.**
Hearing Date: February 06, 2020
Case No. 21020

Salado Draw Area – Isochore Rustler to Bone Spring Lime (TVT)



Legend

SHL — BHL: Salado Draw 19 26 33 Fed Com #002H

SHL — BHL: SD EA 19 Federal P6 #005H

Chevron Acreage

N

1 mile

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Santa Fe, New Mexico
Exhibit No. 15
Submitted by: **Chevron U.S.A. Inc.**
Hearing Date: February 06, 2020
Case No. 21020

Protection of USDW

- Source of USDW: Pecos Valley Aquifer
  - 1 water well within 2 mile buffer around section 19
  - depth to water: 120 ft.; well depth: 160' (Water Right File number: C-02773)
- Overlying the Bone Spring Formation, the Delaware Mountain Group ~4250 ft. thick
  - consists of connate water bearing and hydrocarbon bearing sands with minor limestone, siltstone, and shale intervals.
- Above that is the Castile Formation ~1800' of anhydrite, calcite, gypsum and salt beds and acts as another competent barrier to upward fluid migration.
- The Salado overlies the Castile and forms another barrier of salt ~1850' thick.
- Above the Salado Formation, the Rustler Formation consist of approximately 350ft. of anhydrite, shale, siltstone, sandstone, and minor halite.
- ~700' of Dewey Lake Formation and Pecos Valley Alluvium covers the Rustler Formation
- Due to the thickness and multitude of impermeable rock layers above the injection interval, there is no path of migration upward into the shallow fresh water aquifer.

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Exhibit No. 16
Submitted by: Chevron U.S.A. Inc.
Hearing Date: February 06, 2020
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Injection containment

- The pilot project area is bounded by Chevron operated producing wells in the same approximately 250 ft. thick reservoir interval.
- Low permeability barriers present above and below the reservoir.
  - These barriers consist of tight carbonates and tight mudstones.
  - Above the injection interval, the overlying tight carbonate is ~50 ft. thick.
  - Below the injection interval, carbonate, mudstones, and siliceous mudstones are approximately 700 ft. thick. Carbonates show similar properties as overlying Bone Spring Lime.
- Laterally, the injection expected to be contained primarily within the conductive fracture volume introduced during initial completion
- The tight, low-permeability reservoir matrix and matrix pressures in excess of the stimulated rock volume (SRV) pressure during injection is expected to preclude significant movement of injected gas beyond the fracture volume.

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Exhibit No. 17
Submitted by: Chevron U.S.A. Inc.
Hearing Date: February 06, 2020
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Reservoir Modeling

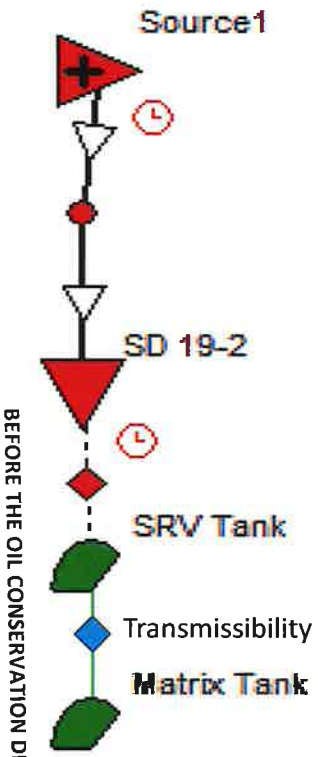
- A material balance (MBAL) model is used to evaluate injection capacity and pressure change
- IHS Harmony rate transient analysis (RTA) was used to estimate tank size. Two methods of analysis were performed to estimate stimulated rock volume (SRV); yielding consistent results.
- Injection scenario considered in the modeling
  - **Model constraints:** base case for model
    - Target injection gas rate: 1.5-2.0 MMCF/D
    - 1,100 psi injection pressure
    - maximum 14 days
  - Tank model shows gas injection results in slight pressure increase in reservoir and well head
- Sensitivities study were performed to address model uncertainties

GAP with Dual-Tank Models (SRV and Matrix)

- Dual Tank Model (Oil/water/gas) .
  - Reservoir injection 2 MMscf/d (Apr. 1-15 2020)

Model Results

- Matrix pressure much higher than SRV pressure
- Matrix charges SRV even during injection.
- Gas injection will be contained within fracture volume



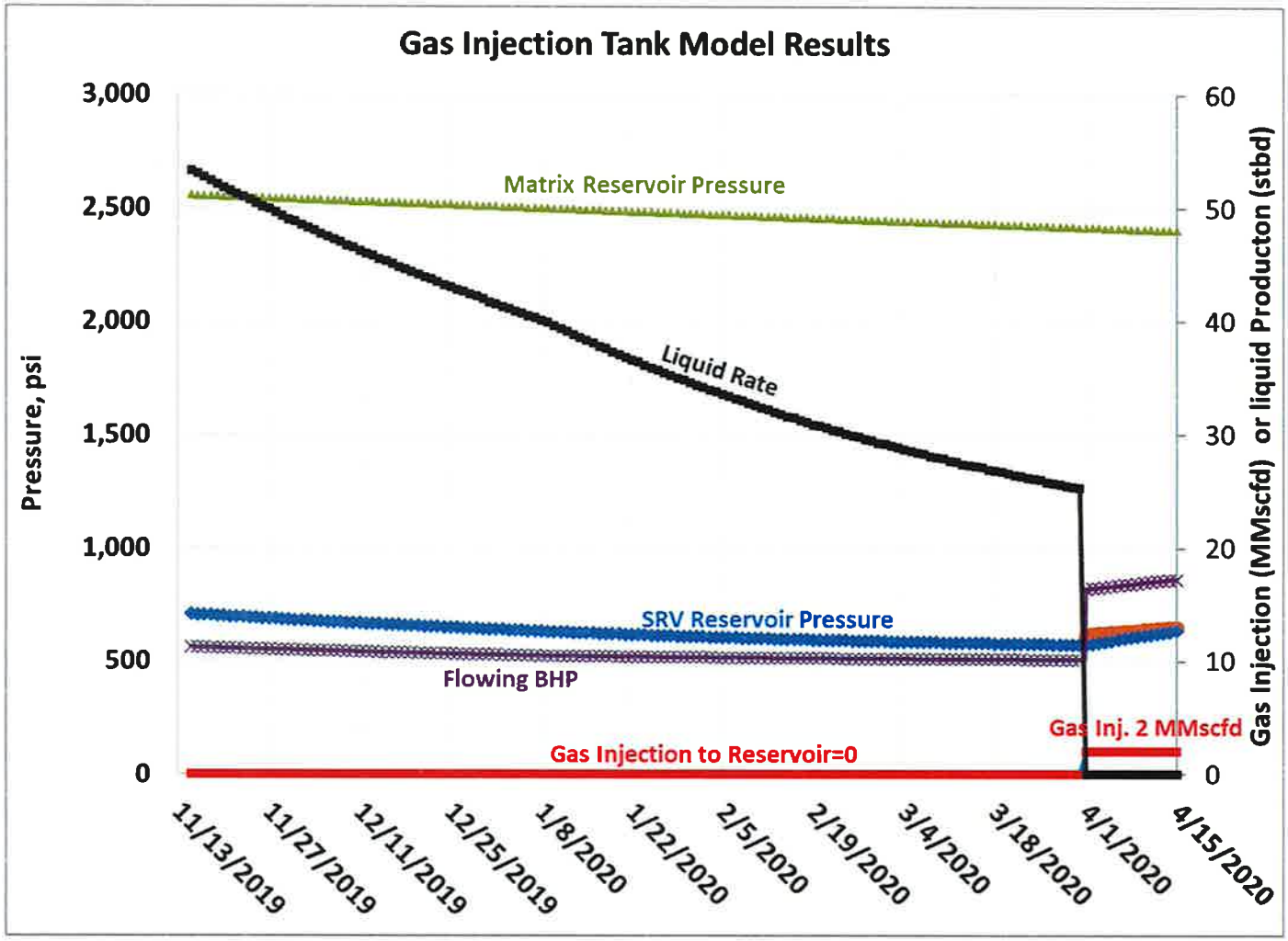


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Exhibit No. 19
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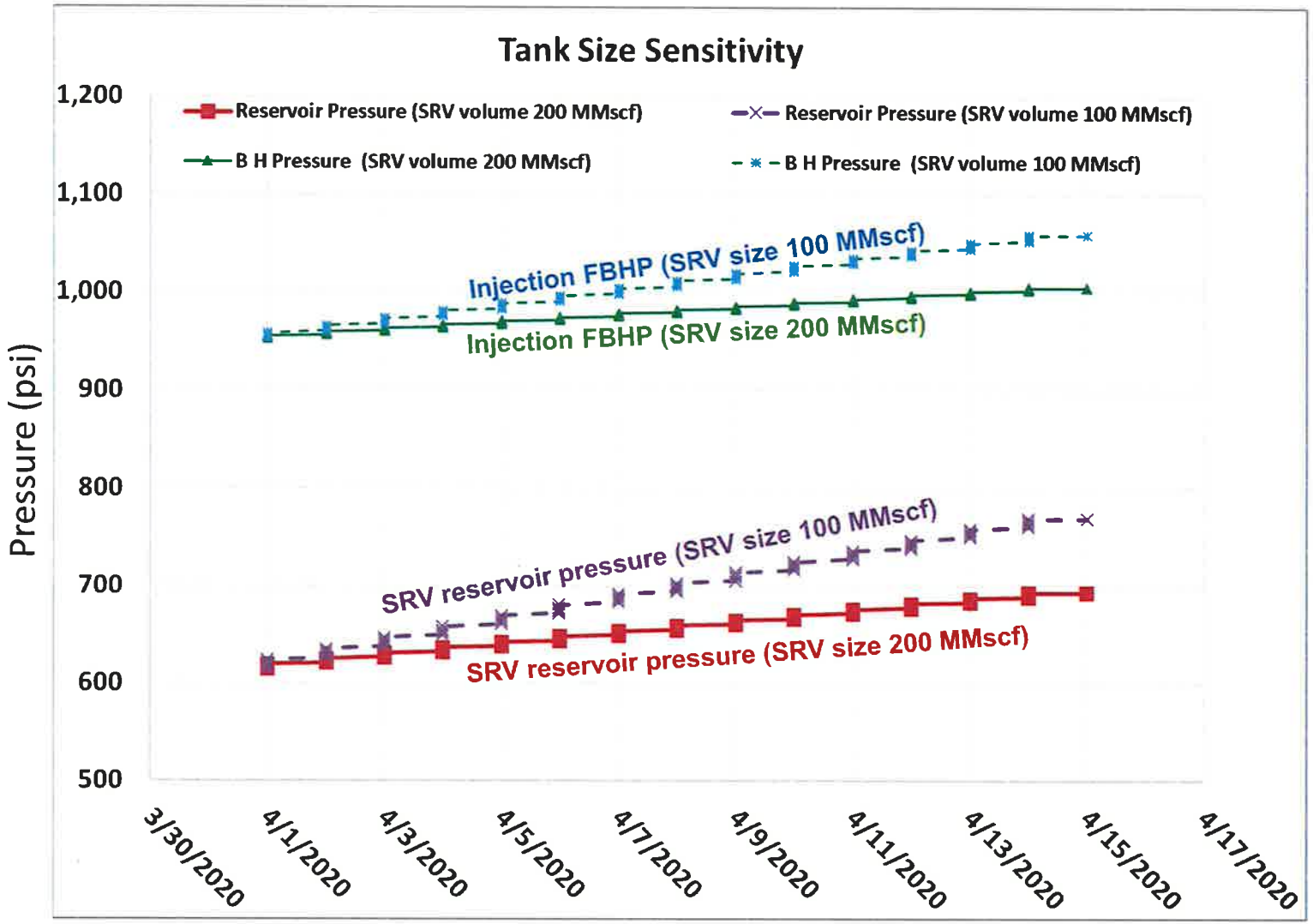
SRV Tank Model for Low Pressure Gas Injection (2)

Sensitivity on SRV Tank Size: 100 MMscf vs 200 MMscf

- Assume injection rate of 2 MMscf/d for 14 days, the SRV tank size is assumed only half of the estimated value
  - Flowing bottom hole pressure (FBHP) ~950-1060 psi
  - Stimulated Rock Volume (SRV) pressure ~615-770 psi



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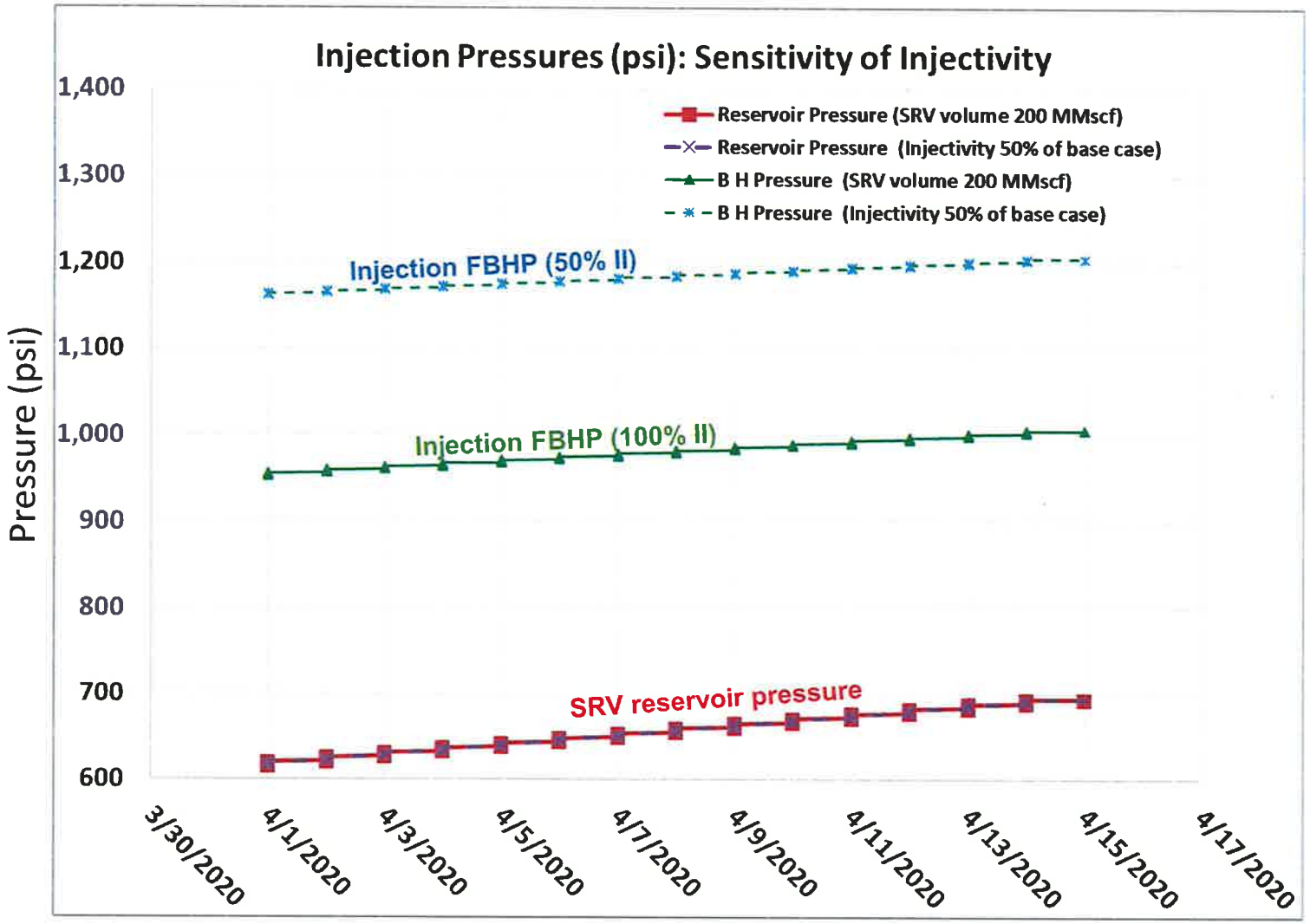
SRV Tank Model for Low Pressure Gas Injection (3)

Sensitivity on Injectivity (SRV Tank Size 200 MMscf)

- Assume injection rate of 2 MMscf/d for 14 days, the injectivity is reduced by half
  - Flowing Bottom Hole Pressure (FBHP) ~1,150-1,200 psi
  - Stimulated Rock Volume (SRV) pressure ~615-700 psi



EUR analysis

Potential EUR impacts

1. The injected volumes from the low pressure gas injection wells are estimated to be less than 3% of the depleted reservoir volume and would not impact oil production significantly.
2. Low pressure injection is significantly below miscibility pressure and is not expected to modify oil properties.

Based on the above assumptions, we are expecting neutral effect on EUR with the proposed operation.

Salado Draw 19 26 33 Federal Com 2H – wellbore diagram

Current
WELLBORE DIAGRAM

Created: 12/11/2019 **By** AJB
Lease: SD 19-26-33 FED
Surface Location: 200' FNL & 948' FWL
County: Lea **St:** NM
Current Status: Producing

Well No.: 002H
Section: 19
API: 30-025-42662
GL Elevation: 3175'

Township/Range 26S / 33E

Formation Tops	Measured Depth (ft)
Rustler	700 est
Salado	1052 est
Castile	2940 est
Lamar	4680 est
Bell Canyon	4730 est
Cherry Canyon	5780 est
Brushy Canyon	7363
Bone Spring Lime	9050

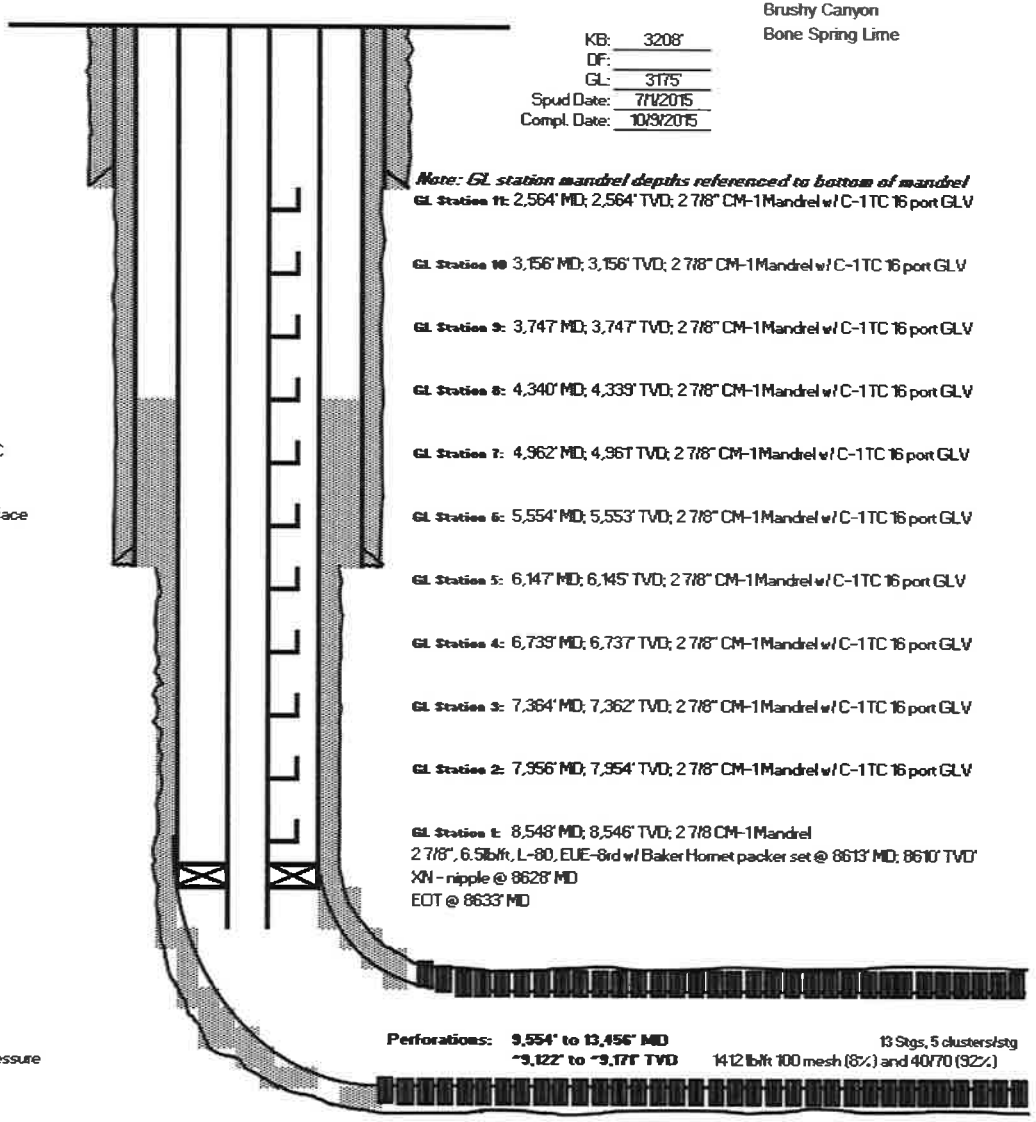
Current Gas Lift System Vendor: Weatherford

Surface Csg.
Size: 13 3/8"
Wt, Grd: 48.0#, H-40, STC
Set @: 863'
Sx cmt: 1006 sx
Circ: Yes, 108 bbls
TOC: Surface
Hole Size: 17 1/2"

Intermediate Csg.
Size: 9-5/8"
Wt, Grd: 40.0#, HCK-55, LTC
Set @: 4665'
Sx Cmt: 2614 sx
Circ: Yes, 523 bbls to surface
TOC: Surface
Hole Size: 12 1/4"

Production Casing
Size: 5 1/2"
Wt, Grd: 20#, P-110, BTC
From: Surface
To: 13647'
Sx Cmt: 1647 sx
Circ: No, lost returns
TOC: 3830' - CALC; lift pressure
Hole Size: 8 3/4"

KB: 3208'
DF:
GL: 3175'
Spud Date: 7/1/2015
Compl. Date: 10/9/2015



Note: GL station mandrel depths referenced to bottom of mandrel

GL Station 11: 2,564' MD; 2,564' TVD; 2 7/8" CM-1 Mandrel w/ C-1 TC 16 port GLV

GL Station 10 3,156' MD; 3,156' TVD; 2 7/8" CM-1 Mandrel w/ C-1 TC 16 port GLV

GL Station 9: 3,747' MD; 3,747' TVD; 2 7/8" CM-1 Mandrel w/ C-1 TC 16 port GLV

GL Station 8: 4,340' MD; 4,339' TVD; 2 7/8" CM-1 Mandrel w/ C-1 TC 16 port GLV

GL Station 7: 4,962' MD; 4,961' TVD; 2 7/8" CM-1 Mandrel w/ C-1 TC 16 port GLV

GL Station 6: 5,554' MD; 5,553' TVD; 2 7/8" CM-1 Mandrel w/ C-1 TC 16 port GLV

GL Station 5: 6,147' MD; 6,145' TVD; 2 7/8" CM-1 Mandrel w/ C-1 TC 16 port GLV

GL Station 4: 6,739' MD; 6,737' TVD; 2 7/8" CM-1 Mandrel w/ C-1 TC 16 port GLV

GL Station 3: 7,364' MD; 7,362' TVD; 2 7/8" CM-1 Mandrel w/ C-1 TC 16 port GLV

GL Station 2: 7,956' MD; 7,954' TVD; 2 7/8" CM-1 Mandrel w/ C-1 TC 16 port GLV

GL Station 1: 8,548' MD; 8,546' TVD; 2 7/8 CM-1 Mandrel
2 7/8", 6.5lb/ft, L-80, EUE-8rd w/ Baker Hornet packer set @ 8613' MD; 8610' TVD'
XN - nipple @ 8628' MD
EOT @ 8633' MD

Perforations: **9,554' to 13,456' MD** 13 Stgs, 5 clusters/stg
~9,122' to ~9,171' TVD 1412 lb/ft 100 mesh (8%) and 40/70 (92%)

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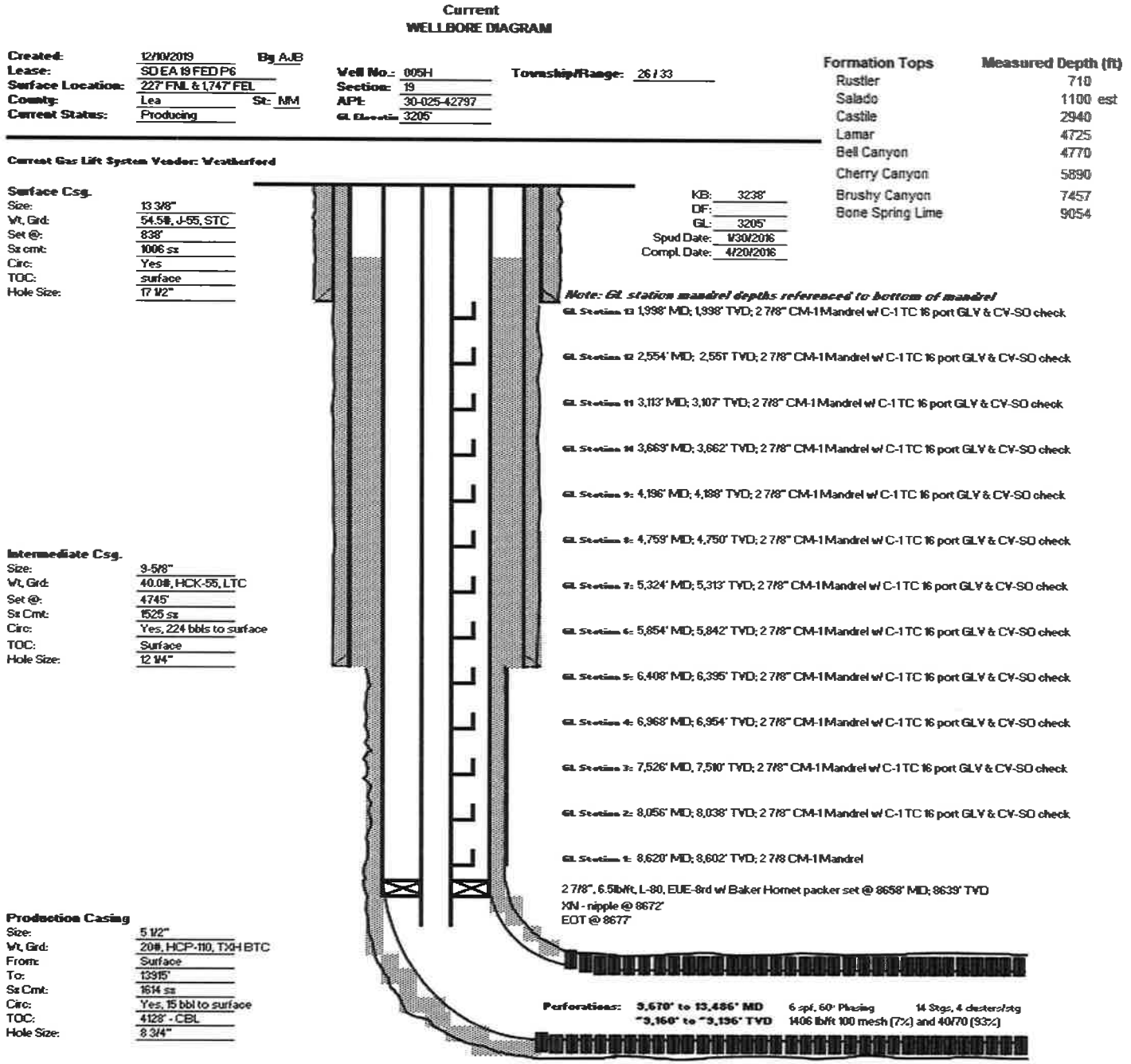
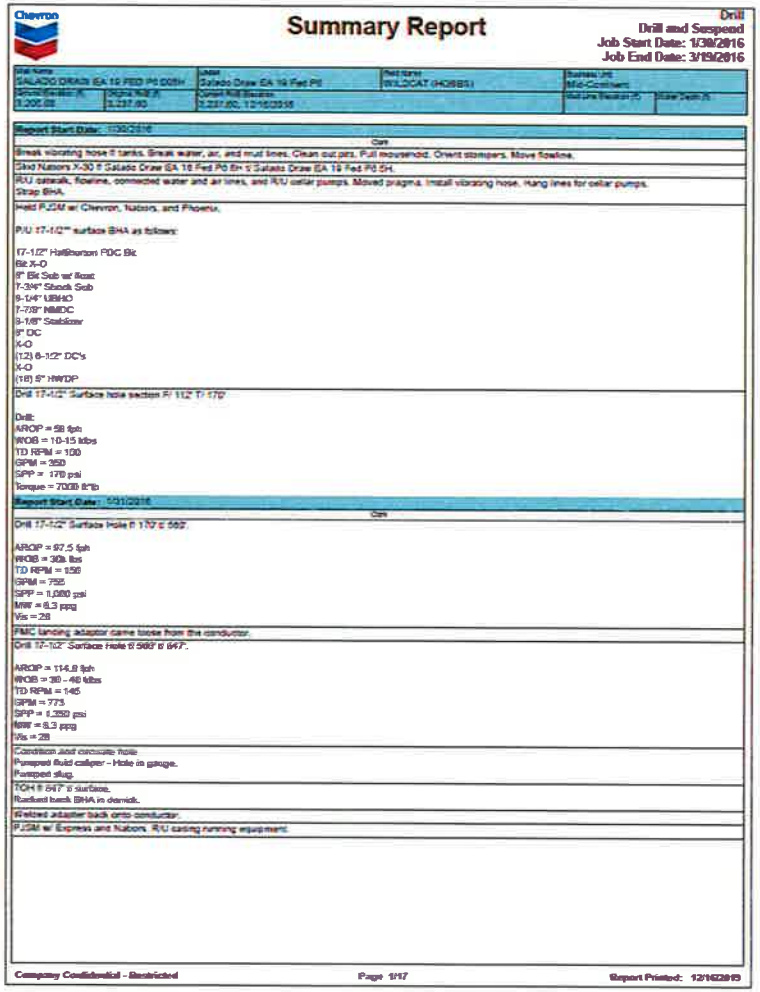
SD EA 19 Federal P6 #005H – wellbore diagram



Formation Tops	Measured Depth (ft)
Rustler	710
Salado	1100 est
Castile	2940
Lamar	4725
Bell Canyon	4770
Cherry Canyon	5890
Brushy Canyon	7457
Bone Spring Lime	9054

Drilling reports
provided in appendix due to page count



Chevron

Summary Report

Drill
Drill and Suspend
Job Start Date: 1/30/2016
Job End Date: 3/15/2016

Well Name	Lease	Field Name	Business Unit
SALADO DRAW 19 FED P6 005H	Salado Draw 19 Fed P6	WILDCAT (HOBBS)	Mid-Continent

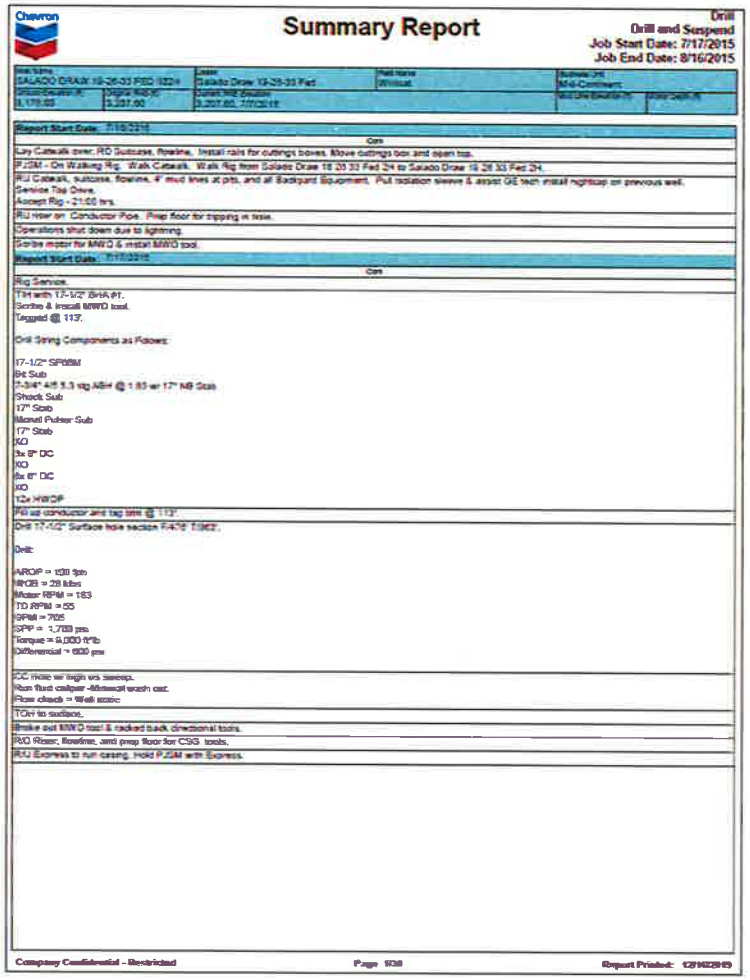
Ground Elevation (ft)	Original RKB (ft)	Current RKB Elevation	Mud Line Elevation (ft)	Total Depth (ft)
3,205.00	3,237.00	3,237.00, 12/16/2016		

Report Start Date: 1/30/2016

Com
Break vibrating hose fr tanks. Break water, air, and mud lines. Clean out pits. Pull mousehold. Orient stompers. Move flowline.
Skid Nabors X-30 fr Salado Draw 19 Fed P6 5H to Salado Draw 19 Fed P6 5H.
RU catwalk, flowline, connected water and air lines, and R/U cellar pumps. Moved pragma. Install vibrating hose. Hung lines for cellar pumps. Strap BHA.
Held PJSM w/ Chevron, Nabors, and Phoenix.
P/U 17-1/2" surface BHA as follows: 17-1/2" Halliburton PDC Bit Bit X-O 8" Bit Sub w/ float 7-3/4" Shock Sub 9-1/4" UBHO 7-7/8" NMDC 8-1/8" Stabilizer 8" DC X-O (12) 6-1/2" DC's X-O (18) 5" HWDP
Drill 17-1/2" Surface hole section F/ 112' T/ 170' Drill: AROP = 58 fph WOB = 10-15 klbs TD RPM = 100 GPM = 350 SPP = 170 psi Torque = 7000 ft*lb

Report Start Date: 1/31/2016

Com
Drill 17-1/2" Surface hole fr 170' to 592'. AROP = 97.5 fph WOB = 30k lbs TD RPM = 150 GPM = 725 SPP = 1,080 psi MW = 8.3 ppg Vis = 28
FMC landing adaptor came loose from the conductor.
Drill 17-1/2" Surface Hole fr 592' to 647'. AROP = 114.8 fph WOB = 30 - 40 klbs TD RPM = 145 GPM = 773 SPP = 1,350 psi MW = 8.3 ppg Vis = 28
Condition and circulate hole Pumped fluid caliper - Hole in gauge. Pumped slug.
TOH fr 647' to surface. Racked back BHA in derrick.
Welded adapter back onto conductor.
PJSM w/ Express and Nabors. R/U casing running equipment.



Chevron

Summary Report

Drill
Drill and Suspend
Job Start Date: 7/17/2015
Job End Date: 8/16/2015

Well Name	Lease	Field Name	Business Unit
SALADO DRAW 19-26-33 FED 703H	Salado Draw 19-26-33 Fed	Wildcat	Mid-Continent

Ground Elevation (ft)	Original RKB (ft)	Current RKB Elevation	Mud Line Elevation (ft)	Total Depth (ft)
3,179.00	3,207.00	3,207.00, 7/17/2015		

Report Start Date: 7/16/2015

Com
Lay Catwalk over. RD Suitcase, flowline. Install rails for cuttings boxes. Move cuttings box and open top.
PJSM - On Walking Rig. Walk Catwalk. Walk Rig from Salado Draw 19 26 33 Fed 2H to Salado Draw 19 26 33 Fed 3H.
RU Catwalk, suitcase, flowline, 4" mud lines at pits, and all Backyard Equipment. Pull isolation sleeve & assist GE tech install nightcap on previous well. Service Top Drive. Accept Rig - 21:00 hrs.
RU riser on Conductor Pipe. Prep floor for tripping in hole.
Operations shut down due to lightning.
Strike motor for MWD & install MWD tool.

Report Start Date: 7/17/2015

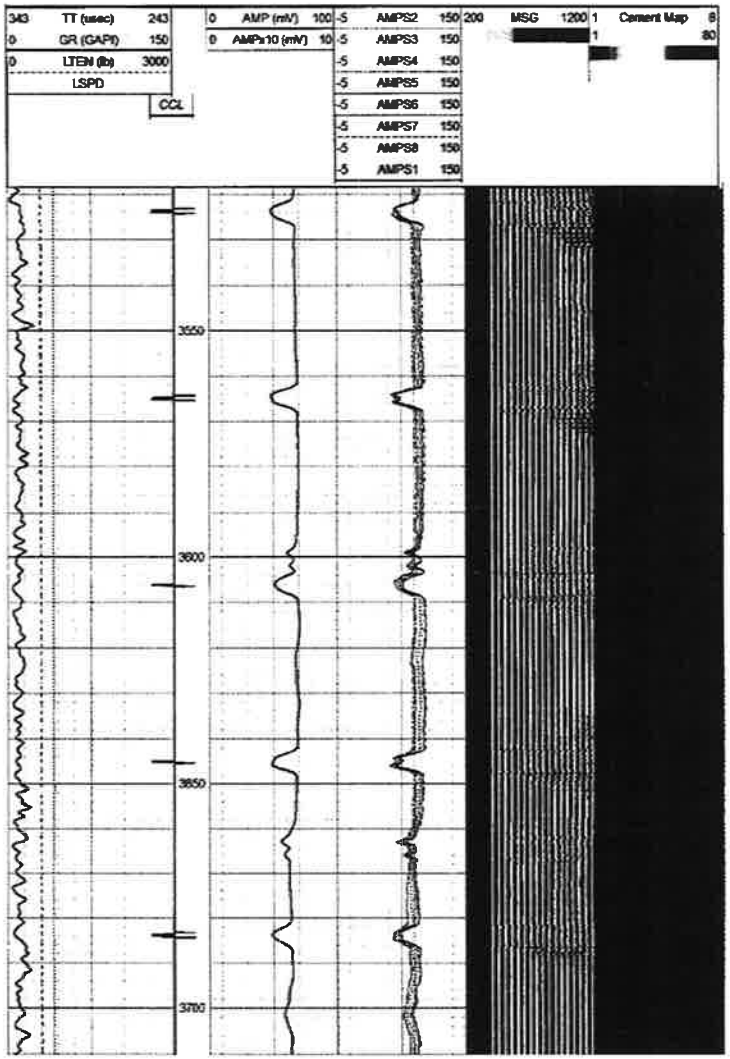
Com
Rig Service.
TIH with 17-1/2" BHA #1. Scribe & install MWD tool. Tagged @ 113'.
Drill String Components as Follows: 17-1/2" SP66M Bit Sub 7-3/4" 4/5 5.3 stg ABH @ 1.83 w/ 17" NB Stab Shock Sub 17" Stab Monel Pulser Sub 17" Stab XO 3x 8" DC XO 6x 8" DC XO 12x HWDP
Fill up conductor and tag btm @ 113'.
Drill 17-1/2" Surface hole section F/113' T/662'. Drill: AROP = 130 fph WOB = 28 klbs Motor RPM = 183 TD RPM = 55 GPM = 705 SPP = 1,700 psi Torque = 9,000 ft*lb Differential = 600 psi
CC Hole w/ high vis sweeps. Run Rust caliper - Almost wash out. Flow check = Well static
TOH to surface.
Break out MWD tool & racked back directional tools.
R/U Riser, flowline, and prep floor for CSG tools.
R/U Express to run casing. Hold PJSM with Express.

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. 24
Submitted by: **Chevron U.S.A. Inc.**
Hearing Date: February 06, 2020
Case No. 21020

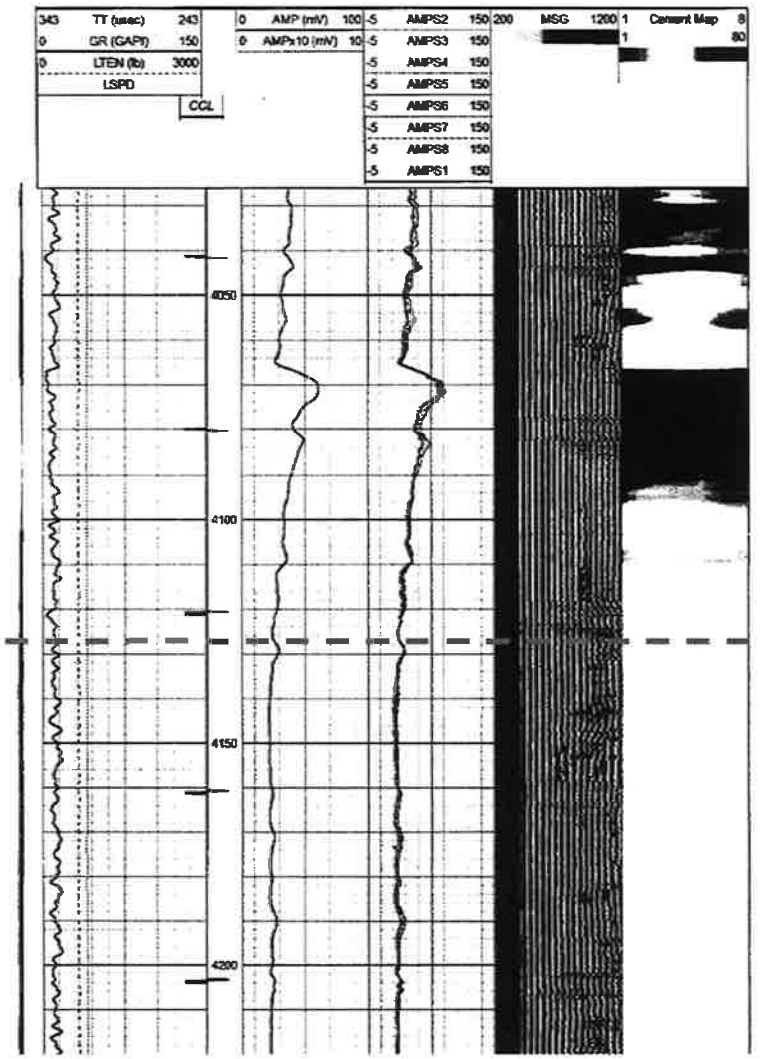
Cement Bond Log

SD EA 19 Federal P5 5H excerpts – *full log provided in digital format*

Excerpt showing free pipe response



Excerpt showing top of cement



TOC
4128'

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. 25
Submitted by: **Chevron U.S.A. Inc.**
Hearing Date: February 06, 2020
Case No. 21020 **BEFORE THE OIL**

Casing burst pressure calculations

Item v part (a): the casing burst pressure shall be at least 120% of the maximum allowable surface pressure plus the hydrostatic pressure from a full column of reservoir fluid

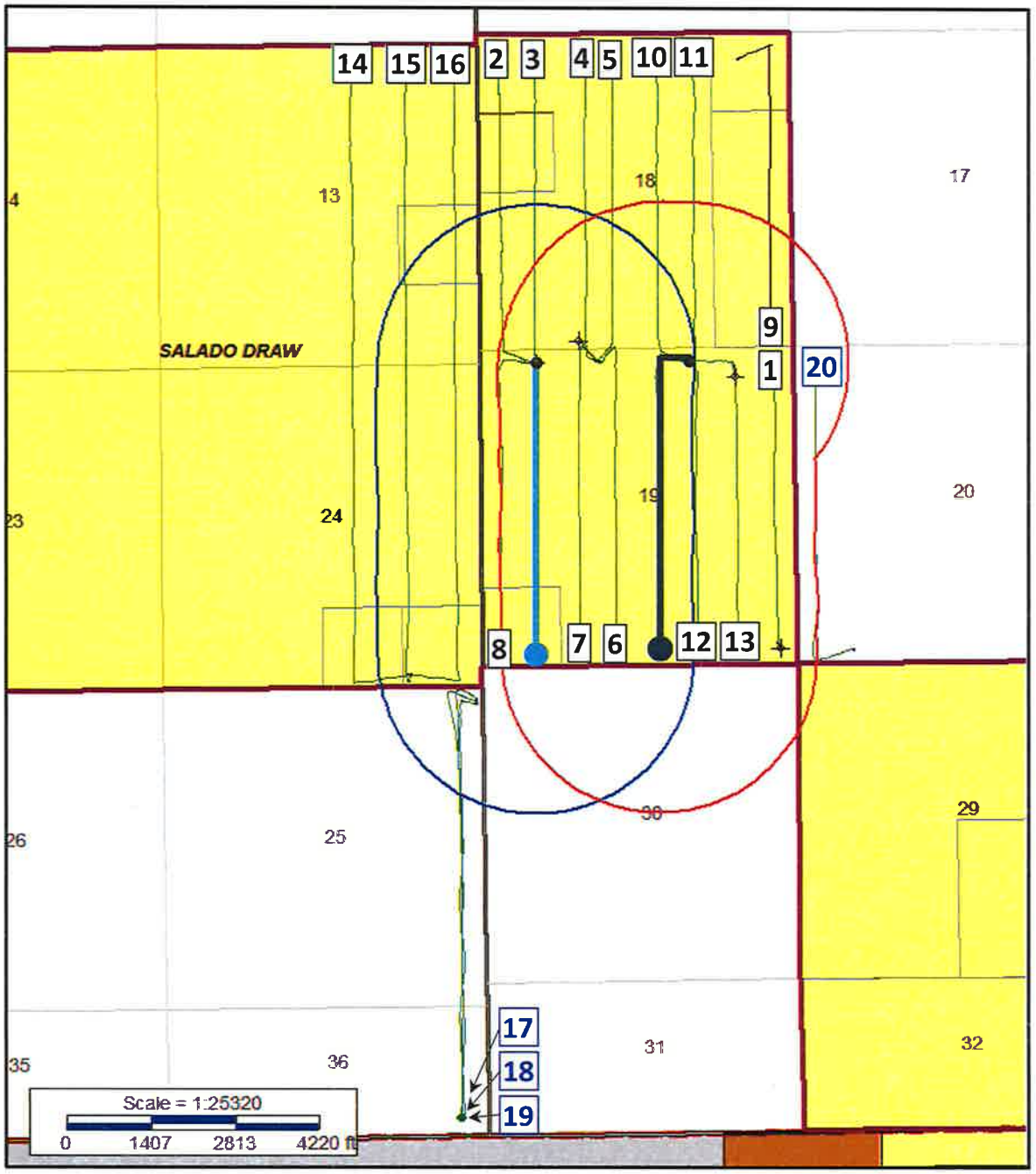
Salado Draw 19 26 33 Federal Com 2H

- 120% Maximum Allowable Surface Pressure (MASP) + hydrostatic pressure of column of reservoir fluid = 1,500 psi + (9,171' TVD x 0.49 psi/ft) = 5,994 psi
- Casing burst pressure rating for 5 ½", 20#, P-110 casing = 12,640 psi
- The casing burst pressure rating is 211% higher than 120% of the maximum allowable surface pressure plus the hydrostatic pressure from a full column of reservoir fluid

Salado Draw EA Federal P6 5H

- 120% Maximum Allowable Surface Pressure (MASP) + hydrostatic pressure of column of reservoir fluid = 1,500 psi + (9,196' TVD x 0.49 psi/ft) = 6,006 psi
- Casing burst pressure rating for 5 ½", 20#, P-110 casing = 12,640 psi
- The casing burst pressure rating is 210% higher than 120% of the maximum allowable surface pressure plus the hydrostatic pressure from a full column of reservoir fluid

Map - Offset wells penetrating injection interval within ½ mile AOI



Legend

SHL — BHL: Salado Draw 19 26 33 Fed 2H

SHL — BHL: SD EA 19 Federal P6 5H

Chevron Acreage

Well reference number (on bottom hole)

Chevron Operated

Not Chevron Operated

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. 27
Submitted by: **Chevron U.S.A. Inc.**
Hearing Date: February 06, 2020
Case No. 21020

Tabulation of wells penetrating injection interval within ½ mile AOI

Ref.	API	Current Operator	Lease Name and Well Number	Well Type	Status	Surface Location	Total Depth (Md)	Date Drilled	Current Prod Pool	County	State	Casing	Hole Size	Casing Size	Set Depth	SX Cement	Cement Top	Method
1	3002540802	CHEVRON U S A INC	PORTER BROWN 1H	Oil Well	Active	340' FSL & 340' FEL, s. 19, T26S, R33E	13468	11/17/2012	WC-025 G-06 S263319P; BONE SPRING	LEA	NM	Surf.	17-1/2"	13-3/8"	825	815	0	CIRC
												Int.	12-1/4"	9-5/8"	4804	1655	0	CIRC
												Prod.	8-1/2"	5-1/2"	13461	2645	4000	CIRC
2	3002542659	CHEVRON U S A INC	SALADO DRAW 18 26 33 FEDERAL 1H	Oil Well	Active	200' FNL & 873' FWL, s. 19, T26S, R33E	14042	7/12/2015	WC-025 G-06 S263319P; BONE SPRING	LEA	NM	Surf.	17-1/2"	13-3/8"	863	1006	0	CIRC
												Int.	12-1/4"	9-5/8"	4665	1588	0	CIRC
												Prod.	8-3/4"	5-1/2"	14030	1681	3006	CBL
3	3002542660	CHEVRON U S A INC	SALADO DRAW 18 26 33 FEDERAL 2H	Oil Well	Active	200' FNL & 923' FWL, s. 19, T26S, R33E	14135	7/15/2015	WC-025 G-06 S263319P; BONE SPRING	LEA	NM	Surf.	17-1/2"	13-3/8"	870	1,006	0	CIRC
												Int.	12-1/4"	9-5/8"	4,670	1,539	0	CIRC
												Prod.	8-3/4"	5-1/2"	14,135	1,515	800	CALC
4	3002542278	CHEVRON U S A INC	SALADO DRAW 18 26 33 FEDERAL 3H	Oil Well	Active	200' FNL & 1943' FWL, s. 19, T26S, R33E	13890	12/17/2014	WC-025 G-06 S263319P; BONE SPRING	LEA	NM	Surf.	17-1/2"	13-3/8"	859	990	0	CIRC
												Int.	12-1/4"	9-5/8"	4,846	1,550	0	CIRC
												Prod.	8-3/4"	5-1/2"	13,879	1,560	0	CIRC
5	3002542279	CHEVRON U S A INC	SALADO DRAW 18 26 33 FEDERAL 4H	Oil Well	Active	200' FNL & 1993' FWL, s. 19, T26S, R33E	13900	2/11/2015	WC-025 G-06 S263319P; BONE SPRING	LEA	NM	Surf.	17-1/2"	13-3/8"	876	1,020	0	CIRC
												Int.	12-1/4"	9-5/8"	4,735	1,555	0	CIRC
												Prod.	8-3/4"	5-1/2"	13,900	1,595	0	CIRC
6	3002542281	CHEVRON U S A INC	SALADO DRAW 19 26 33 FEDERAL 4H	Oil Well	Active	200' FNL & 2018' FWL, s. 19, T26S, R33E	13976	2/28/2015	WC-025 G-06 S263319P; BONE SPRING	LEA	NM	Surf.	17-1/2"	13-3/8"	859	1,020	0	CIRC
												Int.	12-1/4"	9-5/8"	4,710	1,540	0	CIRC
												Prod.	8-3/4"	5-1/2"	13,954	1,635	0	CIRC
7	3002542280	CHEVRON U S A INC	SALADO DRAW 19 26 33 FEDERAL 3H	Oil Well	Active	200' FNL & 1968' FWL, s. 19, T26S, R33E	14055	1/20/2015	WC-025 G-06 S263319P; BONE SPRING	LEA	NM	Surf.	17.5"	13.375"	863	990	0	CIRC
												Int.	12.25"	9.625"	4791	1535	0	CIRC
												Prod.	8.75"	5.5"	14045	1624	4000	CALC
8	3002542661	CHEVRON U S A INC	SALADO DRAW 19 26 33 FEDERAL COM 1H	Oil Well	Active	200' FNL & 898' FWL, s. 19, T26S, R33E	13830	7/14/2015	WC-025 G-06 S263319P; BONE SPRING	LEA	NM	Surf.	17-1/2"	13-3/8"	856	1,006	0	CIRC
												Int.	12-1/4"	9-5/8"	4,338	1,507	0	CIRC
												Prod.	8-3/4"	5-1/2"	13,830	1,678	0	CALC
9	3002544091	CHEVRON U S A INC	SDEA 18 19 P15 FED COM 020H	Oil Well	Active	467' FSL & 2363' FEL, s. 18, T26S, R33E	13952	6/8/2018	WC-025 G-06 S263319P; BONE SPRING	LEA	NM	Surf.	17-1/2"	13-3/8"	850	905	0	CIRC
												Int.	12-1/4"	9-5/8"	8,480	829	0	CIRC
												Prod.	8-1/2"	5-1/2"	13,952	1,541	3,155	CBL
10	3002542795	CHEVRON U S A INC	SDEA 18 FEDERAL P6 5H	Oil Well	Active	266' FNL & 1778' FEL, s. 19, T26S, R33E	14214	1/27/2016	WC-025 G-06 S263319P; BONE SPRING	LEA	NM	Surf.	17-1/2"	13-3/8"	851	1,006	0	CIRC
												Int.	12-1/4"	9-5/8"	4,721	1,527	0	CIRC
												Prod.	8-3/4"	5-1/2"	14,204	1,691	4,035	CBL
11	3002542796	CHEVRON U S A INC	SDEA 18 FEDERAL P6 6H	Oil Well	Active	247' FNL & 1763' FEL, s. 19, T26S, R33E	14185	3/15/2016	WC-025 G-06 S263319P; BONE SPRING	LEA	NM	Surf.	17-1/2"	13-3/8"	847	1,006	0	CIRC
												Int.	12-1/4"	9-5/8"	4,712	1,527	0	CIRC
												Prod.	8-3/4"	5-1/2"	14,176	1,614	4,315	CBL
12	3002542798	CHEVRON U S A INC	SDEA 19 FEDERAL P6 6H	Oil Well	Active	207' FNL & 1732' FEL, s. 19, T26S, R33E	13742	2/1/2016	WC-025 G-06 S263319P; BONE SPRING	LEA	NM	Surf.	17-1/2"	13-3/8"	840	1,006	0	CIRC
												Int.	12-1/4"	9-5/8"	4,729	1,527	0	CIRC
												Prod.	8-3/4"	5-1/2"	13,730	1,635	4832	CBL
13	3002542799	CHEVRON U S A INC	SDEA 19 FEDERAL P6 7H	Oil Well	Active	188' FNL & 1716' FEL, s. 19, T26S, R33E	13846	2/2/2016	WC-025 G-06 S263319P; BONE SPRING	LEA	NM	Surf.	17-1/2"	13-3/8"	854	1,006	0	CIRC
												Int.	12-1/4"	9-5/8"	4,702	1,470	0	CIRC
												Prod.	8-3/4"	5-1/2"	13,833	1,655	4,325	CBL
14	3002543674	CHEVRON U S A INC	SD WE 24 FEDERAL P24 005H	Oil Well	Active	484' FSL & 930' FWL, s. 24, T26S, R32E	19338	8/12/2017	WC-025 G-06 S263319P; BONE SPRING	LEA	NM	Surf.	17-1/2"	13-3/8"	712	844	0	CIRC
												Int.	12-1/4"	9-5/8"	4,545	1,487	0	CIRC
												Prod.	8-3/4"	5-1/2"	19,328	2,727	0	CIRC
15	3002543673	CHEVRON U S A INC	SD WE 24 FEDERAL P24 006H	Oil Well	Active	484' FSL & 990' FWL, s. 24, T26S, R32E	19286	8/11/2017	WC-025 G-06 S263319P; BONE SPRING	LEA	NM	Surf.	17-1/2"	13-3/8"	706	844	0	CIRC
												Int.	12-1/4"	9-5/8"	4495	1487	0	CIRC
												Prod.	8-3/4"	5-1/2"	19278	2727	0	CIRC
16	3002543675	CHEVRON U S A INC	SD WE 24 FEDERAL P24 007H	Oil Well	Active	484' FSL & 930' FWL, s. 24, T26S, R32E	19371	8/10/2017	WC-025 G-06 S263319P; BONE SPRING	LEA	NM	Surf.	17-1/2"	13-3/8"	662	844	0	CIRC
												Int.	12-1/4"	9-5/8"	4536	1487	0	CIRC
												Prod.	8-3/4"	5-1/2"	19363	2612	0	CIRC
17	3002542028	CONOCOPHILLIPS CC	WAR HAMMER 25 FEDERAL COM W2 2H	Oil Well	Active	283' FNL & 125' FEL, s. 25, T26S, R32E	19670	3/8/2015	Zia Hills; Wolfcamp	LEA	NM	Surf.	17-1/2"	13-3/8"	798	708	0	CIRC
												Int.1	12-1/4"	9-5/8"	4778	1285	0	CIRC
												Int.2	8-3/4"	7-5/8"	12198	526	518	CALC
												Prod.	6-3/4"	5"	19651	1124	5356	CALC
18	3002542027	CONOCOPHILLIPS CC	WAR HAMMER 25 FEDERAL COM W1 3H	Oil Well	Active	316' FNL & 125' FEL, s. 25, T26S, R32E	18902	3/8/2015	Zia Hills; Wolfcamp	LEA	NM	Surf.	17-1/2"	13-3/8"	794	708	0	CIRC
												Int.1	13-5/8"	9-5/8"	4778	1322	40	CBL
												Int.2	8-3/4"	7-5/8"	12382	851	27	CIRC
												Prod.	6-3/4"	5"	18885	995	2750	CALC
19	3002542029	CONOCOPHILLIPS CC	WAR HAMMER 25 FEDERAL COM W3 1H	Oil Well	Active	250' FNL & 125' FEL, s. 25, T26S, R32E	20027	3/11/2015	Zia Hills; Wolfcamp	LEA	NM	Surf.	17-1/2"	13-3/8"	765	705	0	CIRC
												Int.1	12-1/4"	9-5/8"	4591	759	0	CIRC
												Int.2	8-3/4"	7-5/8"	12207	435	4050	CALC
												Prod.	6-3/4"	5"	20007	1143	11600	CALC
20	3002542936	EOG RESOURCES INC	ORRTANNA 20 FED 701H	Oil Well	Active	220' FSL & 950' FWL, s. 20, T26S, R33E	17136	4/24/2016	SANDERS TANK; UPPER WOLFCAMP	LEA	NM	Surf.	14-3/4"	10-3/4"	837	656	0	CIRC
												Int.	9-7/8"	7-5/8"	11048	1590	0	CIRC
												Prod.	6-3/4"	5-1/2" x 5"	17136	765	7960	CALC

Large format digital copy submitted electronically

Created:	1/31/2020 **By:** JRP				
Lease:	War Hammer 25 Federal Com W2	**Well No.:**	2H	**Operator:**	ConocoPhillips Co
Surface Location:	283' FNL & 125' FEL	**Section:**	25	**Township/Range:**	26 / 32
County:	Lea **St:** NM	**API:**	30-025-42028		
Current Status:	Producing	**GL Elevation:**	3139'		

Surface Csg.

Size:	13 3/8"
Wt, Grd:	54.5#, J-55
Set @:	798'
Sx cmt:	708 sx
Circ:	Yes
TOC:	surface
Hole Size:	17 1/2"

Formation Tops	Measured Depth (ft)
Rustler	693
Salado	1091
Castile	
Lamar	4693
Bell Canyon	
Cherry Canyon	
Brushy Canyon	
Bone Spring Lime	8915

Intermediate Csg.

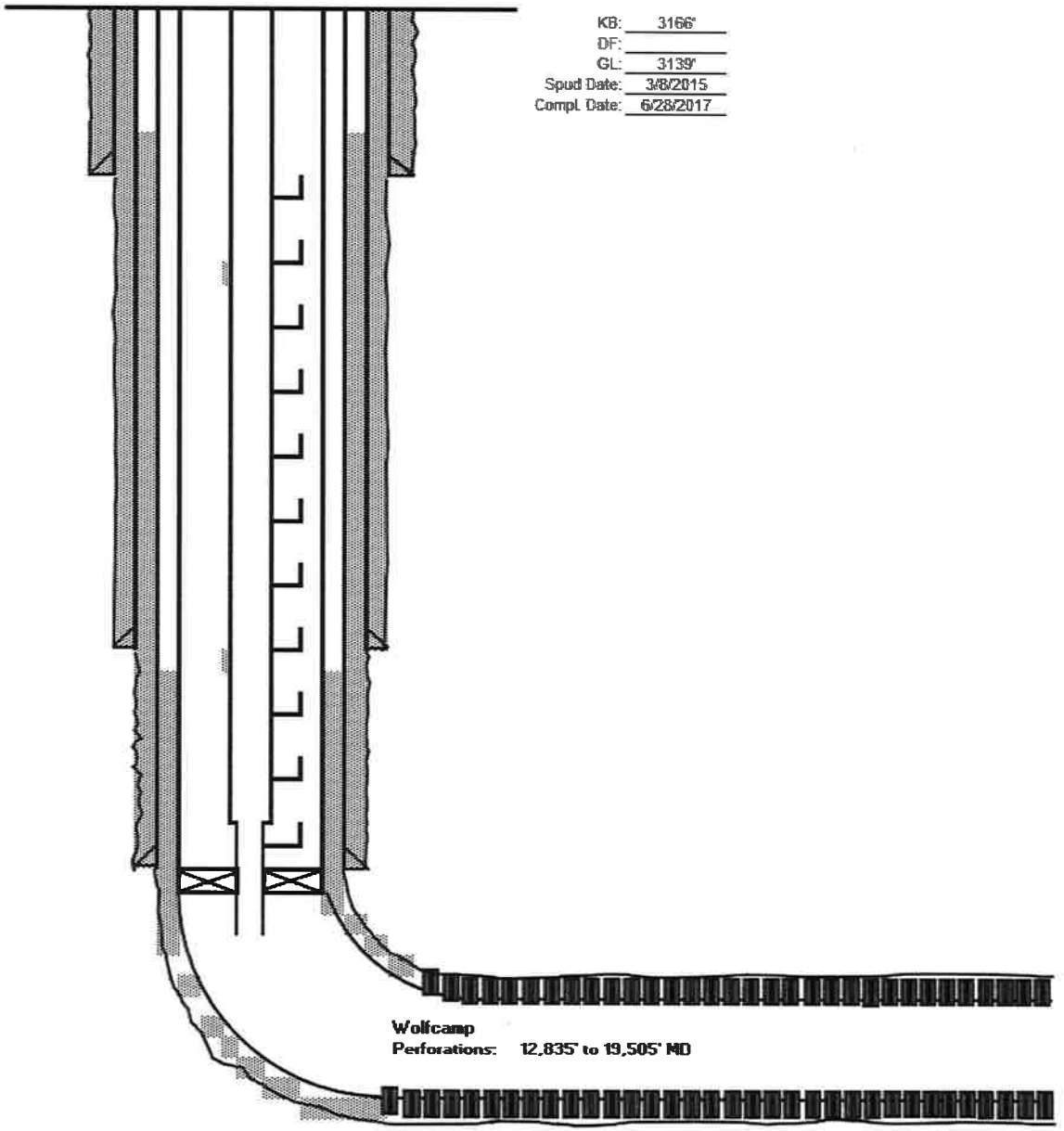
Size:	9-5/8"
Wt, Grd:	40.0#, L-80
Set @:	4778'
Sx Cmt:	1285 sx
Circ:	yes
TOC:	surface
Hole Size:	12 1/4"

Liner

Size:	7-5/8"
Wt, Grd:	29.7#, P-110
TOL:	27'
BOL:	12,198'
Liner Sx Cmt	526 sx
TOC	518'
Hole Size:	8 3/4"

Production Casing

Size:	5"
Wt, Grd:	18#, P-110
From:	27'
To:	19,651'
Sx Cmt:	1124 sx
TOC:	5356'
Hole Size:	6 3/4"



BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. 28
Submitted by: **Chevron U.S.A. Inc.**
Hearing Date: February 06, 2020
Case No. 21020

Created:	1/31/2020	**By:** JRP					
Lease:	War Hammer 25 Federal Com W1		**Well No.:**	3H	**Operator:**	ConocoPhillips Co	
Surface Location:	316' FNL & 125' FEL		**Section:**	25	**Township/Range:**	26 / 32	
County:	Lea	**St:** NM	**API:**	30-025-42027			
Current Status:	Producing		**GL Elevation:**	3138'			

Surface Csg.

Size:	13 3/8"
Wt, Grd:	54.5#, J-55
Set @:	794'
Sx cmt:	708 sx
Circ:	Yes
TOC:	surface
Hole Size:	17 1/2"

Intermediate Csg.

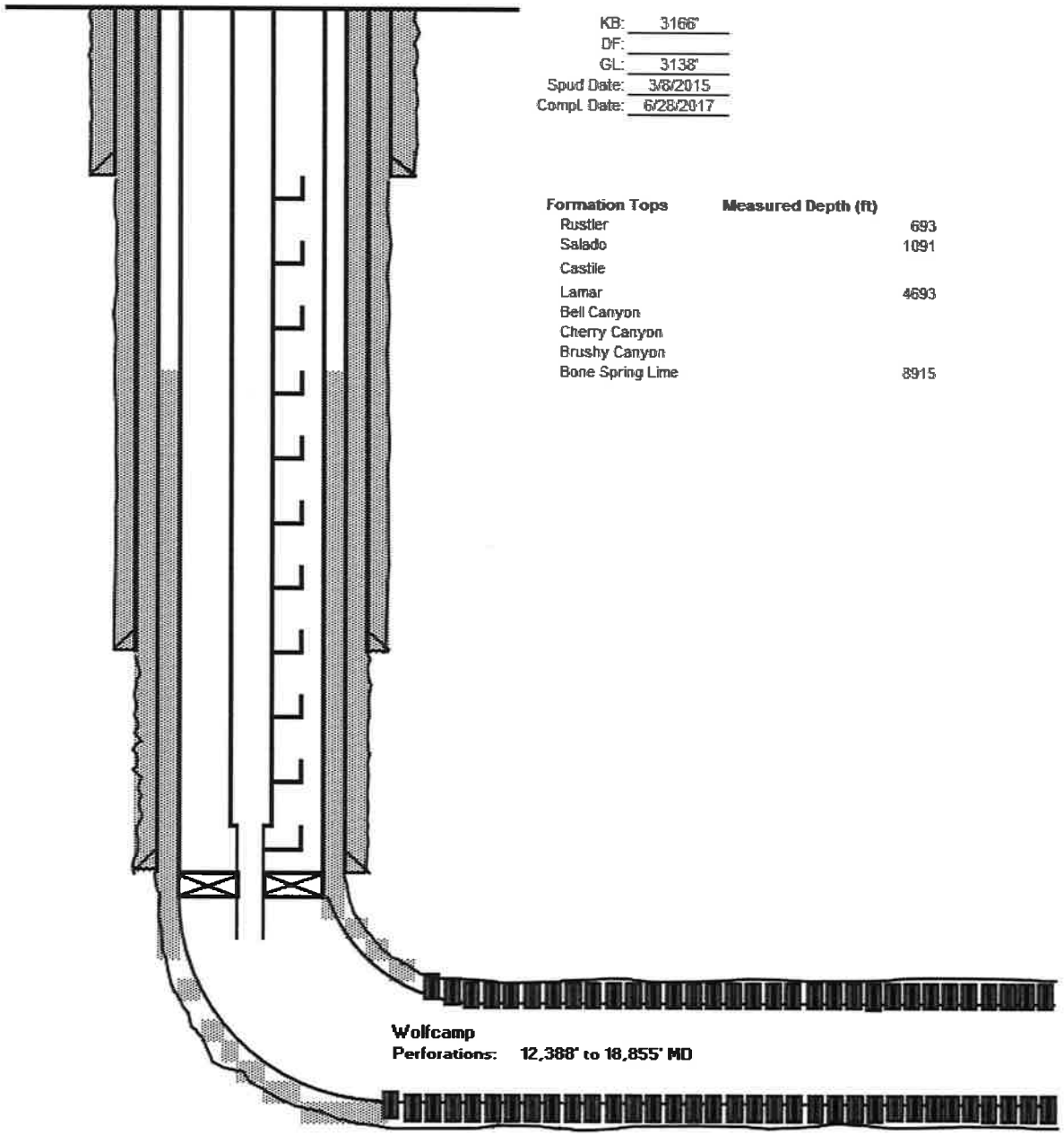
Size:	9-5/8"
Wt, Grd:	40.0#, L-80
Set @:	4778'
Sx Cmt:	1322 sx
Circ:	yes, but fallback
TOC:	40 by CBL
Hole Size:	12 1/4"

Liner

Size:	7-5/8"
Wt, Grd:	29.7#, P-110
TOL:	27'
BOL:	12,382'
Liner Sx Cmt	851 sx (w/sqz.)
TOC	27' (sqz. From 8690' to 27')
Hole Size:	8 3/4"

Production Casing

Size:	5"
Wt, Grd:	18#, P-110
From:	31'
To:	18,885'
Sx Cmt:	995 sx
TOC:	2750'
Hole Size:	6 3/4"



KB:	3166'
DF:	
GL:	3138'
Spud Date:	3/8/2015
Compl. Date:	6/28/2017

Formation Tops	Measured Depth (ft)
Rustler	693
Salado	1091
Castile	
Lamar	4693
Bell Canyon	
Cherry Canyon	
Brushy Canyon	
Bone Spring Lime	8915

Created:	1/31/2020	By: JRP					
Lease:	War Hammer 25 Federal Com W3		**Well No.:**	1H	**Operator:**	ConocoPhillips Co	
Surface Location:	250' FNL & 125' FEL		**Section:**	25	**Township/Range:**	26 / 32	
County:	Lea	St: NM	**API:**	30-025-42029			
Current Status:	Producing		**GL Elevation:**	3140'			

Surface Csg.

Size:	13 3/8"
Wt, Grd:	54.5#, J-55
Set @:	765'
Sx cmt:	705 sx
Circ:	Yes
TOC:	surface
Hole Size:	17 1/2"

Formation Tops	Measured Depth (ft)
Rustler	691
Salado	1089
Castile	
Lamar	4691
Bell Canyon	
Cherry Canyon	
Brushy Canyon	
Bone Spring Lime	8913

Intermediate Csg.

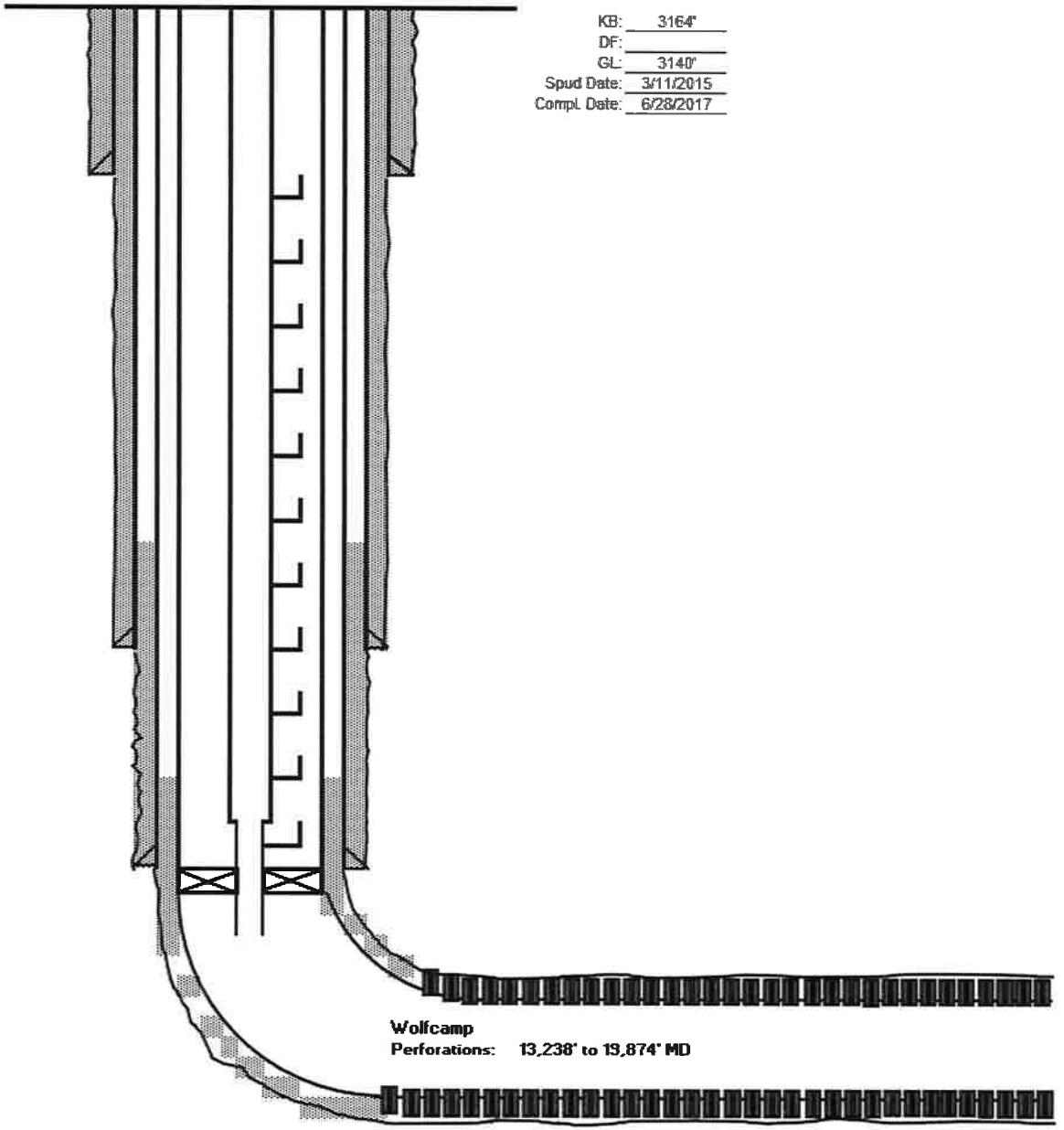
Size:	9-5/8"
Wt, Grd:	40.0#, L-80
Set @:	4591'
Sx Cmt:	759 sx
Circ:	Yes
TOC:	surface
Hole Size:	12 1/4"

Liner

Size:	7-5/8"
Wt, Grd:	29.7#, P-110
TOL:	27'
BOL:	12,207'
Liner Sx Cmt	435 sx.
TOC	4050' by CALC
Hole Size:	8 3/4"

Production Casing

Size:	5"
Wt, Grd:	18#, P-110
From:	25'
To:	20,007'
Sx Cmt:	1143 sx
TOC:	11,600' by Calc.
Hole Size:	6 3/4"



KB:	3164'
DF:	
GL:	3140'
Spud Date:	3/11/2015
Compl. Date:	6/28/2017

Created: 1/31/2020 **By:** JRP
Lease: Orrtanna 20 FED
Surface Location: 220' FSL & 950' FWL
County: Lea **St:** NM
Current Status: Producing

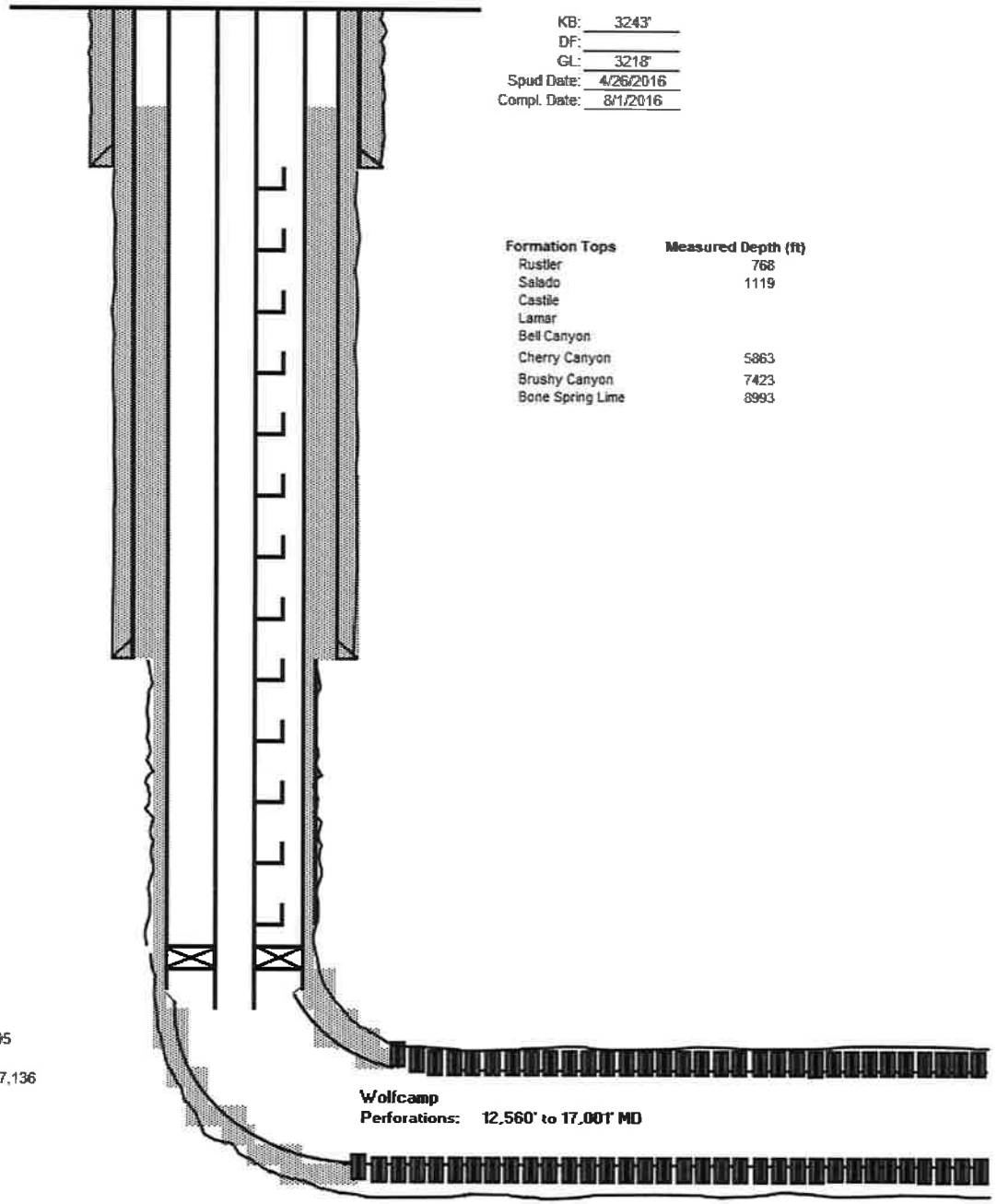
Well No.: 701H
Section: 20
API: 30-025-42936

Operator: EOG Resources Inc
Township/Range: 26 / 33

Surface Csg.
Size: 10-3/4"
Wt, Grd: 40.5#, J-55
Set @: 837'
Sx cmt: 656 sx
Circ: Yes
TOC: surface
Hole Size: 14-3/4"

Intermediate Csg.
Size: 7-5/8"
Wt, Grd: 29.7#, HCP-110
Set @: 11,048'
Sx Cmt: 1590
Circ: Yes
TOC: Surface
Hole Size: 9-7/8"

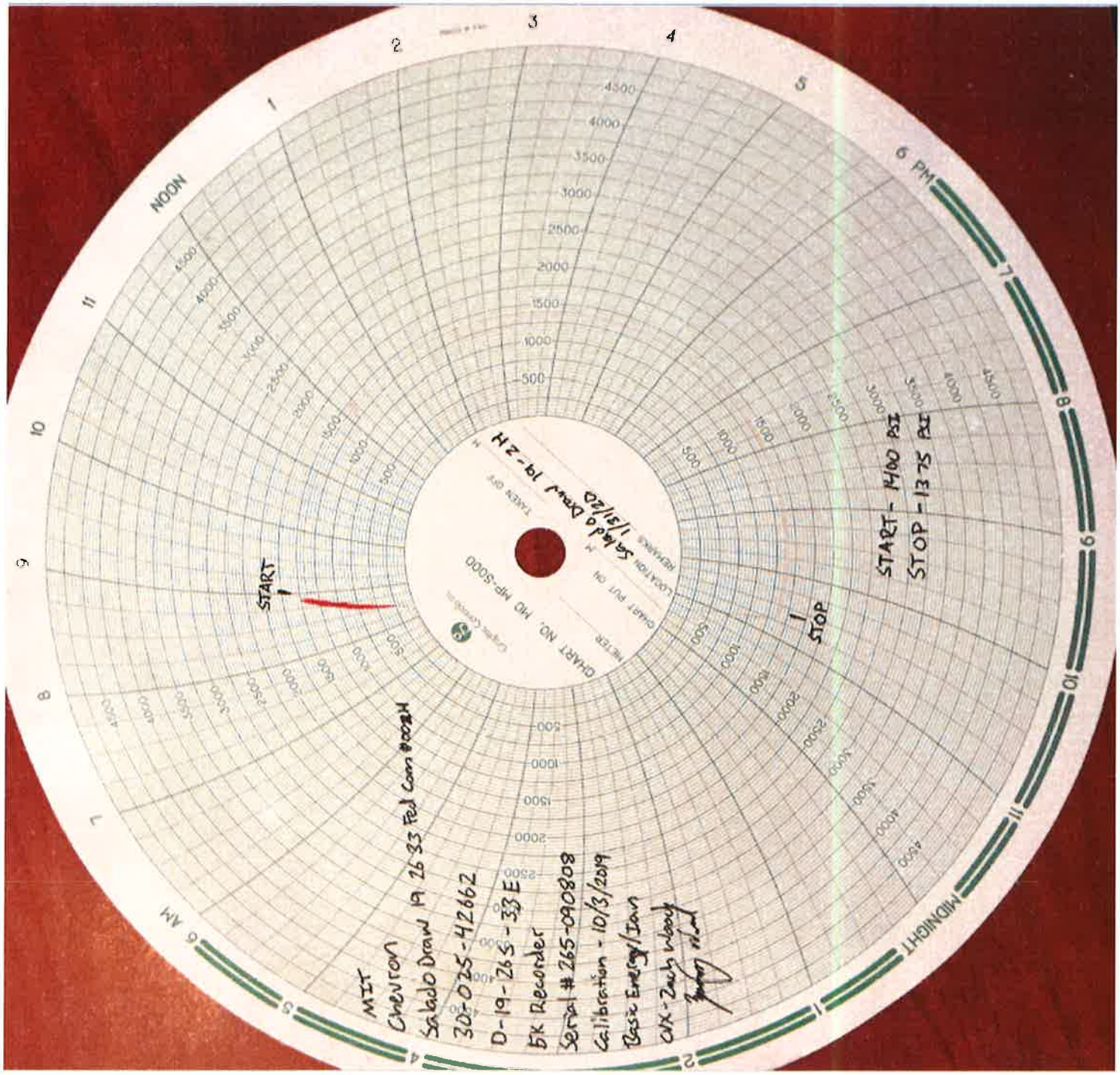
Production Casing
Size: 5 1/2" X 5"
Wt, Grd: 23# P-110 & 23.2# T95
From: Surface
To: 5.5" to 11697; 5" to 17,136
Sx Cmt: 765 sx
TOC: 7960' by calc
Hole Size: 6-3/4"



KB: 3243'
DF:
GL: 3218'
Spud Date: 4/26/2016
Compl. Date: 8/1/2016

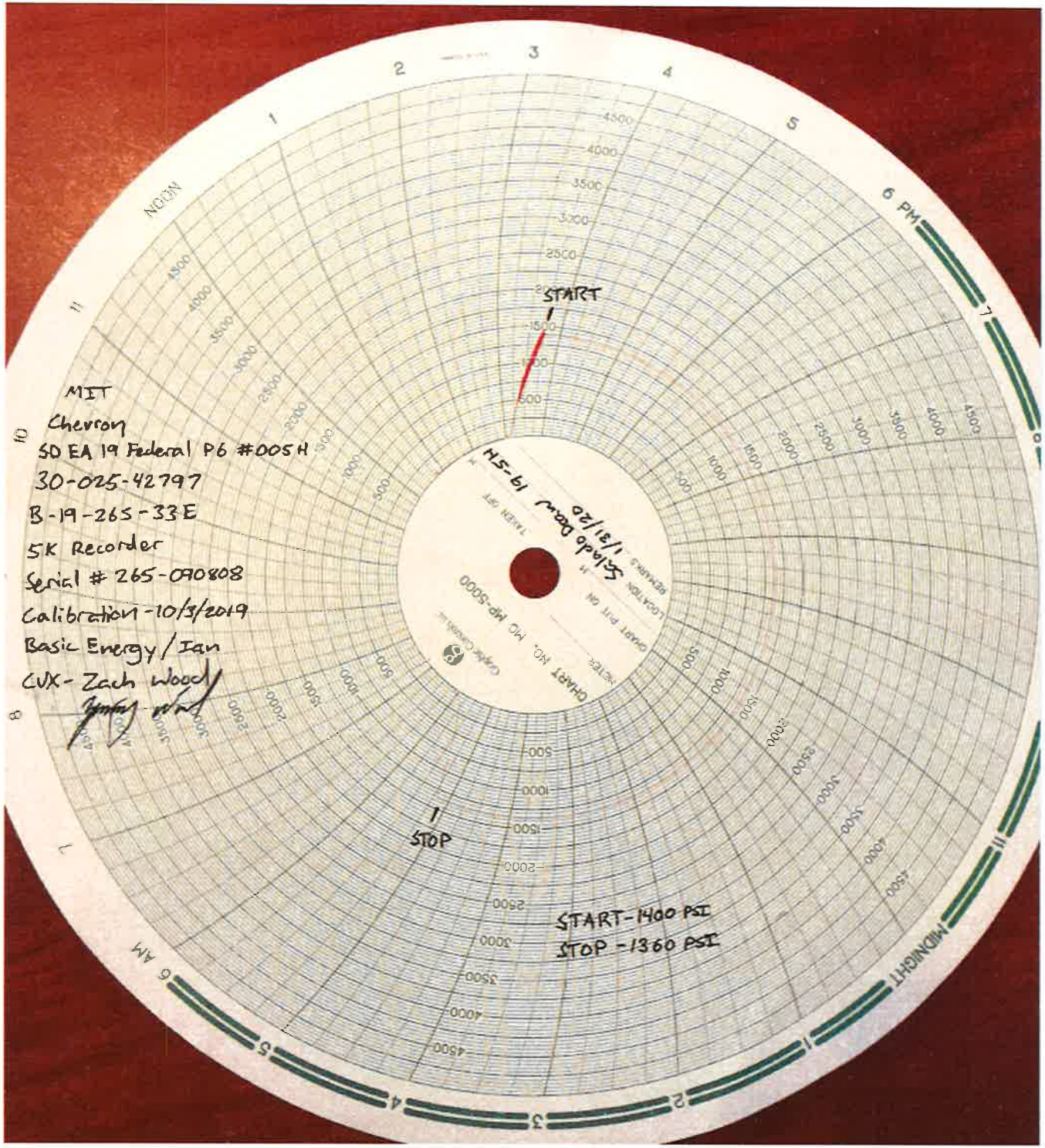
Formation Tops	Measured Depth (ft)
Rustler	768
Salado	1119
Castile	
Lamar	
Bell Canyon	
Cherry Canyon	5863
Brushy Canyon	7423
Bone Spring Lime	8993

Salado Draw 19 26 33 Federal Com 2H



BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. 29
Submitted by: **Chevron U.S.A. Inc.**
Hearing Date: February 06, 2020
Case No. 21020

SD EA 19 Federal P 6 #005H



Composition of injection gas

LABORATORY SERVICES

www.permianls.com
575.397.3713 2609 W Marland Hobbs NM 88240

Extended Gas Analysis Report

Sample Point Code	Sample Point Name	Sample Point Location
8424G	Salado 19 CS Discharge	Salado 19 CS Discharge

Source Laboratory	Lab File No	Container Identity	Sampler
Laboratory Services	2019023882	0382	S Tackett - Spot

District	Area Name	Field Name	Facility Name
USA	USA	USA	New Mexico

Date Sampled	Date Effective	Date Received	Date Reported
Oct 23, 2019 12:05	Oct 23, 2019 12:05	Oct 29, 2019 10:47	Nov 5, 2019

Ambient Temp (°F)	Flow Rate (Mcf)	Analyst	Press PSI @ Temp °F Source Conditions
78.00		BH	1240 @ 102

Operator	Lab Source Description
Chevron Usa, Inc.	NG

Component	Normalized Mol %	Un-Normalized Mol %	GPM
Nitrogen (N2)	1.4850	1.49471	
Carbon Dioxide (CO2)	3.9390	3.964766	
Hydrogen Sulfide (H2S)	0.0000	0	
Methane (C1)	70.5940	71.063034	
Ethane (C2)	11.9830	12.063174	3.2040
Propane (C3)	7.0580	7.105014	1.9440
IsoButane (IC4)	0.9280	0.934504	0.3040
n-Butane (NC4)	2.3270	2.342976	0.7330
IsoPentane (IC5)	0.5290	0.532955	0.1930
n-Pentane (NC5)	0.5680	0.571338	0.2060
Hexanes (C6's)	0.5890	0.586	0.2390
TOTAL	100.0000	100.6585	6.8230

Method(s): Gas C6+ - GPA 2261, Extended Gas - GPA 2286, Calculations - GPA 2172

Analyzer Information

Device Type:	Gas Chromatograph	Device Make:	Agilent
Device Model:	7890B	Last Cal Date:	Oct 22, 2019

Gross Heating Values (Real, BTU/ft³)

14.696 PSI @ 60.00 °F	14.73 PSI @ 60.00 °F	
Dry	Dry	Saturated
1,281.5	1,289.9	1,268.0000

Calculated Total Sample Properties

GPA2145-16 ^Calculated at Contract Conditions

Relative Density Real	Relative Density Ideal
0.8112	0.8081

Molecular Weight: 23.4070

C6+ Group Properties

Assumed Composition

C6 - 58.111% C7 - 28.725% C8 - 13.164%

Field H2S: 0 PPM

PROTREND STATUS:
Passed By Validator on Nov 7, 2019

DATA SOURCE:
Imported

PASSED BY VALIDATOR REASON:
Close enough to be considered reasonable.

VALIDATOR:
Dustin Armstrong

VALIDATOR COMMENTS:
OK

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. 30
Submitted by: **Chevron U.S.A. Inc.**
Hearing Date: February 06, 2020
Case No. 21020

MASP gradients

Salado Draw 19 26 33 Federal Com #002H

- MASP / TVD shallowest perf
- 1250 psi / 9122 ft. = 0.137 psi/ft.

SD EA 19 Federal P 6 #005H

- MASP / TVD shallowest perf
- 1250 psi / 9160 ft. = 0.136 psi/ft.

The proposed Maximum allowable surface pressure does not exceed 0.14 psi/ft.