

RECEIVED

JAN 10 2020

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240
Phone: (505) 393-6161 Fax: (505) 393-9720

DISTRICT II
811 S. FIRST ST., ARTESIA, NM 88210
Phone: (505) 746-1823 Fax: (505) 746-9720

DISTRICT III
1000 RIO BRAZOS RD., AZTEC, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

EMNRD-OCDA ARTESIA C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-05-46619	Pool Code 33740	Pool Name Dryfe Wells W. Heat Bone Springs
Property Code 326150	Property Name ARKENSTONE 31 FEDERAL	Well Number 4H
OGRIID No. 16694	Operator Name OXY USA INC.	Elevation 3344.6'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	31	23-S	31-E		130	NORTH	2578	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	31	23-S	31-E		20	SOUTH	1900	EAST	EDDY

Dedicated Acres 320	Joint or Infill Y	Consolidation Code	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

LOT 1 41.88 Ac	GRID AZ. - 83°01'06" HORZ. DIST. - 682.5' <u>SURFACE LOCATION</u> Y=461551.0 N X=701022.5 E LAT.=32.267822° N LONG.=103.816696° W	50' FNL & 1900' FEL Y=461633.9 N X=701699.9 E LAT.=32.268041° N LONG.=103.814503° W EIP 100' FNL & 1900' FEL Y=461583.9 N X=701700.2 E LAT.=32.267903° N LONG.=103.814503° W	POINT LEGEND <table border="1"> <tr> <td>1</td> <td>Y=461692.5 N</td> <td>X=703599.8 E</td> </tr> <tr> <td>2</td> <td>Y=459051.9 N</td> <td>X=703815.3 E</td> </tr> <tr> <td>3</td> <td>Y=458410.9 N</td> <td>X=703629.2 E</td> </tr> <tr> <td>4</td> <td>Y=458398.8 N</td> <td>X=700990.4 E</td> </tr> <tr> <td>5</td> <td>Y=461680.7 N</td> <td>X=700956.7 E</td> </tr> </table> * ALL COORDINATES ARE NAD 83 VALUES	1	Y=461692.5 N	X=703599.8 E	2	Y=459051.9 N	X=703815.3 E	3	Y=458410.9 N	X=703629.2 E	4	Y=458398.8 N	X=700990.4 E	5	Y=461680.7 N	X=700956.7 E
1	Y=461692.5 N	X=703599.8 E																
2	Y=459051.9 N	X=703815.3 E																
3	Y=458410.9 N	X=703629.2 E																
4	Y=458398.8 N	X=700990.4 E																
5	Y=461680.7 N	X=700956.7 E																
LOT 2 41.94 Ac																		
LOT 3 42.02 Ac																		
LOT 4 42.07 Ac	<u>PROPOSED BOTTOM HOLE LOCATION</u> Y=456420.8 N X=701729.2 E LAT.=32.253711° N LONG.=103.814490° W	LTP 100' FSL & 1900' FEL Y=456500.8 N X=701728.7 E LAT.=32.253930° N LONG.=103.814490° W																

OPERATOR CERTIFICATION

I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

David Stewart 8/29/19

Signature Date

David Stewart

Printed Name

David Stewart@oxy.com

E-mail Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

JULY 10, 2019

Date of Survey

Signature & Seal of Professional Surveyor



Chad Harcrow 7/22/19

Certificate No. CHAD HARCROW

17777

W.O. # 19-1276

DRAWN BY: AM

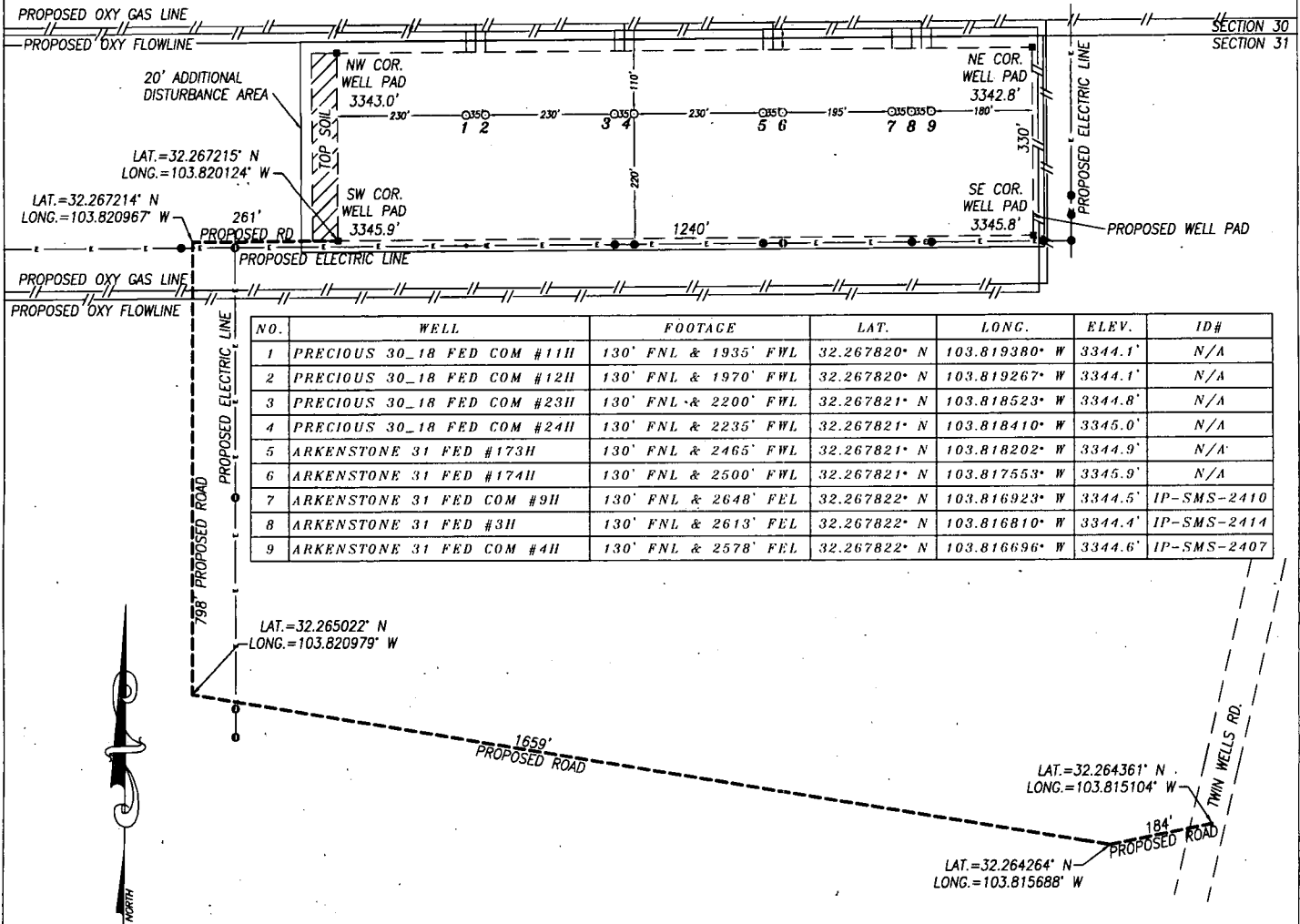
AWP 1-22-2020

OXY USA INC.

SITE PLAN

SNDDNS 3113

FAA PERMIT: NO

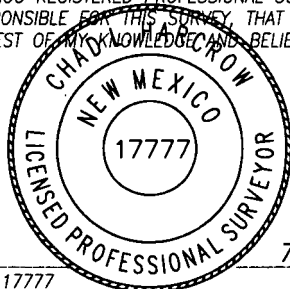


NOTES:

- 1) LATS & LONGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983.
- 2) DISTANCES ARE GRID VALUES.
- 3) ALL FEATURES ARE EXISTING UNLESS OTHERWISE NOTED

CERTIFICATION

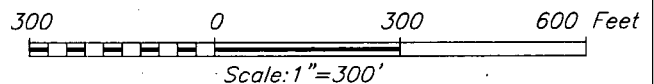
I, CHAD HARCROW, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



Chad Harcrow
CHAD HARCROW N.M.P.S. NO. 17777

7/22/19
DATE

HARCROW SURVEYING, LLC
2316 W. MAIN ST, ARTESIA, N.M. 88210
PH: (575) 746-2158
c.harcrow@harcrowsurveying.com



OXY USA INC.		
SURVEY DATE: JULY 10, 2019	SITE PLAN	
DRAFTING DATE: JULY 19, 2019	PAGE: 1	OF 1
APPROVED BY: CH	DRAWN BY: AM	FILE: 19-1279



U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Drilling Plan Data Report

01/07/2020

APD ID: 10400038590

Submission Date: 01/29/2019

Highlighted data
reflects the most
recent changes

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
385090	RUSTLER	3345	369	369	ANHYDRITE, DOLOMITE, SHALE	USEABLE WATER	N
385091	SALADO	2656	689	689	ANHYDRITE, DOLOMITE, HALITE, SHALE	OTHER : SALT	N
385088	CASTILE	739	2605	2605	ANHYDRITE	OTHER : salt	N
385092	LAMAR	-714	4059	4059	LIMESTONE, SANDSTONE, SILTSTONE	NATURAL GAS, OIL, OTHER : BRINE	N
385093	BELL CANYON	-754	4099	4099	SANDSTONE, SILTSTONE	NATURAL GAS, OIL, OTHER, USEABLE WATER : BRINE	N
385094	CHERRY CANYON	-1639	4984	4984	SANDSTONE, SILTSTONE	NATURAL GAS, OIL, OTHER : BRINE	N
385095	BRUSHY CANYON	-2925	6270	6311	LIMESTONE, SANDSTONE, SILTSTONE	NATURAL GAS, OIL, OTHER : BRINE	N
385089	BONE SPRING	-4609	7954	8032	LIMESTONE, SANDSTONE, SILTSTONE	NATURAL GAS, OIL	N
385085	BONE SPRING 1ST	-5643	8988	9082	LIMESTONE, SANDSTONE, SILTSTONE	NATURAL GAS, OIL	Y
385096	BONE SPRING 2ND	-6283	9628	9745	LIMESTONE, SANDSTONE, SILTSTONE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M

Rating Depth: 9941

Equipment: 13-5/8" 5/10M Annular, Blind Ram, Double Ram

Requesting Variance? YES

Variance request: Request for the use of a flexible choke line from the BOP to Choke Manifold.

Testing Procedure: BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested. Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. A multibowl wellhead or a unionized multibowl wellhead system will be employed. The wellhead and connection to the BOPE will meet all API 6A requirements. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

maximum of 30 days. If any seal subject to test pressure is broken the system will be tested. We will test the flange connection of the wellhead with a test port that is directly in the flange. BOP Break Testing Request - As per the agreement reached in the OXY/BLM meeting on Feb 22, 2018, OXY requests permission to allow BOP Break Testing under the following conditions: 1. After a full BOP test is conducted on the first well on the pad. 2. When skidding to drill an intermediate section that the casing point is either shallower than the 3rd Bone Spring or 10000' TVD. 3. Full BOP test will be required prior to drilling any production section.

Choke Diagram Attachment:

Arkenstone31Fd4H_ChkManifold_20190129124412.pdf

BOP Diagram Attachment:

Arkenstone31Fd4H_FlexHoseCert_20190129124438.pdf

Arkenstone31Fd4H_BOPAmD_20190829094337.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	419	0	419			419	J-55	54.5	BUTT	1.125	1.2	BUOY	1.4	BUOY	1.4
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	4109	0	4109			4109	L-80	43.5	BUTT	1.125	1.2	BUOY	1.4	BUOY	1.4
3	INTERMEDIATE	8.5	7.625	NEW	API	N	0	9486	0	9390			9486	HCL-80	26.4	OTHER - SF/FJ	1.125	1.2	BUOY	1.4	BUOY	1.4
4	PRODUCTION	6.75	5.5	NEW	API	N	0	10036	0	9864			10036	P-110	20	OTHER - DQX/SFTORQ/DQWTO RQ	1.125	1.2	BUOY	1.4	BUOY	1.4
5	PRODUCTION	6.75	4.5	NEW	API	N	10036	15533	9864	9906			5497	P-110	13.5	OTHER - DQX	1.125	1.2	BUOY	1.4	BUOY	1.4

Casing Attachments

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

Casing Attachments

Casing ID: 1 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Arkenstone31Fd4H_CsgCriteria_20190129124558.pdf

Casing ID: 2 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Arkenstone31Fd4H_CsgCriteria_20190129124609.pdf

Casing ID: 3 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Arkenstone31Fd4H_CsgCriteria_20190129124651.pdf

Arkenstone31Fd4H_7.625_26.4_HCL80_TMKUPFJ_20190129124702.pdf

Arkenstone31Fd4H_7.625_26.4_HCL80_TMKUPSF_20190129124712.pdf

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

Casing Attachments

Casing ID: 4 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Arkenstone31Fd4H_CsgCriteria_20190129124755.pdf

Arkenstone31Fd4H_5.5_20_P110_DQX_20190129124805.pdf

Arkenstone31Fd4H_5.5_20_P110HC_TMKUPSFTORQ_20190129124816.pdf

Arkenstone31Fd4H_5.5_20_P110CY_TMKUPDQWTORQ_20190625154306.pdf

Casing ID: 5 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Arkenstone31Fd4H_CsgCriteria_20190829094937.pdf

Arkenstone31Fd4H_4.5_13.5_P110_DQX_20190829094956.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	419	449	1.33	14.8	597	100	CI C	Accelerator

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
INTERMEDIATE	Lead		0	3609	879	1.88	12.9	1653	50	Pozzolan/C	Retarder
INTERMEDIATE	Tail		3609	4109	155	1.33	14.8	206	20	CI C	Accelerator
INTERMEDIATE	Lead		0	6520	360	1.92	12.9	691	25	CI C	Accelerator
INTERMEDIATE	Tail		6520	9486	146	1.65	13.2	241	5	CI H	Retarder, Dispersant, Salt
PRODUCTION	Lead		6520	15533	1805	1.38	13.2	2491	5	CI H	Retarder, Dispersant, Salt
PRODUCTION	Tail		0	6520	1016	1.87	12.9	1900	50	CI C	Accelerator
PRODUCTION	Lead		6520	15533	1805	1.38	13.2	2491	5	CI H	Retarder, Dispersant, Salt
PRODUCTION	Tail		0	6520	1016	1.87	12.9	1900	50	CI C	Accelerator

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements. The following is a general list of products: Barite, Bentonite, Gypsum, Lime, Soda Ash, Caustic Soda, Nut Plug, Cedar Fiber, Cotton Seed Hulls, Drilling Paper, Salt Water Clay, CaCl₂.

Describe the mud monitoring system utilized: PVT/MD Totco/Visual Monitoring

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
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Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
419	4109	OTHER : Saturated Brine Based Mud	9.8	10							
4109	1553 3	OTHER : Water-Based and/or Oil-Based Mud	8	9.6							
0	419	WATER-BASED MUD	8.6	8.8							

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

GR from TD to surface (horizontal well – vertical portion of hole). Mud Log from intermediate shoe to TD.

List of open and cased hole logs run in the well:

GR,MUDLOG

Coring operation description for the well:

No coring is planned at this time.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4963

Anticipated Surface Pressure: 2775.98

Anticipated Bottom Hole Temperature(F): 160

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geohazards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

Arkenstone31Fd4H_H2S1_20190129105735.pdf

Arkenstone31Fd4H_H2S2_20190129105756.pdf

Arkenstone31Fd4H_EmergencyContactList_20190129105922.pdf

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Arkenstone31Fd4H_DirectPlanAmd_20190829095707.pdf

Arkenstone31Fd4H_DirectPlotAmd_20190829095707.pdf

Other proposed operations facets description:

OXY requests the option to set casing shallower yet still below the salts if losses or hole conditions require this. Cement volumes may be adjusted if casing is set shallower and a DV tool will be run in case a contingency second stage is required for cement to reach surface. If cement circulated to surface during first stage we will drop a cancelation cone and not pump the second stage.

OXY requests the option to run the 7.625" Intermediate II as a contingency string to be run only if severe hole conditions dictate an additional casing string necessary.

OXY respectfully requests a variance to cement the 9-5/8" and/or 7-5/8" intermediate casing strings offline, see attached for additional information.

OXY requests the option to run production casing with DQX, SF TORQ, and/or DQW TORQ connections to accommodate hole conditions or drilling operations.

OXY requests to pump a two stage cement job on the Intermediate II / Production casing string with the first stage being pumped conventionally with the calculated TOC @ the Bone Spring and the second stage performed as a bradenhead squeeze with planned cement from the Bone Spring to surface.

Annular Clearance Variance Request - As per the agreement reached in the OXY/BLM meeting on Feb 22, 2018, Oxy requests permission to allow deviation from the 0.422" annular clearance requirement from Onshore Order #2 under the following conditions:

1. Annular clearance to meet or exceed 0.422" between intermediate casing ID and production casing coupling only on the first 500' overlap between both casings.
2. Annular clearance less than 0.422" is acceptable for the curve and lateral portions of the production open hole section.

Well will be drilled with a walking/skidding operation. Plan to drill the multiple well pad in batch by section: all surface sections, intermediate sections and production sections. The wellhead will be secured with a night cap whenever the rig is not over the well.

OXY requests the option to contract a Surface Rig to drill, set surface casing, and cement for this well. If the timing between rigs is such that OXY would not be able to preset surface, the Primary Rig will MIRU and drill the well in its entirety per the APD. Please see the attached document for information on the spudder rig.

Other proposed operations facets attachment:

Arkenstone31Fd4H_SpudRigData_20190129105656.pdf

Arkenstone31Fd4H_DrillPlanAmd_20190829095906.pdf

Arkenstone31Fd4H_GasCapPlanAmd_20190829095918.pdf

Arkenstone31Fd4H_CementingProgramAmd_20190924120459.pdf

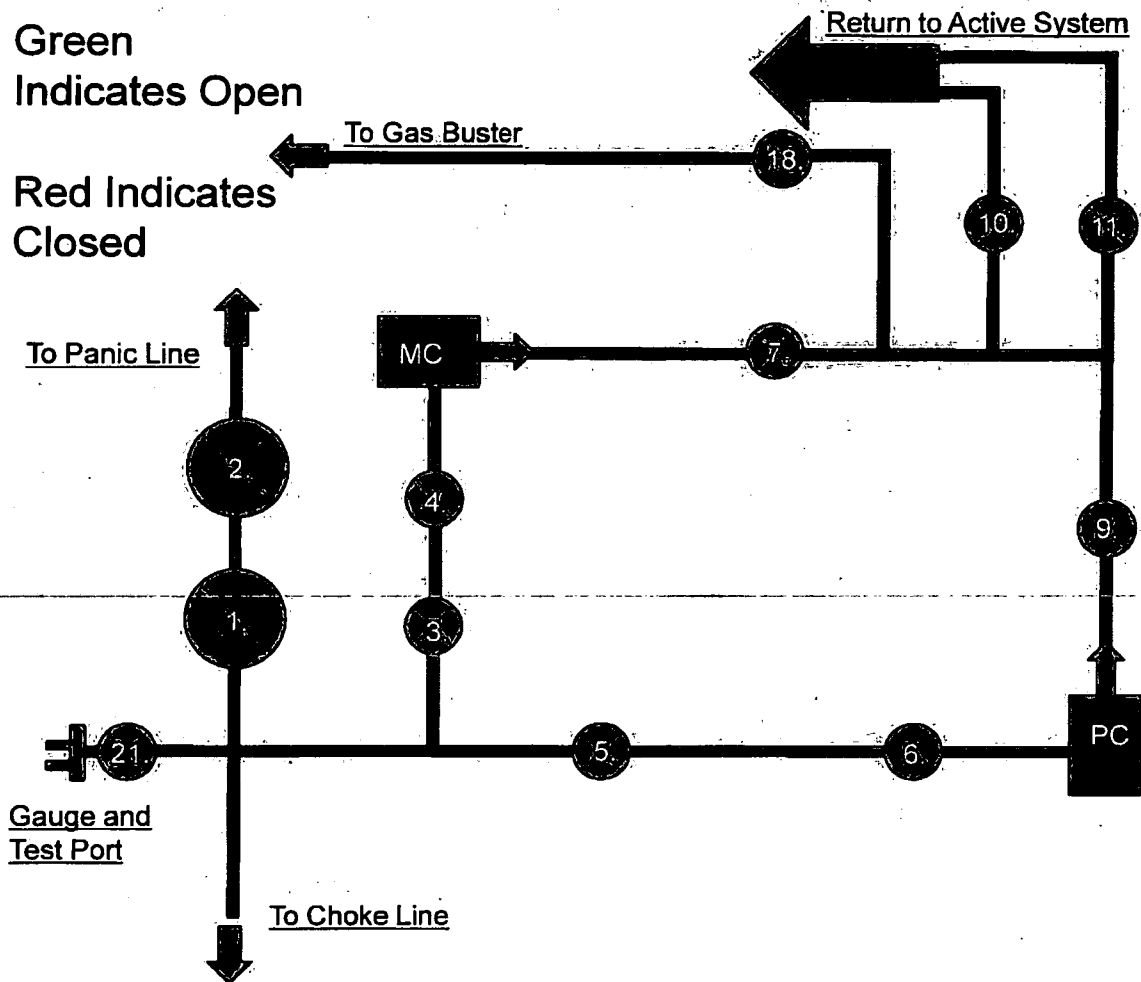
Other Variance attachment:

Arkenstone31Fd4H_OfflineCmtgDetail_20190625154401.pdf

5M Choke Panel

Green
Indicates Open

Red Indicates
Closed



1. 4" Choke Manifold Valve
2. 4" Choke Manifold Valve
3. 3" Choke Manifold Valve
4. 3" Choke Manifold Valve
5. 3" Choke Manifold Valve
6. 3" Choke Manifold Valve
7. 3" Choke Manifold Valve
8. PC – Power Choke
9. 3" Choke Manifold Valve
10. 3" Choke Manifold Valve
11. Choke Manifold Valve
12. MC – Manual Choke

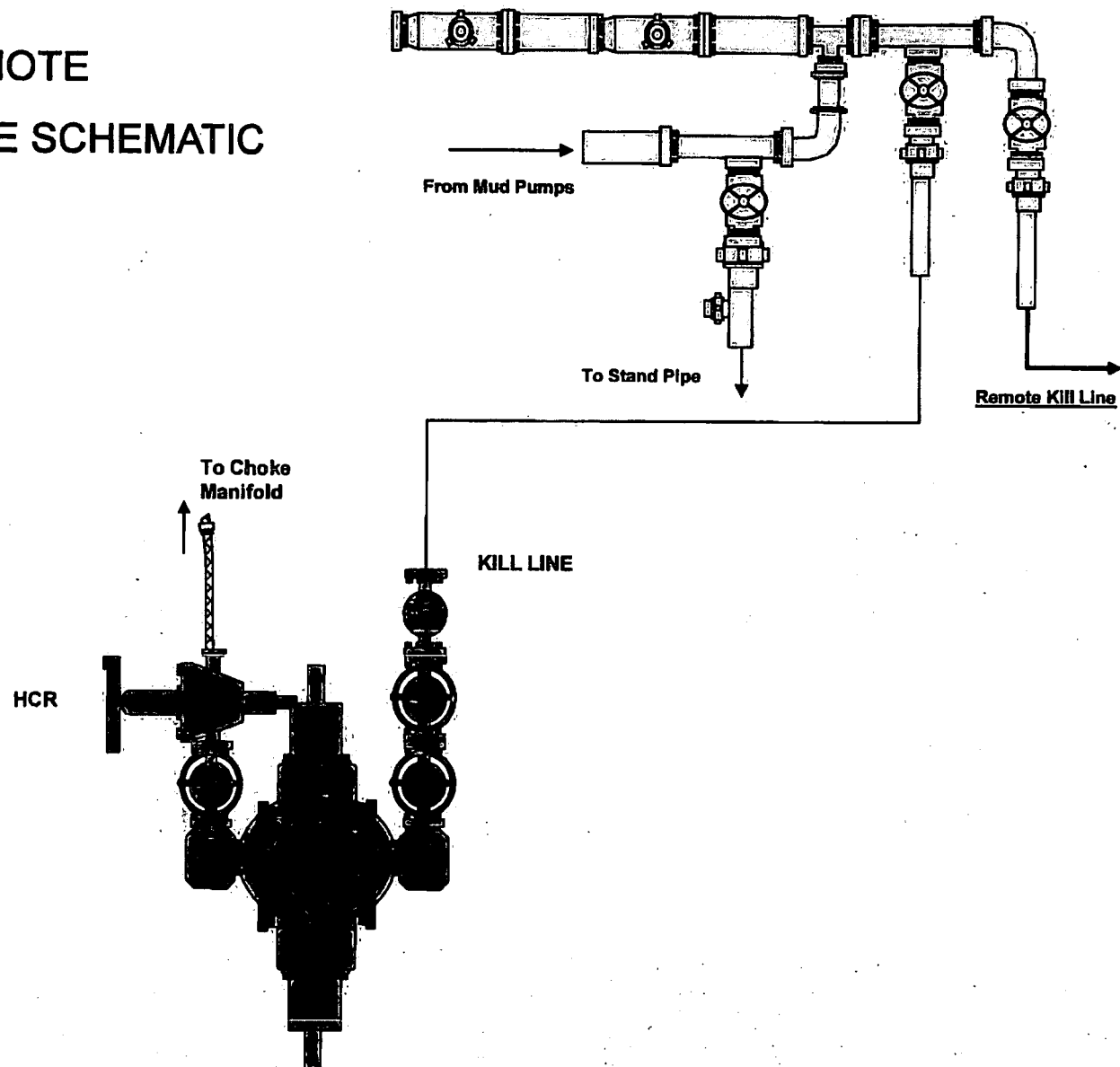
18. Choke Manifold Valve

21. Vertical Choke Manifold
Valve

***All Valves 3" minimum**



10M REMOTE KILL LINE SCHEMATIC



**Gas Separator Routing
Flex III Rigs**

Gas Separator. Gas Outlet is Connected to Flare Line (arrow on the left. 150' min flare line length.)

ed Loop System. It does not appear automatics to show the

MEETING/CHANGE HOUSE
40'-0"x10'-0"

RIG OFFICE TRAILER
40'-0"x10'-0"

MAST IN HORIZONTAL POSITION

END OF BOOM CLIDE

DRILLERS CABIN
BOOMER TRANSPORT SKID
HPU/Accumulator skid
TOOL BOX
PARTS HOUSE
80% TRANSPORT SKID
DRILLS SKID
DRILL LINE STORAGE SPOOL
CHOKES MANIFOLD
UTILITY BOOM
DRILL FLOOR
WATER TANK
36'-7 1/2"-0"
FLUORIDE PUMP
PUMP PARTS HOUSE
71'-0"x68'-0"
VARIABLE FREQUENCY DRIVE HOUSE
30'-0"x11'-0" GENERATOR HOUSE
30'-0"x11'-0" GENERATOR HOUSE
30'-0"x11'-0" GENERATOR HOUSE
35'-0"x68'-1 1/4" DIESEL TANK

Note: Closed Loop System placed here. It does not appear on the schematics to show the flare line.

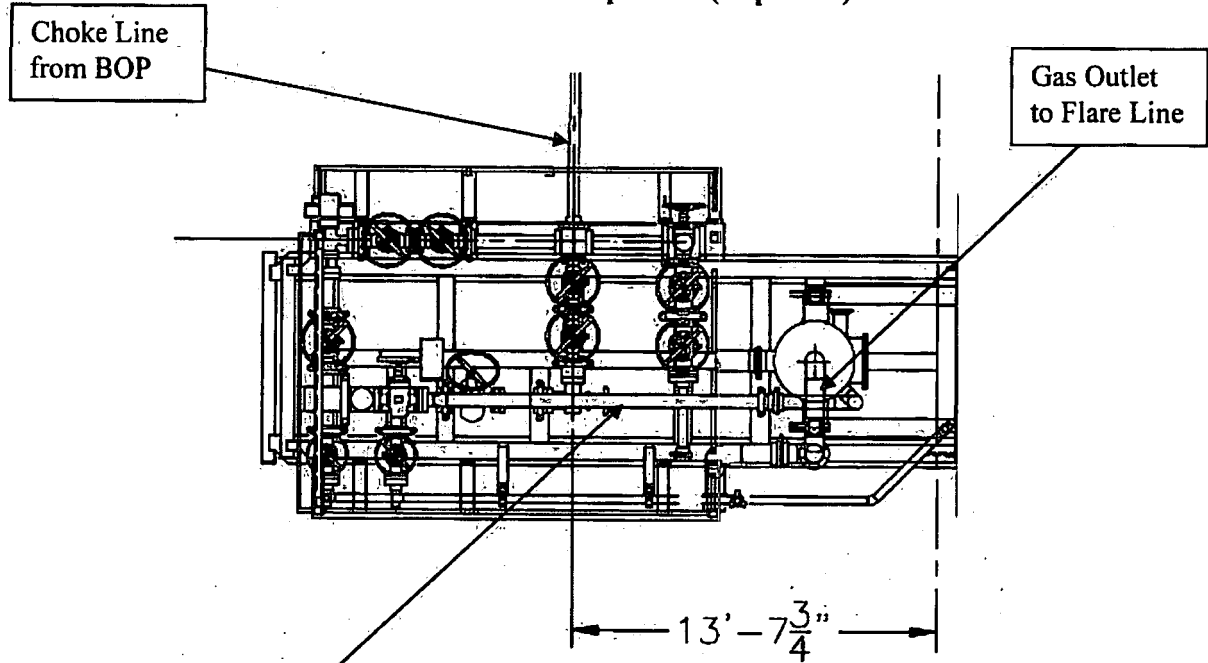
Gas Separator. Gas Outlet is Connected to Flare Line (arrow on the left. 150' min flare line length.)

40' = 0' x 10' = 0
RAG OFFICE TRAILER

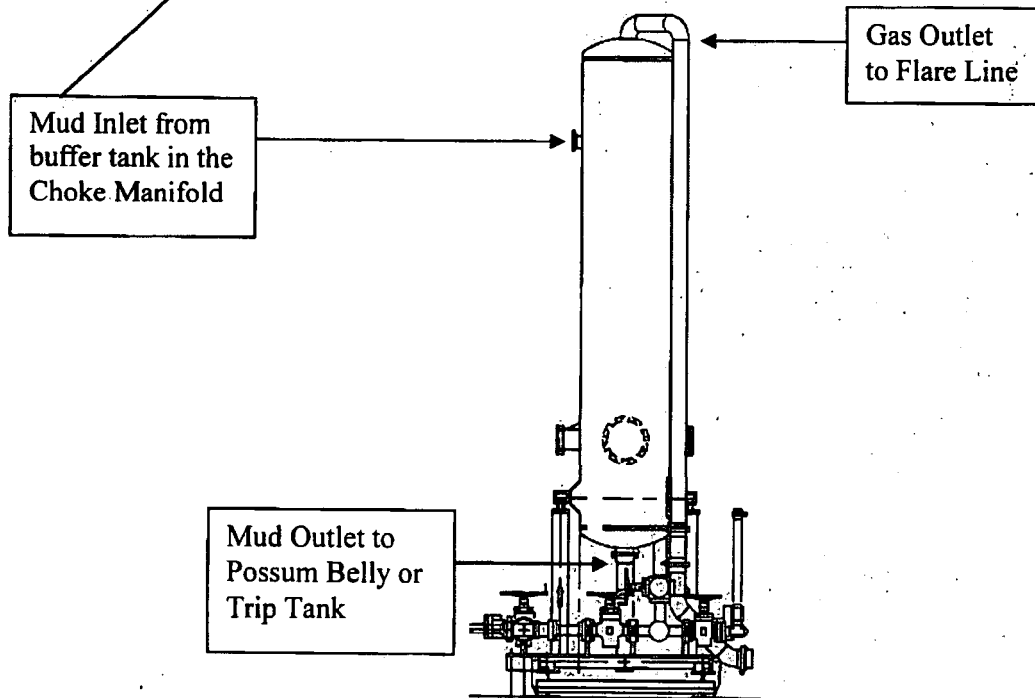
40'-0" x 10'-0"
MEETING/CHAIR HOUSE

MAST IN HORIZONTAL POSITION

Choke Manifold – Gas Separator (Top View)



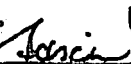
Choke Manifold – Gas Separator (Side View)



Coflex Hose Certification



Fluid Technology
Quality Document

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°: 746	
PURCHASER: Phoenix Beattie Co.				P.O. N°: 002491	
CONTITECH ORDER N°: 412638		HOSE TYPE: 3" ID Choke and Kill Hose			
HOSE SERIAL N°: 52777		NOMINAL / ACTUAL LENGTH: 10,67 m			
W.P. 68,96 MPa 10000 psi		T.P. 103,4 MPa 15000 psi		Duration: 60 ~ min.	
Pressure test with water at ambient temperature See attachment. (1 page) ↑ 10 mm = 10 Min. → 10 mm = 25 MPa					
COUPLINGS					
Type	Serial N°		Quality	Heat N°	
3" coupling with 4 1/16" Flange end	917	913	AISI 4130	T7898A	
			AISI 4130	26984	
INFOCHIP INSTALLED			API Spec 16 C Temperature rate: "B"		
All metal parts are flawless					
WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.					
Date: 04. April. 2008	Inspector		Quality Control  		

Coflex Hose Certification

Page: 1/1

Item No.	Part No.	Description	QTY	UNIT	ED	TX
1	1000	1000				
2	1000	1000				
3	1000	1000				
4	1000	1000				
5	1000	1000				
6	1000	1000				
7	1000	1000				
8	1000	1000				
9	1000	1000				
10	1000	1000				
11	1000	1000				
12	1000	1000				
13	1000	1000				
14	1000	1000				
15	1000	1000				

CONFLEX RUBBER
INDUSTRIAL KTY.
QUALITY CONTROL DEPT.
100

Coflex Hose Certification

◆ PHOENIX Beattie

Form No 100/12

Phoenix Beattie Corp

11536 Brittonmore Park Drive
Houston, TX 77041
Tel: (832) 327-0141
Fax: (832) 327-0148
E-mail: enrl@phoenixbeattie.com
www.phoenixbeattie.com

Delivery Note

Customer Order Number	370-369-001	Delivery Note Number	003078	Page	1
Customer / Invoice Address HELMERICH & PAYNE INT'L DRILLING CO 1437 SOUTH BOULDER TULSA, OK 74119		Delivery / Address HELMERICH & PAYNE IDC ATTN: JOE STEPHENSON - RIG 370 13609 INDUSTRIAL ROAD HOUSTON, TX 77015			

Customer Acc No	Phoenix Beattie Contract Manager	Phoenix Beattie Reference	Date
H01	JJL	006330	05/23/2008

Item No	Beattie Part Number / Description	Qty Ordered	Qty Sent	Qty To Follow
1	HP10CK3A-35-4F1 3" 10K 16C C&K HOSE x 35ft OAL CW 4.1/16" API SPEC FLANGE E/ End 1: 4.1/16" 10Kpsi API Spec 6A Type 6BX Flange End 2: 4.1/16" 10Kpsi API Spec 6A Type 6BX Flange c/w BX155 Standard ring groove at each end Suitable for H2S Service Working pressure: 10,000psi Test pressure: 15,000psi Standard: API 16C Full specification Armor Guarding: Included Fire Rating: Not Included Temperature rating: -20 Deg C to +100 Deg C	1	1	0
2	SECK3-HPF3 LIFTING & SAFETY EQUIPMENT TO SUIT HP10CK3-35-F1 2 x 160mm ID Safety Clamps 2 x 244mm ID Lifting Collars & element C's 2 x 7ft Stainless Steel wire rope 3/4" OD 4 x 7.75t Shackles	1	1	0
3	SC725-200CS SAFETY CLAMP 200MM 7.25T C/S GALVANISED	1	1	0

Continued...

All goods remain the property of Phoenix Beattie until paid for in full. Any damage or shortage on this delivery must be advised within 5 days. Returns may be subject to a handling charge.

Coflex Hose Certification

Form No 100/12



Phoenix Beattie Corp

11535 Brittmoore Park Drive
Houston, TX 77041
Tel: (832) 327-0141
Fax: (832) 327-0143
E-mail: mail@phoenixbeattie.com
www.phoenixbeattie.com

Delivery Note

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H01	JJL	006330	05/23/2008

Item No	Beattie Part Number / Description	Qty Ordered	Qty Sent	Qty To Follow
4	SC725-132CS SAFETY CLAMP 132MM 7.25T C/S GALVANIZED C/W BOLTS	1	1	0
5	DOCERT-HYDRO HYDROSTATIC PRESSURE TEST CERTIFICATE	1	1	0
6	DOCERT-LOAD LOAD TEST CERTIFICATES	1	1	0
7	DOFREIGHT INBOUND / OUTBOUND FREIGHT PRE-PAY & ADD TO FINAL INVOICE NOTE: MATERIAL MUST BE ACCOMPANIED BY PAPERWORK INCLUDING THE PURCHASE ORDER, RIG NUMBER TO ENSURE PROPER PAYMENT	1	1	0

Phoenix Beattie Inspection Signature :

Received In Good Condition : Signature

Print Name

Date

All goods remain the property of Phoenix Beattie until paid for in full. Any damage or shortage on this delivery must be advised within 6 days.
Returns may be subject to a handling charge.



Coffex Hose Certification

03/23/08.

CERTIFICATE OF CONFORMITY

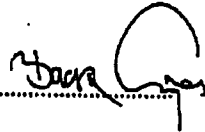
Supplier : CONTITECH RUBBER INDUSTRIAL KFT.
Equipment : 6 pcs. Choke and Kill Hose with installed couplings
Type : 3" x 10,67 m WP: 10000 psi
Supplier File Number : 412638
Date of Shipment : April. 2008
Customer : Phoenix Beattie Co.
Customer P.o. : 002491
Referenced Standards
/ Codes / Specifications : API Spec 16 C
Serial No.: 52754,52755,52776,52777,52778,52782

STATEMENT OF CONFORMITY

We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes and specifications and meet the relevant acceptance criteria and design requirements.

COUNTRY OF ORIGIN HUNGARY/EU

Signed :



ContiTech Rubber
Industrial Kft.
Quality Control Dept.
(2)

Position: Q.C. Manager

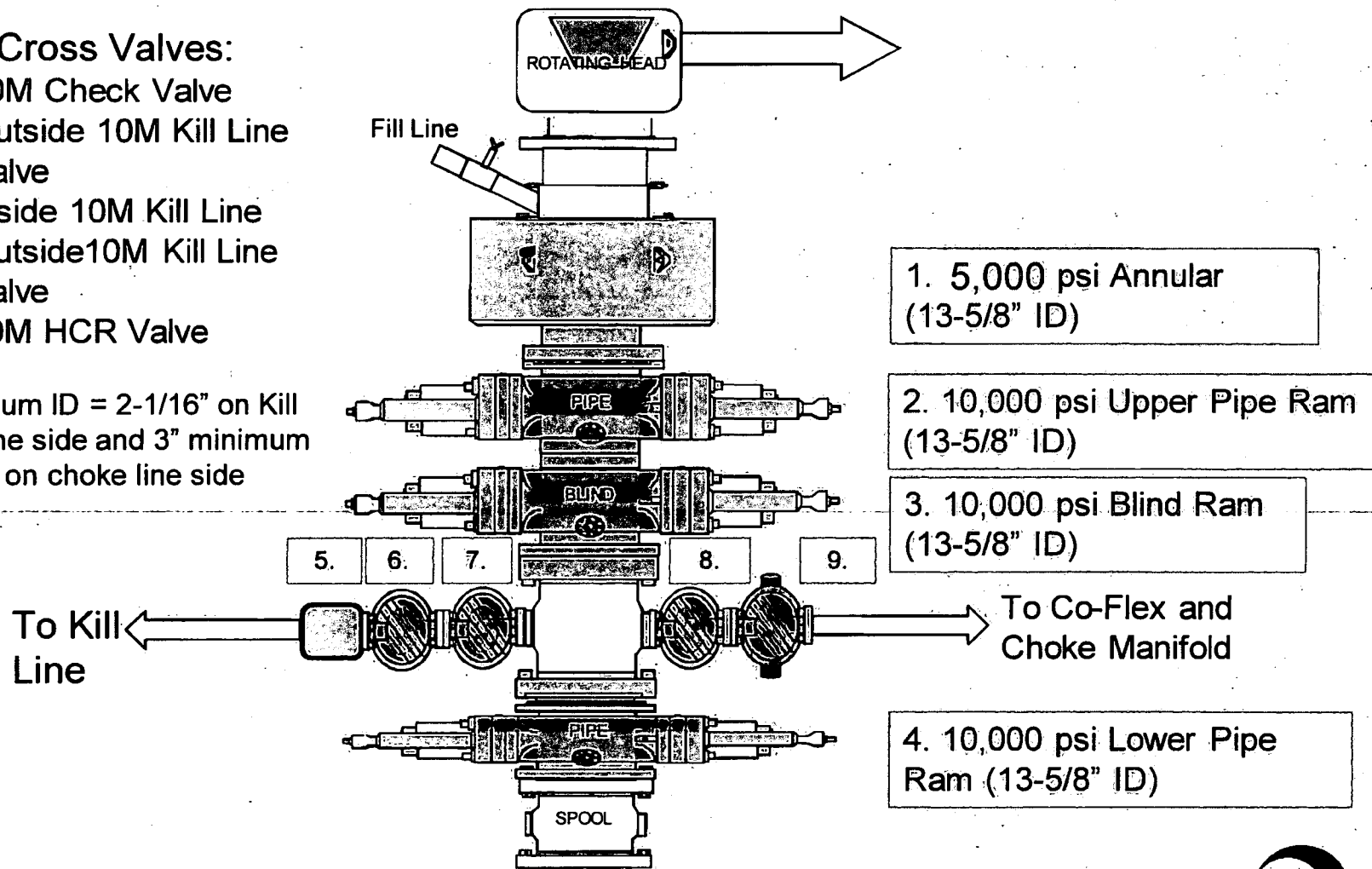
Date: 04. April. 2008

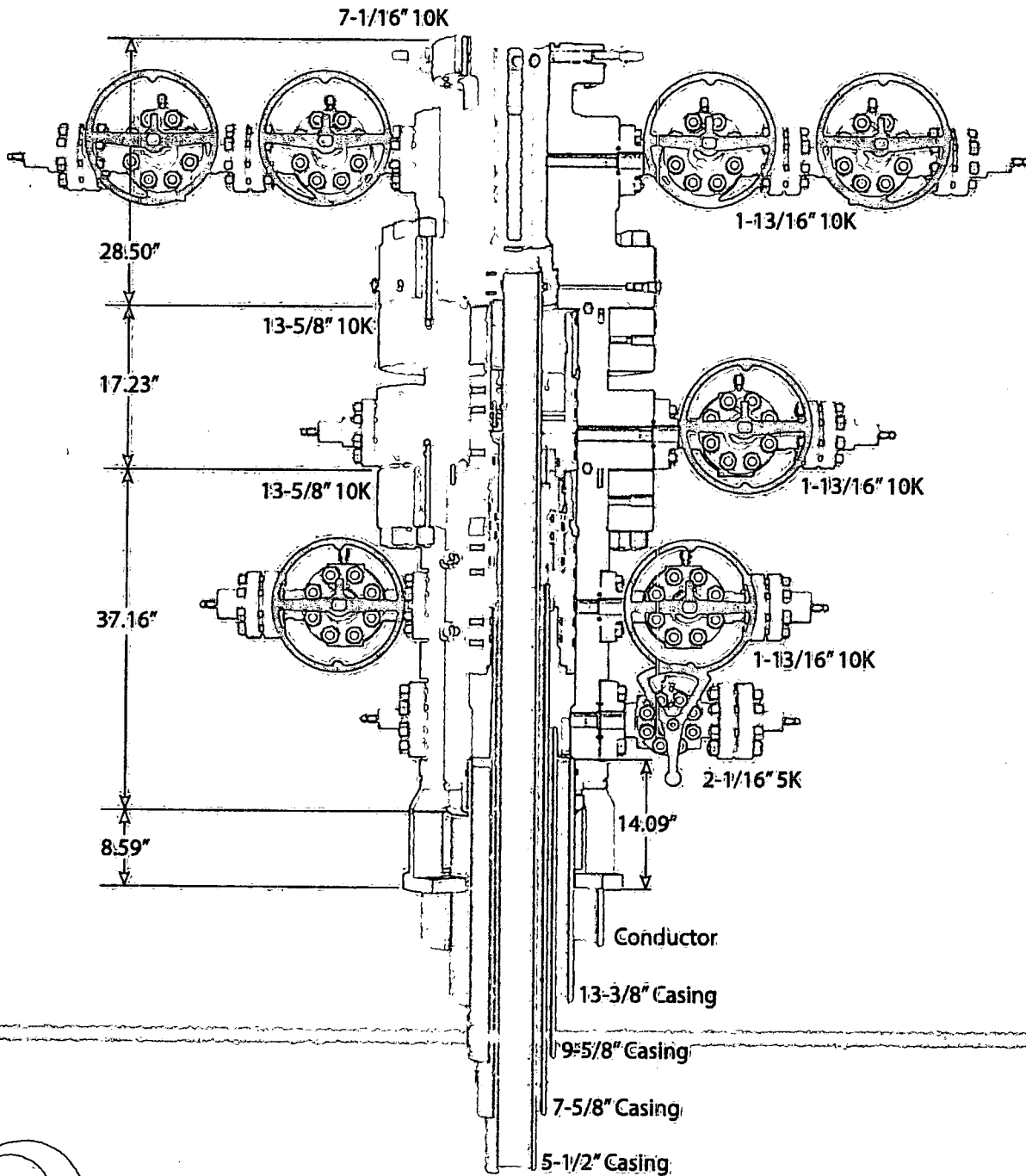
5/10M BOP Stack

Mud Cross Valves:

5. 10M Check Valve
6. Outside 10M Kill Line Valve
7. Inside 10M Kill Line Valve
8. Outside 10M Kill Line Valve
9. 10M HCR Valve

*Minimum ID = 2-1/16" on Kill Line side and 3" minimum ID on choke line side





OXY's Minimum Design Criteria

Burst, Collapse, and Tensile SF are calculated using Landmark's Stress Check (Casing Design) software. A sundry will be requested if any lesser grade or different size casing is substituted.

1) Casing Design Assumptions

a) Burst Loads

CSG Test (Surface)

- Internal: Displacement fluid + pressure required to comply with regulatory casing test pressures. This will comply with both Onshore Oil and Gas Order No. 2 and 19.15.16 of the OCD Rules.
- External: Pore pressure in open hole.

CSG Test (Intermediate)

- Internal: Displacement fluid + pressure required to comply with regulatory casing test pressures. This will comply with both Onshore Oil and Gas Order No. 2 and 19.15.16 of the OCD Rules.
- External: Mud Weight to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

CSG Test (Production)

- Internal:
 - For Drilling: Displacement fluid + pressure required to comply with regulatory casing test pressures. This will comply with both Onshore Oil and Gas Order No. 2 and 19.15.16 of the OCD Rules.
 - For Production: The design pressure test should be the greater of (1) the planned test pressure prior to stimulation down the casing, (2) the regulatory test pressure, and (3) the expected gas lift system pressure. The design test fluid should be the fluid associated with pressure test having the greatest pressure.
- External:
 - For Drilling: Mud Weight to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.
 - For Production: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

Gas Column (Surface)

- Internal: Assumes a full column of gas in the casing with a Gas/Oil Gradient of 0.1 psi/ft in the absence of better information. It is limited to the controlling pressure based on the fracture pressure at the shoe or the maximum expected pore pressure within the next drilling interval, whichever results in a lower surface pressure.
- External: Fluid gradient below TOC, pore pressure from the TOC to the Intermediate CSG shoe (if applicable), and MW of the drilling mud that was in the hole when the CSG was run from Intermediate CSG shoe to surface.

Bullheading (Surface / Intermediate)

- Internal: The string must be designed to withstand a pressure profile based on the fracture pressure at the casing shoe with a column of water above the shoe plus an additional surface pressure (in psi) of $0.02 \times MD$ of the shoe to account for pumping friction pressure.
- External: Mud weight to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

Gas Kick (Intermediate)

- The string must be designed to at least a gas kick load case unless the rig is unable to detect a kick. For the gas kick load case, the internal pressure profile must be based on a minimum volume of 50 bbl or the minimum kick detection capability of the rig, whichever is greater, and a kick intensity of 2.0 ppg for Class 1, 1.0 ppg of Class 2, and 0.5 ppg for Class 3 and 4 wells.
- Internal: Influx depth of the maximum pore pressure of 0.55 "gas kick gravity" of gas to surface while drilling the next hole section.
- External: Mud weight to the TOC, cement mix water gradient below TOC, and pore pressure in open hole.

Tubing Leak Near Surface While Producing (Production)

- Internal: SITP plus a packer fluid gradient to the shoe or top of packer.
- External: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

Tubing Leak Near Surface While Stimulating (Production)

- Internal: Surface pressure or pressure-relief system pressure, whichever is lower plus packer fluid gradient.
- External: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

Injection / Stimulation Down Casing (Production)

- Internal: Surface pressure plus injection fluid gradient.
- External: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

b) Collapse Loads

Lost Circulation (Surface / Intermediate)

- Internal: Lost circulation at the TD of the next hole section, and the fluid level falls to a depth where the hydrostatic of the mud equals pore pressure at the depth of the lost circulation zone.
- External: MW of the drilling mud that was in the hole when the casing was run.

Cementing (Surface / Intermediate / Production)

- Internal: Displacement fluid density.
- External: Mud weight from TOC to surface and cement slurry weight from TOC to casing shoe.

Full Evacuation (Production)

- Internal: Full void pipe.
- External: MW of drilling mud in the hole when the casing was run.

c) Tension Loads

Running Casing (Surface / Intermediate / Production)

- Axial: Buoyant weight of the string plus the lesser of 100,000 lb or the string weight in air.

Green Cement (Surface / Intermediate / Production)

- Axial: Buoyant weight of the string plus cement plug bump pressure load.

TECHNICAL DATA SHEET TMK UP FJ 7.625 X 26.4 L80 HC

TUBULAR PARAMETERS

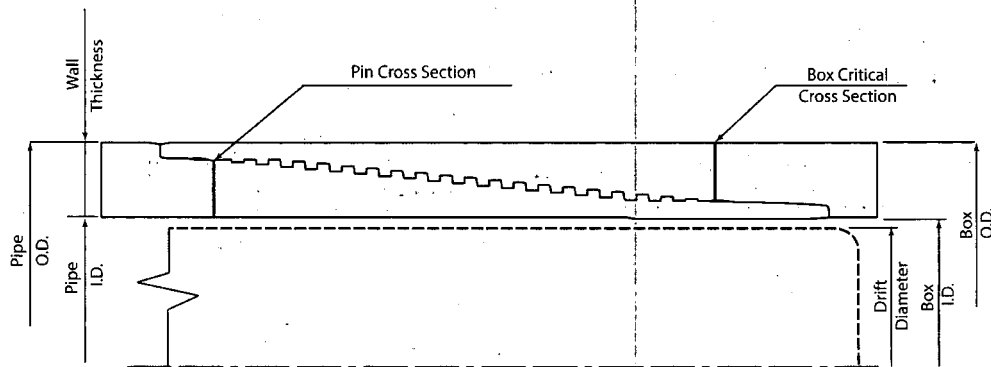
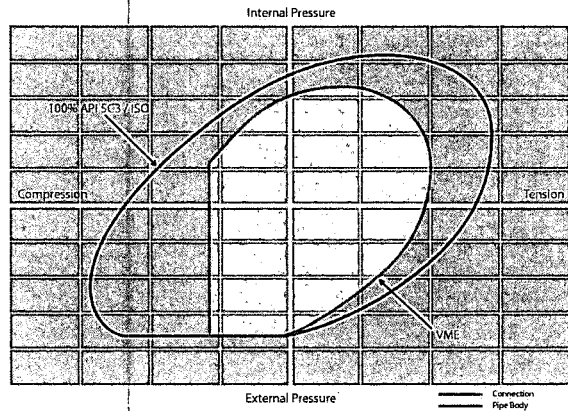
Nominal OD, (inch)	7.625
Wall Thickness, (inch)	0.328
Pipe Grade	L80 HC
Drift	Standard
Connection OD (inch)	7.63
Connection ID, (inch)	6.975
Make-Up Loss, (inch)	4.165
Connection Critical Area, (sq inch)	2.520
Yield Strength in Tension, (klbs)	347
Yield Strength in Compression, (klbs)	347
Tension Efficiency	58%
Compression Efficiency	58%
Min. Internal Yield Pressure, (psi)	6 020
Collapse Pressure, (psi)	3 910
Uniaxial Bending (deg/100ft)	28.0

MAKE-UP TORQUES

Yield Torque, (ft-lb)	22 200
Minimum Make-Up Torque, (ft-lb)	12 500
Optimum Make-Up Torque, (ft-lb)	13 900
Maximum Make-Up Torque, (ft-lb)	15 300

PIPE BODY PROPERTIES

PE Weight, (lbs/ft)	25.56
Nominal Weight, (lbs/ft)	26.40
Nominal ID, (inch)	6.969
Drift Diameter, (inch)	6.844
Nominal Pipe Body Area, (sq inch)	7.519
Yield Strength in Tension, (klbs)	601
Min. Internal Yield Pressure, (psi)	6 020
Collapse Pressure, (psi)	3 910



NOTE: The content of this Technical Data Sheet is for general information only and does not guarantee performance or imply fitness for a particular purpose, which only a competent drilling professional can determine considering the specific installation and operation parameters. This information supersedes all prior versions for this connection. Information that is printed or downloaded is no longer controlled by TMK and might not be the latest information. Anyone using the information herein does so at their own risk. To verify that you have the latest technical information, please contact PAO "TMK" Technical Sales in Russia (Tel: +7 (495) 775-76-00, Email: techsales@tmk-group.com) and TMK IPSCO in North America (Tel: +1 (281)949-1044, Email: techsales@tmk-ipsco.com).

Print date: 07/10/2018 20:11

TECHNICAL DATA SHEET TMK UP SF 7.625 X 26.4 L80 HC

TUBULAR PARAMETERS

Nominal OD, (inch)	7.625
Wall Thickness, (inch)	0.328
Pipe Grade	L80 HC
Drift	Standard

PIPE BODY PROPERTIES

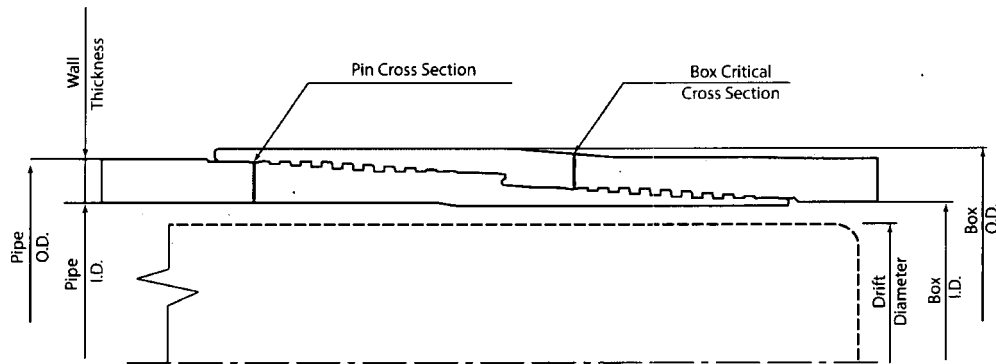
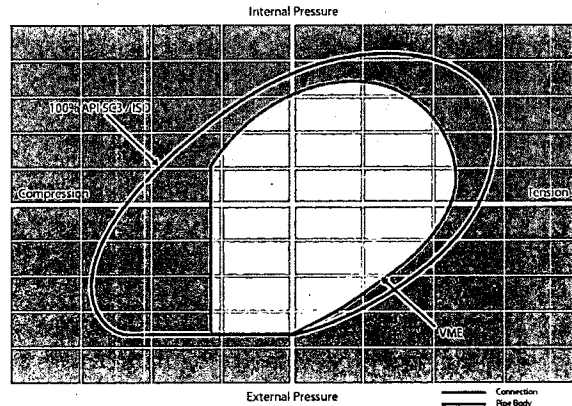
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Collapse Pressure, (psi)	3 910

CONNECTION PARAMETERS

Connection OD (inch)	7.79
Connection ID, (inch)	6.938
Make-Up Loss, (inch)	6.029
Connection Critical Area, (sq inch)	5.948
Yield Strength in Tension, (klbs)	533
Yield Strength in Compression, (klbs)	533
Tension Efficiency	89%
Compression Efficiency	89%
Min. Internal Yield Pressure, (psi)	6 020
Collapse Pressure, (psi)	3 910
Uniaxial Bending (deg/100ft)	42.7

MAKE-UP TORQUES

Yield Torque, (ft-lb)	22 600
Minimum Make-Up Torque, (ft-lb)	15 000
Optimum Make-Up Torque, (ft-lb)	16 500
Maximum Make-Up Torque, (ft-lb)	18 200



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Print date: 07/10/2018 20:00

OXY's Minimum Design Criteria

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- Internal:
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 - For Production: The design pressure test should be the greater of (1) the planned test pressure prior to stimulation down the casing. (2) the regulatory test pressure, and (3) the expected gas lift system pressure. The design test fluid should be the fluid associated with pressure test having the greatest pressure.
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- Internal: Assumes a full column of gas in the casing with a Gas/Oil Gradient of 0.1 psi/ft in the absence of better information. It is limited to the controlling pressure based on the fracture pressure at the shoe or the maximum expected pore pressure within the next drilling interval, whichever results in a lower surface pressure.
- External: Fluid gradient below TOC, pore pressure from the TOC to the Intermediate CSG shoe (if applicable), and MW of the drilling mud that was in the hole when the CSG was run from Intermediate CSG shoe to surface

Bullheading (Surface / Intermediate)

- Internal: The string must be designed to withstand a pressure profile based on the fracture pressure at the casing shoe with a column of water above the shoe plus an additional surface pressure (in psi) of $0.02 \times MD$ of the shoe to account for pumping friction pressure.
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- Internal: Displacement fluid density.
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- Axial: Buoyant weight of the string plus the lesser of 100,000 lb or the string weight in air.

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- Axial: Buoyant weight of the string plus cement plug bump pressure load.

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Injection / Stimulation Down Casing (Production)

- Internal: Surface pressure plus injection fluid gradient.
- External: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

b) Collapse Loads

Lost Circulation (Surface / Intermediate)

- Internal: Lost circulation at the TD of the next hole section, and the fluid level falls to a depth where the hydrostatic of the mud equals pore pressure at the depth of the lost circulation zone.
- External: MW of the drilling mud that was in the hole when the casing was run.

Cementing (Surface / Intermediate / Production)

- Internal: Displacement fluid density.
- External: Mud weight from TOC to surface and cement slurry weight from TOC to casing shoe.

Full Evacuation (Production)

- Internal: Full void pipe.
- External: MW of drilling mud in the hole when the casing was run.

c) Tension Loads

Running Casing (Surface / Intermediate / Production)

- Axial: Buoyant weight of the string plus the lesser of 100,000 lb or the string weight in air.

Green Cement (Surface / Intermediate / Production)

- Axial: Buoyant weight of the string plus cement plug bump pressure load.

PERFORMANCE DATA

TMK UP DQX
Technical Data Sheet

5.500 in

20.00 lbs/ft

P-110

Tubular Parameters

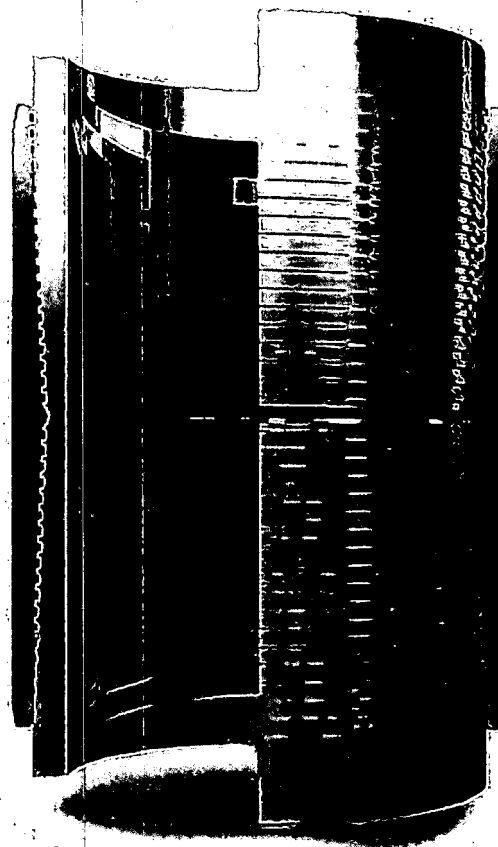
Size	5.500	in	Minimum Yield	110,000	psi
Nominal Weight	20.00	lbs/ft	Minimum Tensile	125,000	psi
Grade	P-110		Yield Load	641,000	lbs
PE Weight	19.81	lbs/ft	Tensile Load	729,000	lbs
Wall Thickness	0.361	in	Min. Internal Yield Pressure	12,600	psi
Nominal ID	4.778	in	Collapse Pressure	11,100	psi
Drift Diameter	4.653	in			
Nom. Pipe Body Area	5.828	in ²			

Connection Parameters

Connection OD	6.050	in
Connection ID	4.778	in
Make-Up Loss	4.122	in
Critical Section Area	5.828	in ²
Tension Efficiency	100.0	%
Compression Efficiency	100.0	%
Yield Load In Tension	641,000	lbs
Min. Internal Yield Pressure	12,600	psi
Collapse Pressure	11,100	psi

Make-Up Torques

Min. Make-Up Torque	11,600	ft-lbs
Opt. Make-Up Torque	12,900	ft-lbs
Max. Make-Up Torque	14,100	ft-lbs
Yield Torque	20,600	ft-lbs



Printed on: July-29-2014

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TECHNICAL DATA SHEET TMK UP DQX 5.5 X 20 P110

TUBULAR PARAMETERS

Nominal OD, (inch)	5.500
Wall Thickness, (inch)	0.361
Pipe Grade	P110
Coupling	Regular
Coupling Grade	P110
Drift	Standard

PIPE BODY PROPERTIES

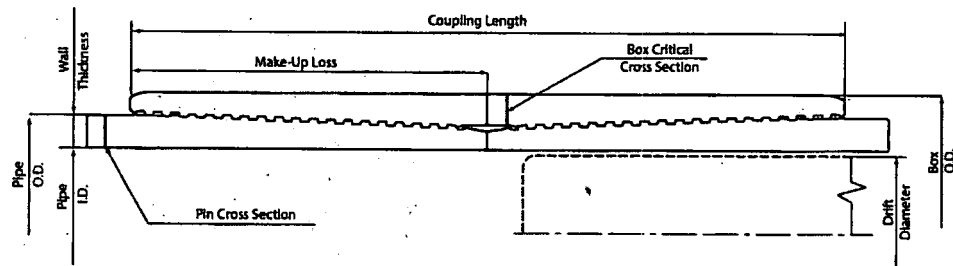
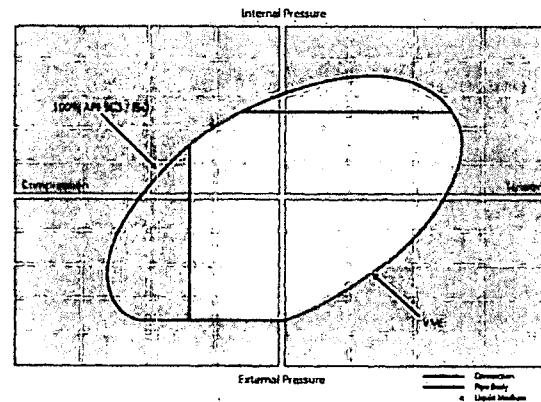
PE Weight, (lbs/ft)	19.81
Nominal Weight, (lbs/ft)	20.00
Nominal ID, (inch)	4.778
Drift Diameter, (inch)	4.653
Nominal Pipe Body Area, (sq inch)	5.828
Yield Strength in Tension, (kbs)	641
Min. Internal Yield Pressure, (psi)	12 640
Collapse Pressure, (psi)	11 110

CONNECTION PARAMETERS

Connection OD (inch)	6.05
Connection ID, (inch)	4.778
Make-Up Loss, (inch)	4.122
Connection Critical Area, (sq inch)	5.828
Yield Strength in Tension, (kbs)	641
Yield Strength in Compression, (kbs)	641
Tension Efficiency	100%
Compression Efficiency	100%
Min. Internal Yield Pressure, (psi)	12 640
Collapse Pressure, (psi)	11 110
Uniaxial Bending (deg/100ft)	91.7

MAKE-UP TORQUES

Yield Torque, (ft-lb)	20 600
Minimum Make-Up Torque, (ft-lb)	11 600
Optimum Make-Up Torque, (ft-lb)	12 900
Maximum Make-Up Torque, (ft-lb)	14 100



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Print date: 12/07/2017 18:09

PERFORMANCE DATA

TMK UP SF TORQ™
Technical Data Sheet

5.500 in

20.00 lbs/ft

P110 HC

Tubular Parameters

Size	5.500	in	Minimum Yield	110,000	psi
Nominal Weight	20.00	lbs/ft	Minimum Tensile	125,000	psi
Grade	P110 HC		Yield Load	641,000	lbs
PE Weight	19.81	lbs/ft	Tensile Load	728,000	lbs
Wall Thickness	0.361	in	Min. Internal Yield Pressure	12,640	psi
Nominal ID	4.778	in	Collapse Pressure	12,780	psi
Drift Diameter	4.653	in			
Nom. Pipe Body Area	5.828	in ²			

Connection Parameters

Connection OD	5.777	in
Connection ID	4.734	in
Make-Up Loss	5.823	in
Critical Section Area	5.875	in ²
Tension Efficiency	90.0	%
Compression Efficiency	90.0	%
Yield Load In Tension	576,000	lbs
Min. Internal Yield Pressure	12,640	psi
Collapse Pressure	12,780	psi
Uniaxial Bending	83	° / 100 ft

Make-Up Torques

Min. Make-Up Torque	15,700	ft-lbs
Opt. Make-Up Torque	19,600	ft-lbs
Max. Make-Up Torque	21,600	ft-lbs
Operating Torque	29,000	ft-lbs
Yield Torque	36,000	ft-lbs

Printed on: February-22-2018

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PERFORMANCE DATA

TMK UP TORQ™ DQW

5.500 in

20.00 lbs/ft

P110 CY

Technical Data Sheet

Tubular Parameters

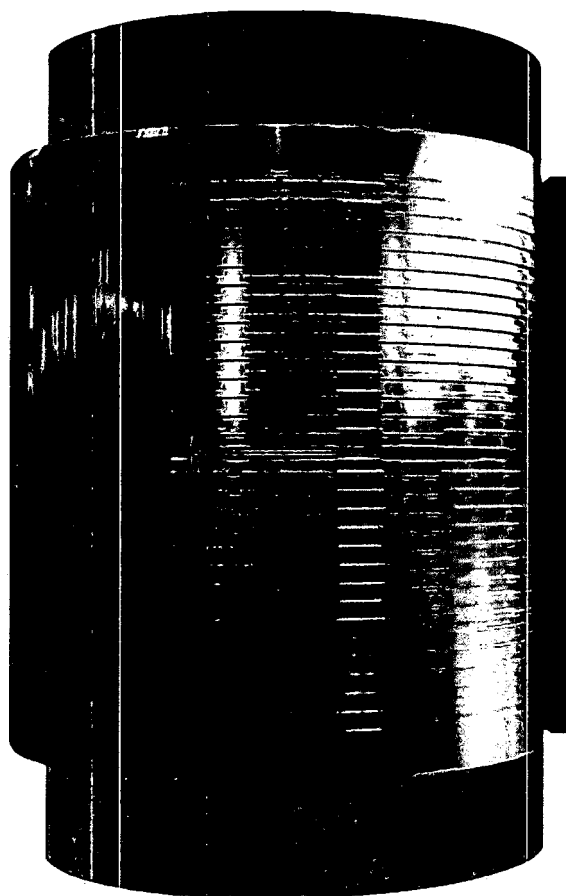
Size	5.500	in	Minimum Yield	110,000	psi
Nominal Weight	20.00	lbs/ft	Minimum Tensile	125,000	psi
Grade	P110 CY		Yield Load	641,000	lbs
PE Weight	19.81	lbs/ft	Tensile Load	729,000	lbs
Wall Thickness	0.361	in	Min. Internal Yield Pressure	12,640	psi
Nominal ID	4.778	in	Collapse Pressure	11,110	psi
Drift Diameter	4.653	in			
Nom. Pipe Body Area	5.828	in ²			

Connection Parameters

Connection OD	6.050	in
Connection ID	4.778	in
Make-Up Loss	4.324	in
Critical Section Area	5.828	in ²
Tension Efficiency	100.0	%
Compression Efficiency	100.0	%
Yield Load In Tension	641,000	lbs
Min. Internal Yield Pressure	12,640	psi
Collapse Pressure	11,110	psi
Uniaxial Bending	92	° / 100 ft

Make-Up Torques

Min. Make-Up Torque	14,000	ft-lbs
Opt. Make-Up Torque	16,000	ft-lbs
Max. Make-Up Torque	18,000	ft-lbs
Operating Torque	36,800	ft-lbs
Yield Torque	46,000	ft-lbs



Printed on: March-05-2019

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OXY's Minimum Design Criteria

Burst, Collapse, and Tensile SF are calculated using Landmark's Stress Check (Casing Design) software. A sundry will be requested if any lesser grade or different size casing is substituted.

1) Casing Design Assumptions

a) Burst Loads

CSG Test (Surface)

- Internal: Displacement fluid + pressure required to comply with regulatory casing test pressures. This will comply with both Onshore Oil and Gas Order No. 2 and 19.15.16 of the OCD Rules.
- External: Pore pressure in open hole.

CSG Test (Intermediate)

- Internal: Displacement fluid + pressure required to comply with regulatory casing test pressures. This will comply with both Onshore Oil and Gas Order No. 2 and 19.15.16 of the OCD Rules.
- External: Mud Weight to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

CSG Test (Production)

- Internal:
 - For Drilling: Displacement fluid + pressure required to comply with regulatory casing test pressures. This will comply with both Onshore Oil and Gas Order No. 2 and 19.15.16 of the OCD Rules.
 - For Production: The design pressure test should be the greater of (1) the planned test pressure prior to stimulation down the casing, (2) the regulatory test pressure, and (3) the expected gas lift system pressure. The design test fluid should be the fluid associated with pressure test having the greatest pressure.
- External:
 - For Drilling: Mud Weight to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.
 - For Production: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

Gas Column (Surface)

- Internal: Assumes a full column of gas in the casing with a Gas/Oil Gradient of 0.1 psi/ft in the absence of better information. It is limited to the controlling pressure based on the fracture pressure at the shoe or the maximum expected pore pressure within the next drilling interval, whichever results in a lower surface pressure.
- External: Fluid gradient below TOC, pore pressure from the TOC to the Intermediate CSG shoe (if applicable), and MW of the drilling mud that was in the hole when the CSG was run from Intermediate CSG shoe to surface.

Bullheading (Surface / Intermediate)

- Internal: The string must be designed to withstand a pressure profile based on the fracture pressure at the casing shoe with a column of water above the shoe plus an additional surface pressure (in psi) of $0.02 \times MD$ of the shoe to account for pumping friction pressure.
- External: Mud weight to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

Gas Kick (Intermediate)

- The string must be designed to at least a gas kick load case unless the rig is unable to detect a kick. For the gas kick load case, the internal pressure profile must be based on a minimum volume of 50 bbl or the minimum kick detection capability of the rig, whichever is greater, and a kick intensity of 2.0 ppg for Class 1, 1.0 ppg of Class 2, and 0.5 ppg for Class 3 and 4 wells.
- Internal: Influx depth of the maximum pore pressure of 0.55 "gas kick gravity" of gas to surface while drilling the next hole section.
- External: Mud weight to the TOC, cement mix water gradient below TOC, and pore pressure in open hole.

Tubing Leak Near Surface While Producing (Production)

- Internal: SITP plus a packer fluid gradient to the shoe or top of packer.
- External: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

Tubing Leak Near Surface While Stimulating (Production)

- Internal: Surface pressure or pressure-relief system pressure, whichever is lower plus packer fluid gradient.
- External: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

Injection / Stimulation Down Casing (Production)

- Internal: Surface pressure plus injection fluid gradient.
- External: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

b) Collapse Loads

Lost Circulation (Surface / Intermediate)

- Internal: Lost circulation at the TD of the next hole section, and the fluid level falls to a depth where the hydrostatic of the mud equals pore pressure at the depth of the lost circulation zone.
- External: MW of the drilling mud that was in the hole when the casing was run.

Cementing (Surface / Intermediate / Production)

- Internal: Displacement fluid density.
- External: Mud weight from TOC to surface and cement slurry weight from TOC to casing shoe.

Full Evacuation (Production)

- Internal: Full void pipe.
- External: MW of drilling mud in the hole when the casing was run.

c) Tension Loads

Running Casing (Surface / Intermediate / Production)

- Axial: Buoyant weight of the string plus the lesser of 100,000 lb or the string weight in air.

Green Cement (Surface / Intermediate / Production)

- Axial: Buoyant weight of the string plus cement plug bump pressure load.

PERFORMANCE DATA

TMK UP ULTRA™ DQX
Technical Data Sheet

4.500 in

13.50 lbs/ft

P-110

Tubular Parameters

Size	4.500	in	Minimum Yield	110,000	psi
Nominal Weight	13.50	lbs/ft	Minimum Tensile	125,000	psi
Grade	P-110		Yield Load	422,000	lbs
PE Weight	13.04	lbs/ft	Tensile Load	479,000	lbs
Wall Thickness	0.290	in	Min. Internal Yield Pressure	12,400	psi
Nominal ID	3.920	in	Collapse Pressure	10,700	psi
Drift Diameter	3.795	in			
Nom. Pipe Body Area	3.836	in ²			

Connection Parameters

Connection OD	5.000	in
Connection ID	3.920	in
Make-Up Loss	3.772	in
Critical Section Area	3.836	in ²
Tension Efficiency	100.0	%
Compression Efficiency	100.0	%
Yield Load In Tension	422,000	lbs
Min. Internal Yield Pressure	12,400	psi
Collapse Pressure	10,700	psi
Uniaxial Bending	112	°/ 100 ft

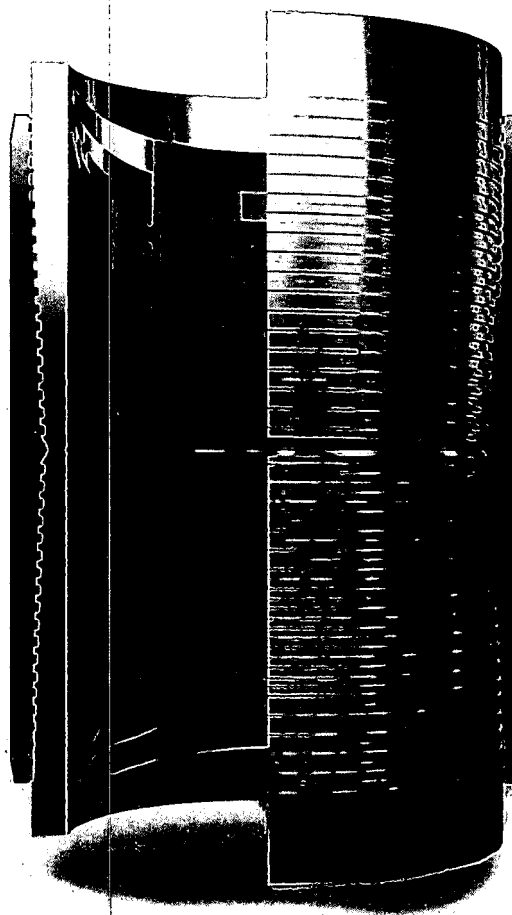
Make-Up Torques

Min. Make-Up Torque	6,000	ft-lbs
Opt. Make-Up Torque	6,700	ft-lbs
Max. Make-Up Torque	7,300	ft-lbs
Yield Torque	10,800	ft-lbs

Printed on: October-22-2014

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Permian Drilling Hydrogen Sulfide Drilling Operations Plan Arkenstone 31 Federal 4H

Open drill site. No homes or buildings are near the proposed location.

1. Escape

Personnel shall escape upwind of wellbore in the event of an emergency gas release. Escape can take place through the lease road on the Southeast side of the location. Personnel need to move to a safe distance and block the entrance to location. If the primary route is not an option due to the wind direction, then a secondary egress route should be taken.

▲ H2S Detectors. At least three detectors will be installed: bell nipple, rig floor and Shakers.

● Briefing Areas. At least two briefing areas will be placed, 90 deg off.

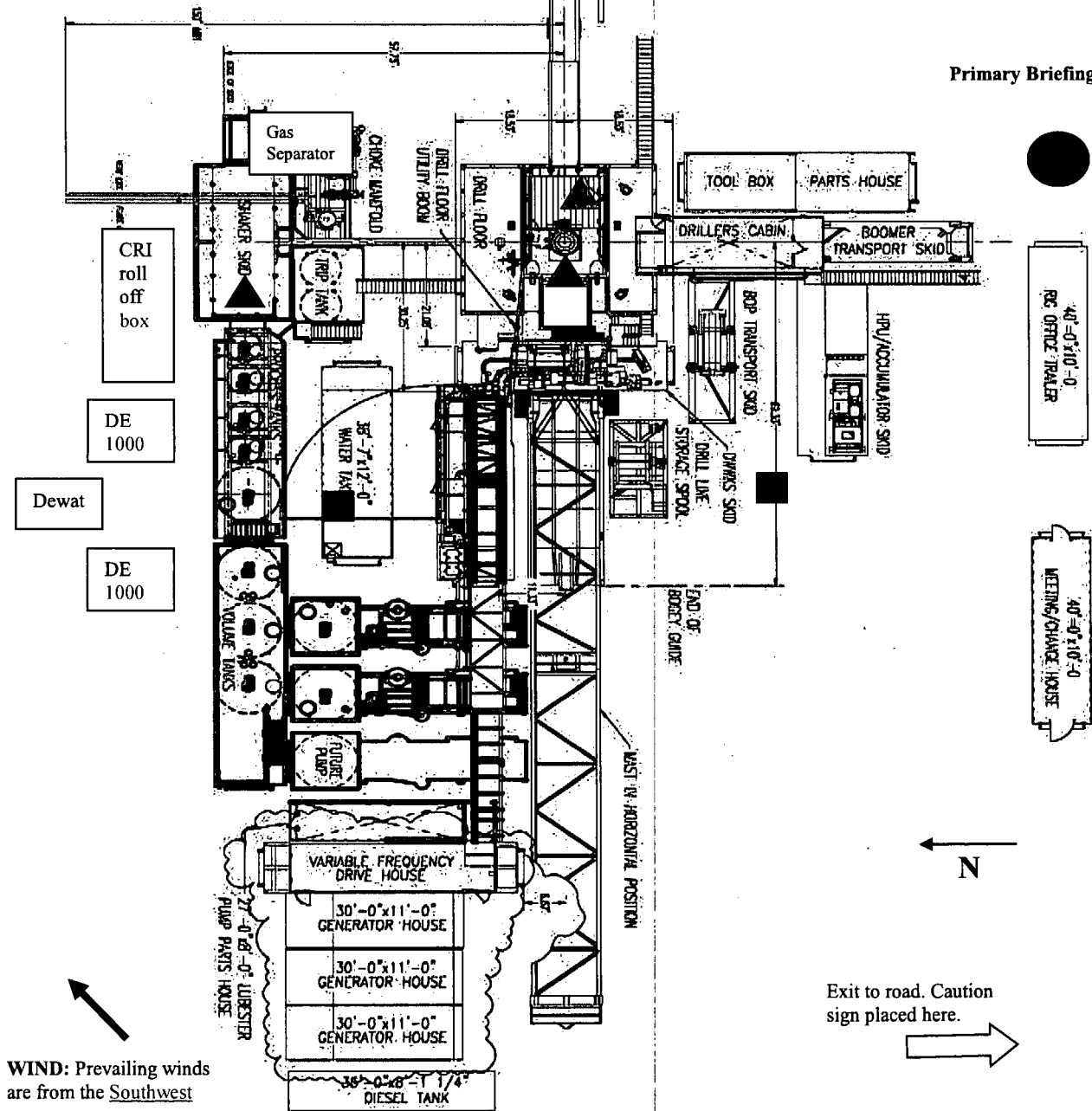
■ Wind direction indicators. Visible from rig floor and from the mud pits area.

A gas buster is connected to both the choke manifold and flowline outlets.

Secondary Briefing Area

Secondary Egress

Primary Briefing Area



Exit to road. Caution sign placed here.



Permian Drilling Hydrogen Sulfide Drilling Operations Plan New Mexico

Scope

This contingency plan establishes guidelines for the public, all company employees, and contract employees who's work activities may involve exposure to hydrogen sulfide (H₂S) gas.

While drilling this well, it is possible to encounter H₂S bearing formations. At all times, the first barrier to control H₂S emissions will be the drilling fluid, which will have a density high enough to control influx.

Objective

1. Provide an immediate and predetermined response plan to any condition when H₂S is detected. All H₂S detections in excess of 10 parts per million (ppm) concentration are considered an Emergency.
2. Prevent any and all accidents, and prevent the uncontrolled release of hydrogen sulfide into the atmosphere.
3. Provide proper evacuation procedures to cope with emergencies.
4. Provide immediate and adequate medical attention should an injury occur.

Discussion

Implementation:	This plan with all details is to be fully implemented before drilling to <u>commence</u> .
Emergency response Procedure:	This section outlines the conditions and denotes steps to be taken in the event of an emergency.
Emergency equipment Procedure:	This section outlines the safety and emergency equipment that will be required for the drilling of this well.
Training provisions:	This section outlines the training provisions that must be adhered to prior to drilling.
Drilling emergency call lists:	Included are the telephone numbers of all persons to be contacted should an emergency exist.
Briefing:	This section deals with the briefing of all people involved in the drilling operation.
Public safety:	Public safety personnel will be made aware of any potential evacuation and any additional support needed.
Check lists:	Status check lists and procedural check lists have been included to insure adherence to the plan.
General information:	A general information section has been included to supply support information.

Hydrogen Sulfide Training

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on the well:

1. The hazards and characteristics of H₂S.
2. Proper use and maintenance of personal protective equipment and life support systems.
3. H₂S detection.
4. Proper use of H₂S detectors, alarms, warning systems, briefing areas, evacuation procedures and prevailing winds.
5. Proper techniques for first aid and rescue procedures.
6. Physical effects of hydrogen sulfide on the human body.
7. Toxicity of hydrogen sulfide and sulfur dioxide.
8. Use of SCBA and supplied air equipment.
9. First aid and artificial respiration.
10. Emergency rescue.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H₂S on metal components. If high tensile strength tubular is to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling a well, blowout prevention and well control procedures.
3. The contents and requirements of the H₂S Drilling Operations Plan.

H₂S training refresher must have been taken within one year prior to drilling the well. Specifics on the well to be drilled will be discussed during the pre-spud meeting. H₂S and well control (choke) drills will be performed while drilling the well, at least on a weekly basis. This plan shall be available in the well site. All personnel will be required to carry the documentation proving that the H₂S training has been taken.

Service company and visiting personnel

- A. Each service company that will be on this well will be notified if the zone contains H₂S.
- B. Each service company must provide for the training and equipment of their employees before they arrive at the well site.
- C. Each service company will be expected to attend a well site briefing

Emergency Equipment Requirements

1. Well control equipment

The well shall have hydraulic BOP equipment for the anticipated pressures. Equipment is to be tested on installation and follow Oxy Well Control standard, as well as BLM Onshore Order #2.

Special control equipment:

- A. Hydraulic BOP equipment with remote control on ground. Remotely operated choke.
- B. Rotating head
- C. Gas buster equipment shall be installed before drilling out of surface pipe.

2. Protective equipment for personnel

- A. Four (4) 30-minute positive pressure air packs (2 at each briefing area) on location.
- B. Adequate fire extinguishers shall be located at strategic locations.
- C. Radio / cell telephone communication will be available at the rig.
 - Rig floor and trailers.
 - Vehicle.

3. Hydrogen sulfide sensors and alarms

- A. H₂S sensor with alarms will be located on the rig floor, at the bell nipple, and at the flow line. These monitors will be set to alarm at 10 ppm with strobe light, and audible alarm.
- B. Hand operated detectors with tubes.
- C. H₂S monitor tester (to be provided by contract Safety Company.)
- D. There shall be one combustible gas detector on location at all times.

4. Visual Warning Systems

- A. One sign located at each location entrance with the following language:

**Caution – potential poison gas
Hydrogen sulfide
No admittance without authorization**

Wind sock – wind streamers:

- A. One 36" (in length) wind sock located at protection center, at height visible from rig floor.
- B. One 36" (in length) wind sock located at height visible from pit areas.

Condition flags

- A. One each condition flag to be displayed to denote conditions.

green – normal conditions
yellow – potential danger
red – danger, H2S present

- B. Condition flag shall be posted at each location sign entrance.

5. Mud Program

The mud program is designed to minimize the risk of having H2S and other formation fluids at surface. Proper mud weight and safe drilling practices will be applied. H2S scavengers will be used to minimize the hazards while drilling. Below is a summary of the drilling program.

Mud inspection devices:

Garrett gas train or hatch tester for inspection of sulfide concentration in mud system.

6. Metallurgy

- A. Drill string, casing, tubing, wellhead, blowout preventers, drilling spools or adapters, kill lines, choke manifold, lines and valves shall be suitable for the H2S service.
- B. All the elastomers, packing, seals and ring gaskets shall be suitable for H2S service.

7. Well Testing

No drill stem test will be performed on this well.

8. Evacuation plan

Evacuation routes should be established prior to well spud for each well and discussed with all rig personnel.

9. Designated area

- A. Parking and visitor area: all vehicles are to be parked at a predetermined safe distance from the wellhead.
- B. There will be a designated smoking area.
- C. Two briefing areas on either side of the location at the maximum allowable distance from the well bore so they offset prevailing winds perpendicularly, or at a 45-degree angle if wind direction tends to shift in the area.

Emergency procedures

- A. In the event of any evidence of H₂S level above 10 ppm, take the following steps:
 - 1. The Driller will pick up off bottom, shut down the pumps, slow down the pipe rotation.
 - 2. Secure and don escape breathing equipment, report to the upwind designated safe briefing / muster area.
 - 3. All personnel on location will be accounted for and emergency search should begin for any missing, the Buddy System will be implemented.
 - 4. Order non-essential personnel to leave the well site, order all essential personnel out of the danger zone and upwind to the nearest designated safe briefing / muster area.
 - 5. Entrance to the location will be secured to a higher level than our usual "Meet and Greet" requirement, and the proper condition flag will be displayed at the entrance to the location.
 - 6. Take steps to determine if the H₂S level can be corrected or suppressed and, if so, proceed as required.
- B. If uncontrollable conditions occur:
 - 1. Take steps to protect and/or remove any public in the down-wind area from the rig – partial evacuation and isolation. Notify necessary public safety personnel and appropriate regulatory entities (i.e. BLM) of the situation.

2. Remove all personnel to the nearest upwind designated safe briefing / muster area or off location.
3. Notify public safety personnel of safe briefing / muster area.
4. An assigned crew member will blockade the entrance to the location. No unauthorized personnel will be allowed entry to the location.
5. Proceed with best plan (at the time) to regain control of the well. Maintain tight security and safety procedures.

C. Responsibility:

1. Designated personnel.

- a. Shall be responsible for the total implementation of this plan.
- b. Shall be in complete command during any emergency.
- c. Shall designate a back-up.

All personnel:

1. On alarm, don escape unit and report to the nearest upwind designated safe briefing / muster area upw
2. Check status of personnel (buddy system).
3. Secure breathing equipment.
4. Await orders from supervisor.

Drill site manager:

1. Don escape unit if necessary and report to nearest upwind designated safe briefing / muster area.
2. Coordinate preparations of individuals to return to point of release with tool pusher and driller (using the buddy system).
3. Determine H₂S concentrations.
4. Assess situation and take control measures.

Tool pusher:

1. Don escape unit Report to up nearest upwind designated safe briefing / muster area.
2. Coordinate preparation of individuals to return to point of release with tool pusher drill site manager (using the buddy system).
3. Determine H₂S concentration.
4. Assess situation and take control measures.

Driller:

1. Don escape unit, shut down pumps, continue

- rotating DP.
 - 2. Check monitor for point of release.
 - 3. Report to nearest upwind designated safe briefing / muster area.
 - 4. Check status of personnel (in an attempt to rescue, use the buddy system).
 - 5. Assigns least essential person to notify Drill Site Manager and tool pusher by quickest means in case of their absence.
 - 6. Assumes the responsibilities of the Drill Site Manager and tool pusher until they arrive should they be absent.
- Derrick man
Floor man #1
Floor man #2
- 1. Will remain in briefing / muster area until instructed by supervisor.
- Mud engineer:
- 1. Report to nearest upwind designated safe briefing / muster area.
 - 2. When instructed, begin check of mud for ph and H2S level. (Garett gas train.)
- Safety personnel:
- 1. Mask up and check status of all personnel and secure operations as instructed by drill site manager.

Taking a kick

When taking a kick during an H2S emergency, all personnel will follow standard Well control procedures after reporting to briefing area and masking up.

Open-hole logging

All unnecessary personnel off floor. Drill Site Manager and safety personnel should monitor condition, advise status and determine need for use of air equipment.

Running casing or plugging

Following the same "tripping" procedure as above. Drill Site Manager and safety personnel should determine if all personnel have access to protective equipment.

Ignition procedures

The decision to ignite the well is the responsibility of the operator (Oxy Drilling Management). The decision should be made only as a last resort and in a situation where it is clear that:

1. Human life and property are endangered.
2. There is no hope controlling the blowout under the prevailing conditions at the well.

Instructions for igniting the well

1. Two people are required for the actual igniting operation. They must wear self-contained breathing units and have a safety rope attached. One man (tool pusher or safety engineer) will check the atmosphere for explosive gases with the gas monitor. The other man is responsible for igniting the well.
2. Primary method to ignite: 25 mm flare gun with range of approximately 500 feet.
3. Ignite upwind and do not approach any closer than is warranted.
4. Select the ignition site best for protection, and which offers an easy escape route.
5. Before firing, check for presence of combustible gas.
6. After lighting, continue emergency action and procedure as before.
7. All unassigned personnel will remain in briefing area until instructed by supervisor or directed by the Drill Site Manager.

Remember: After well is ignited, burning hydrogen sulfide will convert to sulfur dioxide, which is also highly toxic. **Do not assume the area is safe after the well is ignited.**

Status check list

Note: All items on this list must be completed before drilling to production casing point.

1. H2S sign at location entrance.
2. Two (2) wind socks located as required.
3. Four (4) 30-minute positive pressure air packs (2 at each Briefing area) on location for all rig personnel and mud loggers.
4. Air packs inspected and ready for use.
5. Cascade system and hose line hook-up as needed.
6. Cascade system for refilling air bottles as needed.
7. Condition flag on location and ready for use.
8. H2S detection system hooked up and tested.
9. H2S alarm system hooked up and tested.
10. Hand operated H2S detector with tubes on location.
11. 1 – 100' length of nylon rope on location.
12. All rig crew and supervisors trained as required.
13. All outside service contractors advised of potential H2S hazard on well.
14. No smoking sign posted and a designated smoking area identified.
15. Calibration of all H2S equipment shall be noted on the IADC report.

Checked by: _____ Date: _____

Procedural check list during H2S events

Perform each tour:

1. Check fire extinguishers to see that they have the proper charge.
2. Check breathing equipment to ensure that it is in proper working order.
3. Make sure all the H2S detection system is operative.

Perform each week:

1. Check each piece of breathing equipment to make sure that demand or forced air regulator is working. This requires that the bottle be opened and the mask assembly be put on tight enough so that when you inhale, you receive air or feel air flow.
2. BOP skills (well control drills).
3. Check supply pressure on BOP accumulator stand by source.
4. Check breathing equipment mask assembly to see that straps are loosened and turned back, ready to put on.
5. Check pressure on breathing equipment air bottles to make sure they are charged to full volume. (Air quality checked for proper air grade "D" before bringing to location)
6. Confirm pressure on all supply air bottles.
7. Perform breathing equipment drills with on-site personnel.
8. Check the following supplies for availability.
 - A. Emergency telephone list.
 - B. Hand operated H2S detectors and tubes.

General evacuation plan

1. When the company approved supervisor (Drill Site Manager, consultant, rig pusher, or driller) determines the H₂S gas cannot be limited to the well location and the public will be involved, he will activate the evacuation plan.
2. Drill Site Manager or designee will notify local government agency that a hazardous condition exists and evacuation needs to be implemented.
3. Company or contractor safety personnel that have been trained in the use of H₂S detection equipment and self-contained breathing equipment will monitor H₂S concentrations, wind directions, and area of exposure. They will delineate the outer perimeter of the hazardous gas area. Extension to the evacuation area will be determined from information gathered.
4. Law enforcement personnel (state police, police dept., fire dept., and sheriff's dept.) Will be called to aid in setting up and maintaining road blocks. Also, they will aid in evacuation of the public if necessary.
5. After the discharge of gas has been controlled, company safety personnel will determine when the area is safe for re-entry.

Important: Law enforcement personnel will not be asked to come into a contaminated area. Their assistance will be limited to uncontaminated areas. Constant radio contact will be maintained with them.

Emergency actions

Well blowout – if emergency

1. Evacuate all personnel to “Safe Briefing / Muster Areas” or off location if needed.
2. If sour gas – evacuate rig personnel.
3. If sour gas – evacuate public within 3000 ft radius of exposure.
4. Don SCBA and shut well in if possible using the buddy system.
5. Notify Drilling Superintendent and call 911 for emergency help (fire dept and ambulance) if needed.
6. Implement the Blowout Contingency Plan, and Drilling Emergency Action Plan.
6. Give first aid as needed.

Person down location/facility

1. If immediately possible, contact 911. Give location and wait for confirmation.
2. Don SCBA and perform rescue operation using buddy system.

Toxic effects of hydrogen sulfide

Hydrogen sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10 ppm, which is .001% by volume. Hydrogen sulfide is heavier than air (specific gravity – 1.192) and colorless. It forms an explosive mixture with air between 4.3 and 46.0 percent by volume. Hydrogen sulfide is almost as toxic as hydrogen cyanide and is between five and six times more toxic than carbon monoxide. Toxicity data for hydrogen sulfide and various other gases are compared in table i. Physical effects at various hydrogen sulfide exposure levels are shown in table ii.

Table i
Toxicity of various gases

Common name	Chemical formula	Specific gravity (sc=1)	Threshold limit (1)	Hazardous limit (2)	Lethal concentration (3)
Hydrogen Cyanide	Hcn	0.94	10 ppm	150 ppm/hr	300 ppm
Hydrogen Sulfide	H2S	1.18	10 ppm	250 ppm/hr	600 ppm
Sulfur Dioxide	So2	2.21	5 ppm	-	1000 ppm
Chlorine	Cl2	2.45	1 ppm	4 ppm/hr	1000 ppm
Carbon Monoxide	Co	0.97	50 ppm	400 ppm/hr	1000 ppm
Carbon Dioxide	Co2	1.52	5000 ppm	5%	10%
Methane	Ch4	0.55	90,000 ppm	Combustible above 5% in air	

- 1) threshold limit – concentration at which it is believed that all workers may be repeatedly exposed day after day without adverse effects.
- 2) hazardous limit – concentration that will cause death with short-term exposure.
- 3) lethal concentration – concentration that will cause death with short-term exposure.

Toxic effects of hydrogen sulfide

Table ii
Physical effects of hydrogen sulfide

<u>Percent (%)</u>	<u>Ppm</u>	<u>Concentration</u> Grains <u>100 std. Ft3*</u>	<u>Physical effects</u>
0.001	<10	00.65	Obvious and unpleasant odor.

0.002	10	01.30	Safe for 8 hours of exposure.
0.010	100	06.48	Kill smell in 3 - 15 minutes. May sting eyes and throat.
0.020	200	12.96	Kills smell shortly; stings eyes and throat.
0.050	500	32.96	Dizziness; breathing ceases in a few minutes; needs prompt artificial respiration.
0.070	700	45.36	Unconscious quickly; death will result if not rescued promptly.
0.100	1000	64.30	Unconscious at once; followed by death within minutes.

*at 15.00 psia and 60'f.

Use of self-contained breathing equipment (SCBA)

1. Written procedures shall be prepared covering safe use of SCBA's in dangerous atmosphere, which might be encountered in normal operations or in emergencies. Personnel shall be familiar with these procedures and the available SCBA.
2. SCBA's shall be inspected frequently at random to insure that they are properly used, cleaned, and maintained.
3. Anyone who may use the SCBA's shall be trained in how to insure proper face-piece to face seal. They shall wear SCBA's in normal air and then wear them in a test atmosphere. (note: such items as facial hair {beard or sideburns} and eyeglasses will not allow proper seal.) Anyone that may be reasonably expected to wear SCBA's should have these items removed before entering a toxic atmosphere. A special mask must be obtained for anyone who must wear eyeglasses or contact lenses.
4. Maintenance and care of SCBA's:
 - a. A program for maintenance and care of SCBA's shall include the following:
 1. Inspection for defects, including leak checks.
 2. Cleaning and disinfecting.
 3. Repair.
 4. Storage.
 - b. Inspection, self-contained breathing apparatus for emergency use shall be inspected monthly.
 1. Fully charged cylinders.
 2. Regulator and warning device operation.
 3. Condition of face piece and connections.
 4. Rubber parts shall be maintained to keep them pliable and prevent deterioration.
 - c. Routinely used SCBA's shall be collected, cleaned and disinfected as frequently as necessary to insure proper protection is provided.
5. Persons assigned tasks that requires use of self-contained breathing equipment shall be certified physically fit (medically cleared) for breathing equipment usage at least annually.
6. SCBA's should be worn when:
 - A. Any employee works near the top or on top of any tank unless test reveals less than 10 ppm of H₂S.

- B. When breaking out any line where H₂S can reasonably be expected.
- C. When sampling air in areas to determine if toxic concentrations of H₂S exists.
- D. When working in areas where over 10 ppm H₂S has been detected.
- E. At any time there is a doubt as to the H₂S level in the area to be entered.

Rescue
First aid for H₂S poisoning

Do not panic!

Remain calm – think!

1. Don SCBA breathing equipment.
2. Remove victim(s) utilizing buddy system to fresh air as quickly as possible. (go up-wind from source or at right angle to the wind. Not down wind.)
3. Briefly apply chest pressure – arm lift method of artificial respiration to clean the victim's lungs and to avoid inhaling any toxic gas directly from the victim's lungs.
4. Provide for prompt transportation to the hospital, and continue giving artificial respiration if needed.
5. Hospital(s) or medical facilities need to be informed, before-hand, of the possibility of H₂S gas poisoning – no matter how remote the possibility is.
6. Notify emergency room personnel that the victim(s) has been exposed to H₂S gas.

Besides basic first aid, everyone on location should have a good working knowledge of artificial respiration.

Revised CM 6/27/2012

OXY Permian Delaware NM Basin Drilling & Completions Incident Reporting

OXY Permian Crisis Team Hotline Notification

Person	Location	Office Phone	Cell/Mobile Phone
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Drilling & Completions Department			
Drilling & Completions Manager: John Willis	Houston	(713) 366-5556	(713) 259-1417
Drilling Superintendent: Simon Benavides	Houston	(713) 215-7403	(832) 528-3547
Completions Superintendent: Chris Winter	Houston	(713) 366-5212	(806) 239-8774
Drilling Eng. Supervisor: Diego Tellez	Houston	(713) 350-4602	(713) 303-4932
Drilling Eng. Supervisor: Randy Neel	Houston	(713) 215-7987	(713) 517-5544
Completions Eng. Supervisor: Evan Hinkel	Houston	(713) 366-5436	(281) 236-6153
Drilling & Completions HES Lead: Ryan Green	Houston	713-336-5753	281-520-5216
Drilling & Completions HES Advisor:Kenny Williams	Carlsbad	(432) 686-1434	(337) 208-0911
Drilling & Completions HES Advisor:Kyle Holden	Carlsbad	(432) 686-1435	(661) 369-5328
Drilling & Completions HES Advisor Sr:Dave Schmidt	Carlsbad		(559) 310-8572
Drilling & Completions HES Advisor. :Seth Doyle	Carlsbad		(337) 499-0756

HES / Enviromental & Regulatory Department	Location	Office	Cell Phone
Jon Hamil-HES Manager	Houston	(713) 497-2494	(832) 537-9885
Mark Birk-HES Manager	Houston	(713) 350-4615	(949) 413-3127
Austin Tramell	Midland	(432) 699-4208	(575) 499-4919
Rico Munoz	Midland	(432) 699-8366	(432) 803-4116
Amber DuckWorth	Midland		(832) 966-1879
Kelley Montgomery- Regulatory Manager	Houston	(713) 366-5716	(832) 454-8137
Sandra Musallam -Regulatory Lead	Houston	+1 (713) 366-5106	+1 (713) 504-8577
Bishop, Steve-DOT Pipeline Coordinator	Midland	432-685-5614	
Wilson, Dusty-Safety Advisor	Midland	432-685-5771	(432) 254-2336
John W Dittrich Eniromental Advisor	Midland		(575) 390-2828
William (Jack) Calhoun-Environmental Lead	Houston	+713 (350) 4906	(281) 917-8571
Robert Barrow-Risk Engineer Manager	Houston	(713) 366-5611	(832) 867-5336
Sarah Holmes-HSE Cordinator	Midland	432-685-5758	

Administrative	Location	Office	
Sarah Holmes	Midland	432-685-5830	
Robertson, Debbie	Midland	432-685-5812	
Laci Hollaway	Midland	(432) 685-5716	(432) 631-6341
Administrative	Location	Office	
Rosalinda Escajeda	Midland	432-685-5831	

Person	Location	Office Phone	Cell/Mobile Phone
Moreno, Leslie (contract)	Hobbs	575-397-8247	
Sehon, Angela (contractor)	Levelland	806-894-8347	
Vasquez, Claudia (contractor)	North Cowden	432-385-3120	
XstremeMD	Location	Office	
Medical Case Management	Orla, TX	(337) 205-9314	
Axiom Medical Consulting	Location	Office	
Medical Case Management		(877) 502-9466	
Regulatory Agencies			
Bureau of Land Management	Carlsbad, NM	(505) 887-6544	
Bureau of Land Management	Hobbs, NM	(505) 393-3612	
Bureau of Land Management	Roswell, NM	(505) 393-3612	
Bureau of Land Management	Santa Fe, NM	(505) 988-6030	
DOT Juisdictional Pipelines-Incident Reporting New Mexico Public Regulaion Commission	Santa Fe, NM	(505) 827-3549 (505) 490-2375	
DOT Juisdictional Pipelines-Incident Reporting Texas Railroad Commission	Austin, TX	(512) 463-6788	
EPA Hot Line	Dallas, Texas	(214) 665-6444	
Federal OSHA, Area Office	Lubbock, Texas	(806) 472-7681	
National Response Center	Washington, D. C.	(800) 424-8802	
National Infrastructure Coordinator Center		(202) 282-9201	
New Mexico Air Quality Bureau	Santa Fe, NM	(505) 827-1494	
New Mexico Oil Conservation Division	Artesia, NM	(505) 748-1283	After Hours (505) 370-7545
New Mexico Oil Conservation Division	Hobbs, NM	(505) 393-6161	
New Mexico Oil Conservation Division	Santa Fe, NM	(505) 471-1068	
New Mexico OCD Environmental Bureau	Santa Fe, NM	(505) 476-3470	
New Mexico Environmental Department	Hobbs, NM	(505) 827-9329	
NM State Emergency Response Center	Santa Fe, NM	(505) 827-9222	
Railroad Commission of TX	District 1 San Antonio	(210) 227-1313	
Railroad Commission of TX	District 7C San Angelo	(325) 657-7450	
Railroad Commission of TX	District 8, 8A Midland	(432) 684-5581	
Texas Emergency Response Center	Austin, TX	(512) 463-7727	
TCEQ Air	Region 2 Lubbock, TX	(806) 796-3494	
TCEQ Water/Waste/Air	Region 3 Abilene, TX	(325) 698-9674	
TCEQ Water/Waste/Air	Region 7 Midland, TX	(432) 570-1359	
TCEQ Water/Waste/Air	Region 9 San Antonio,	(512) 734-7981	
TCEQ Water/Waste/Air	Region 8 San Angelo	(325) 655-9479	
Medical Facilities			
Abernathy Medical Clinic	Abernathy, TX	(806) 298-2524	
Alliance Hospital	Odessa, TX	(432) 550-1000	
Artesia General Hospital	Artesia, NM	(505) 748-3333	
Brownfield Regional Medical Center	Brownfield, TX	(806) 637-3551	

Person	Location	Office Phone	Cell/Mobile Phone
Cogdell Memorial Hospital	Snyder, TX	(325) 573-6374	
Covenant Hospital Levelland	Levelland, TX	(806) 894-4963	
Covenant Medical Center	Lubbock, TX	(806) 725-1011	
Covenant Medical Center Lakeside	Lubbock, TX	(806) 725-6000	
Covenant Family Health	Snyder, TX	(325) 573-1300	
Crockett County Hospital	Ozona, TX	(325) 392-2671	
Guadalupe Medical Center	Carlsbad, NM	(505) 887-6633	
Lea Regional Hospital	Hobbs, NM	(505) 492-5000	
McCamey Hospital	McCamey, TX	(432) 652-8626	
Medical Arts Hospital	Lamesa, TX	(806) 872-2183	
Medical Center Hospital	Odessa, TX	(432) 640-4000	
Medi Center Hospital	San Angelo, TX	(325) 653-6741	
Memorial Hospital	Ft. Stockton	(432) 336-2241	
Memorial Hospital	Seminole, TX	(432) 758-5811	
Midland Memorial Hospital	Midland, TX	(432) 685-1111	
Nor-Lea General Hospital	Lovington, NM	(505) 396-6611	
Odessa Regional Hospital	Odessa, TX	(432) 334-8200	
Permian General Hospital	Andrews, TX	(432) 523-2200	
Reagan County Hospital	Big Lake, TX	(325) 884-2561	
Reeves County Hospital	Pecos, TX	(432) 447-3551	
Shannon Medical Center	San Angelo, TX	(325) 653-6741	
Union County General Hospital	Clayton, NM	(505) 374-2585	
University Medical Center	Lubbock, TX	(806) 725-8200	
Val Verde Regional Medical Center	Del Rio, TX	(830) 775-8566	
Ward Memorial Hospital	Monahans, TX	(432) 943-2511	
Yoakum County Hospital	Denver City, TX	(806) 592-5484	
Law Enforcement - Sheriff			
Andrews Cty Sheriff's Department	Andrews County(Andr	(432) 523-5545	
Crane Cty Sheriff's Department	Crane, County (Crane)	(432) 558-3571	
Crockett Cty Sheriff's Department	Crockett County (Ozor	(325) 392-2661	
Dawson Cty Sheriff's Department	Dawson County (Lame	(806) 872-7560	
Ector Cty Sheriff's Department	Ector County (Odessa)	(432) 335-3050	
Eddy Cty Sheriff's Department	Eddy County (Artesia)	(505) 746-2704	
Eddy Cty Sheriff's Department	Eddy County (Carlsbad)	(505) 887-7551	
Gaines Cty Sheriff's Department	Gaines County (Semin	(432) 758-9871	
Hockley Cty Sheriff's Department	Hockley County(Level	(806) 894-3126	
Kent Cty (Jayton City Sheriff's Dept.)	Kent County(Jayton)	(806) 237-3801	
Lea Cty Sheriff's Department	Lea County (Eunice)	(505) 384-2020	
Lea Cty Sheriff's Department	Lea County (Hobbs)	(505) 393-2515	
Lea Cty Sheriff's Department	Lea County (Lovington)	(505) 396-3611	
Lubbock Cty Sheriff's Department	Lubbock Cty (Abernath	(806) 296-2724	
Midland Cty Sheriff's Department	Midland County (Midl	(432) 688-1277	

Person	Location	Office Phone	Cell/Mobile Phone
Pecos Cty Sheriff's Department	Pecos County (Iraan)	(432) 639-2251	
Reeves Cty Sheriff's Department	Reeves County (Pecos)	(432) 445-4901	
Scurry Cty Sheriff's Department	Scurry County (Snyder)	(325) 573-3551	
Terry Cty Sheriff's Department	Terry County (Brownf)	(806) 637-2212	
Union Cty Sheriff's Department	Union County (Clayton)	(505) 374-2583	
Upton Cty Sheriff's Department	Upton County (Rankin)	(432) 693-2422	
Ward Cty Sheriff's Department	Ward County (Monaha)	(432) 943-3254	
Yoakum City Sheriff's Department	Yoakum Co. (Denever)	(806) 456-2377	
Law Enforcement - Police			
Abernathy City Police	Abernathy, TX	(806) 298-2545	
Andrews City Police	Andrews, TX	(432) 523-5675	
Artesia City Police	Artesia, NM	(505) 746-2704	
Brownfield City Police	Brownfield, TX	(806) 637-2544	
Carlsbad City Police	Carlsbad, NM	(505) 885-2111	
Clayton City Police	Clayton, NM	(505) 374-2504	
Denver City Police	Denver City, TX	(806) 592-3516	
Eunice City Police	Eunice, NM	(505) 394-2112	
Hobbs City Police	Hobbs, NM	393-2677	
Jal City Police	Jal, NM	(505) 395-2501	
Jayton City Police	Jayton, TX	(806) 237-3801	
Lamesa City Police	Lamesa, TX	(806) 872-2121	
Levelland City Police	Levelland, TX	(806) 894-6164	
Lovington City Police	Lovington, NM	(505) 396-2811	
Midland City Police	Midland, TX	(432) 685-7113	
Monahans City Police	Monahans, TX	(432) 943-3254	
Odessa City Police	Odessa, TX	(432) 335-3378	
Seminole City Police	Seminole, TX	(432) 758-9871	
Snyder City Police	Snyder, TX	(325) 573-2611	
Sundown City Police	Sundown, TX	(806) 229-8241	
Law Enforcement - FBI			
FBI	Albuquerque, NM	(505) 224-2000	
FBI	Midland, TX	(432) 570-0255	
Law Enforcement - DPS			
NM State Police	Artesia, NM	(505) 746-2704	
NM State Police	Carlsbad, NM	(505) 885-3137	
NM State Police	Eunice, NM	(505) 392-5588	
NM State Police	Hobbs, NM	(505) 392-5588	
NM State Police	Clayton, NM	(505) 374-2473; 911	
TX Dept of Public Safety	Andrews, TX	(432) 524-1443	
TX Dept of Public Safety	Big Lake, TX	(325) 884-2301	

Person	Location	Office Phone	Cell/Mobile Phone
TX Dept of Public Safety	Brownfield, TX	(806) 637-2312	
TX Dept of Public Safety	Iraan, TX	(432) 639-3232	
TX Dept of Public Safety	Lamesa, TX	(806) 872-8675	
TX Dept of Public Safety	Levelland, TX	(806) 894-4385	
TX Dept of Public Safety	Lubbock, TX	(806) 747-4491	
TX Dept of Public Safety	Midland, TX	(432) 697-2211	
TX Dept of Public Safety	Monahans, TX	(432) 943-5857	
TX Dept of Public Safety	Odessa, TX	(432) 332-6100	
TX Dept of Public Safety	Ozona, TX	(325) 392-2621	
TX Dept of Public Safety	Pecos, TX	(432) 447-3533	
TX Dept of Public Safety	Seminole, TX	(432) 758-4041	
TX Dept of Public Safety	Snyder, TX	(325) 573-0113	
TX Dept of Public Safety	Terry County TX	(806) 637-8913	
TX Dept of Public Safety	Yoakum County TX	(806) 456-2377	
Firefighting & Rescue			
Abernathy	Abernathy, TX	(806) 298-2022	
Amistad/Rosebud	Amistad/Rosebud, NM	(505) 633-9113	
Andrews	Andrews, TX	523-3111	
Artesia	Artesia, NM	(505) 746-5051	
Big Lake	Big Lake, TX	(325) 884-3650	
Brownfield-Administrative & other calls	Brownfield, TX	(816) 637-4547	
Brownfield emergency only	Brownfield, TX	-911	
Carlsbad	Carlsbad, NM	(505) 885-3125	
Clayton	Clayton, NM	(505) 374-2435	
Cotton Center	Cotton Center, TX	(806) 879-2157	
Crane	Crane, TX	(432) 558-2361	
Del Rio	Del Rio, TX	(830) 774-8650	
Denver City	Denver City, TX	(806) 592-3516	
Eldorado	Eldorado, TX	(325) 853-2691	
Eunice	Eunice, NM	(505) 394-2111	
Garden City	Garden City, TX	(432) 354-2404	
Goldsmith	Goldsmith, TX	(432) 827-3445	
Hale Center	Hale Center, TX	(806) 839-2411	
Halfway	Halfway, TX		
Hobbs	Hobbs, NM	(505) 397-9308	
Jal	Jal, NM	(505) 395-2221	
Jayton	Jayton, TX	(806) 237-3801	
Kermit	Kermit, TX	(432) 586-3468	
Lamesa	Lamesa, TX	(806) 872-4352	
Levelland	Levelland, TX	(806) 894-3154	
Lovington	Lovington, NM	(505) 396-2359	
Maljamar	Maljamar, NM	(505) 676-4100	

Person	Location	Office Phone	Cell/Mobile Phone
McCamey	McCamey, TX	(432) 652-8232	
Midland	Midland, TX	(432) 685-7346	
Monahans	Monahans, TX	(432) 943-4343	
Nara Visa	Nara Visa, NM	(505) 461-3300	
Notrees	Notress, TX	(432) 827-3445	
Odessa	Odessa, TX	(432) 335-4659	
Ozona	Ozona, TX	(325) 392-2626	
Pecos	Pecos, TX	(432) 445-2421	
Petersburg	Petersburg, TX	(806) 667-3461	
Plains	Plains, TX	(806) 456-8067	
Plainview	Plainview, TX	(806) 296-1170	
Rankin	Rankin, TX	(432) 693-2252	
San Angelo	San Angelo, TX	(325) 657-4355	
Sanderson	Sanderson, TX	(432) 345-2525	
Seminole	Seminole, TX	758-9871	
Smyer	Smyer, TX	(806) 234-3861	
Snyder	Snyder, TX	(325) 573-6215	
Sundown	Sundown, TX	911	
Tucumcari	Tucumcari, NM	911	
West Odessa	Odessa, TX	(432) 381-3033	
Ambulance			
Abernathy Ambulance	Abernathy, TX	(806) 298-2241	
Amistad/Rosebud	Amistad/Rosebud, NM	(505) 633-9113	
Andrews Ambulance	Andrews, TX	(432) 523-5675	
Artesia Ambulance	Artesia, NM	(505) 746-2701	
Big Lake Ambulance	Big Lake, TX	(325) 884-2423	
Big Spring Ambulance	Big Spring, TX	(432) 264-2550	
Brownfield Ambulance	Brownfield, TX	(806) 637-2511	
Carlsbad Ambulance	Carlsbad, NM	(505) 885-2111; 911	
Clayton, NM	Clayton, NM	(505) 374-2501	
Denver City Ambulance	Denver City, TX	(806) 592-3516	
Eldorado Ambulance	Eldorado, TX	(325) 853-3456	
Eunice Ambulance	Eunice, NM	(505) 394-3258	
Goldsmith Ambulance	Goldsmith, TX	(432) 827-3445	
Hobbs, NM	Hobbs, NM	(505) 397-9308	
Jal, NM	Jal, NM	(505) 395-2501	
Jayton Ambulance	Jayton, TX	(806) 237-3801	
Lamesa Ambulance	Lamesa, TX	(806) 872-3464	
Levelland Ambulance	Levelland, TX	(806) 894-8855	
Lovington Ambulance	Lovington, NM	(505) 396-2811	
McCamey Hospital	McCamey, TX	(432) 652-8626	
Midland Ambulance	Midland, TX	(432) 685-7499	

Person	Location	Office Phone	Cell/Mobile Phone
Monahans Ambulance	Monahans, TX	3731	
Nara Visa, NM	Nara Visa, NM	(505) 461-3300	
Odessa Ambulance	Odessa, TX	(432) 335-3378	
Ozona Ambulance	Ozona, TX	(325) 392-2671	
Pecos Ambulance	Pecos, TX	(432) 445-4444	
Rankin Ambulance	Rankin, TX	(432) 693-2443	
San Angelo Ambulance	San Angelo, TX	(325) 657-4357	
Seminole Ambulance	Seminole, TX	758-9871	
Snyder Ambulance	Snyder, TX	(325) 573-1911	
Stanton Ambulance	Stanton, TX	(432) 756-2211	
Sundown Ambulance	Sundown, TX	911	
Tucumcari, NM	Tucumcari, NM	911	
Medical Air Ambulance Service			
AEROCARE - Methodist Hospital	Lubbock, TX	(800) 627-2376	
San Angelo Med-Vac Air Ambulance	San Angelo, TX	(800) 277-4354	
Southwest Air Ambulance Service	Stanford, TX	(800) 242-6199	
Southwest MediVac	Snyder, TX	(800) 242-6199	
Southwest MediVac	Hobbs, NM	(800) 242-6199	
Odessa Care Star	Odessa, TX	(888) 624-3571	
NWTH Medivac	Amarillo, TX	(800) 692-1331	

OXY

PRD NM DIRECTIONAL PLANS (NAD 1983)

Arkenstone 31 Federal

Arkenstone 31 Federal Com 4H

WB00

Plan: Permitting Plan

Standard Planning Report

31 July, 2019

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Arkenstone 31 Federal Com 4H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=26.5' @ 3371.10ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=26.5' @ 3371.10ft
Site:	Arkenstone 31 Federal	North Reference:	Grid
Well:	Arkenstone 31 Federal Com 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

Project	PRD NM DIRECTIONAL PLANS (NAD 1983)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		Using geodetic scale factor

Site	Arkenstone 31 Federal		
Site Position:		Northing:	461,540.55 usft
From:	Map	Easting:	699,187.86 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	32° 16' 4.142175 N
		Longitude:	103° 49' 21.474809 W
		Grid Convergence:	0.27 °

Well	Arkenstone 31 Federal Com 4H		
Well Position	+N/-S	10.45 ft	Northing: 461,551.00 usft
	+E/-W	1,834.76 ft	Easting: 701,022.50 usft
Position Uncertainty	1.00 ft	Wellhead Elevation:	0.00 ft
		Latitude:	32° 16' 4.158687 N
		Longitude:	103° 49' 0.106425 W
		Ground Level:	3,344.60 ft

Wellbore	WB00		
Magnetics	Model Name	Sample Date	Declination (°)
	HDGM	11/13/2018	6.88
		Dip Angle (°)	Field Strength (nT)
		60.00	48,012

Design	Permitting Plan		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)
	0.00	0.00	0.00
		Direction (°)	172.16

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,015.00	0.00	0.00	4,015.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,615.06	12.00	43.33	4,610.68	45.55	42.97	2.00	2.00	0.00	43.33	
8,473.52	12.00	43.33	8,384.81	629.14	593.51	0.00	0.00	0.00	0.00	
9,586.41	12.00	179.68	9,487.28	597.21	674.57	2.00	0.00	12.25	157.73	
10,370.30	90.39	179.68	9,941.10	32.90	677.74	10.00	10.00	0.00	0.00	FTP (Arkenstone 31)
15,533.93	90.39	179.68	9,906.10	-5,130.53	706.75	0.00	0.00	0.00	0.00	PBHL (Arkenstone)

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Arkenstone 31 Federal Com 4H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=26.5' @ 3371.10ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=26.5' @ 3371.10ft
Site:	Arkenstone 31 Federal	North Reference:	Grid
Well:	Arkenstone 31 Federal Com 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,015.00	0.00	0.00	4,015.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	1.70	43.33	4,099.99	0.92	0.87	-0.79	2.00	2.00	0.00
4,200.00	3.70	43.33	4,199.87	4.34	4.10	-3.74	2.00	2.00	0.00
4,300.00	5.70	43.33	4,299.53	10.30	9.72	-8.88	2.00	2.00	0.00
4,400.00	7.70	43.33	4,398.84	18.79	17.73	-16.20	2.00	2.00	0.00
4,500.00	9.70	43.33	4,497.69	29.79	28.10	-25.68	2.00	2.00	0.00
4,600.00	11.70	43.33	4,595.94	43.30	40.84	-37.32	2.00	2.00	0.00
4,615.06	12.00	43.33	4,610.68	45.55	42.97	-39.26	2.00	2.00	0.00
4,700.00	12.00	43.33	4,693.77	58.39	55.09	-50.33	0.00	0.00	0.00
4,800.00	12.00	43.33	4,791.58	73.52	69.35	-63.37	0.00	0.00	0.00
4,900.00	12.00	43.33	4,889.39	88.64	83.62	-76.40	0.00	0.00	0.00
5,000.00	12.00	43.33	4,987.21	103.77	97.89	-89.44	0.00	0.00	0.00
5,100.00	12.00	43.33	5,085.02	118.89	112.16	-102.48	0.00	0.00	0.00

Oxy Planning Report

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Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=26.5' @ 3371.10ft
Site:	Arkenstone 31 Federal	North Reference:	Grid
Well:	Arkenstone 31 Federal Com 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,200.00	12.00	43.33	5,182.84	134.02	126.43	-115.51	0.00	0.00	0.00
5,300.00	12.00	43.33	5,280.65	149.14	140.70	-128.55	0.00	0.00	0.00
5,400.00	12.00	43.33	5,378.47	164.27	154.96	-141.59	0.00	0.00	0.00
5,500.00	12.00	43.33	5,476.28	179.39	169.23	-154.62	0.00	0.00	0.00
5,600.00	12.00	43.33	5,574.09	194.52	183.50	-167.66	0.00	0.00	0.00
5,700.00	12.00	43.33	5,671.91	209.65	197.77	-180.70	0.00	0.00	0.00
5,800.00	12.00	43.33	5,769.72	224.77	212.04	-193.73	0.00	0.00	0.00
5,900.00	12.00	43.33	5,867.54	239.90	226.31	-206.77	0.00	0.00	0.00
6,000.00	12.00	43.33	5,965.35	255.02	240.57	-219.80	0.00	0.00	0.00
6,100.00	12.00	43.33	6,063.17	270.15	254.84	-232.84	0.00	0.00	0.00
6,200.00	12.00	43.33	6,160.98	285.27	269.11	-245.88	0.00	0.00	0.00
6,300.00	12.00	43.33	6,258.79	300.40	283.38	-258.91	0.00	0.00	0.00
6,400.00	12.00	43.33	6,356.61	315.52	297.65	-271.95	0.00	0.00	0.00
6,500.00	12.00	43.33	6,454.42	330.65	311.92	-284.99	0.00	0.00	0.00
6,600.00	12.00	43.33	6,552.24	345.77	326.19	-298.02	0.00	0.00	0.00
6,700.00	12.00	43.33	6,650.05	360.90	340.45	-311.06	0.00	0.00	0.00
6,800.00	12.00	43.33	6,747.87	376.02	354.72	-324.10	0.00	0.00	0.00
6,900.00	12.00	43.33	6,845.68	391.15	368.99	-337.13	0.00	0.00	0.00
7,000.00	12.00	43.33	6,943.50	406.27	383.26	-350.17	0.00	0.00	0.00
7,100.00	12.00	43.33	7,041.31	421.40	397.53	-363.21	0.00	0.00	0.00
7,200.00	12.00	43.33	7,139.12	436.52	411.80	-376.24	0.00	0.00	0.00
7,300.00	12.00	43.33	7,236.94	451.65	426.06	-389.28	0.00	0.00	0.00
7,400.00	12.00	43.33	7,334.75	466.77	440.33	-402.32	0.00	0.00	0.00
7,500.00	12.00	43.33	7,432.57	481.90	454.60	-415.35	0.00	0.00	0.00
7,600.00	12.00	43.33	7,530.38	497.02	468.87	-428.39	0.00	0.00	0.00
7,700.00	12.00	43.33	7,628.20	512.15	483.14	-441.43	0.00	0.00	0.00
7,800.00	12.00	43.33	7,726.01	527.27	497.41	-454.46	0.00	0.00	0.00
7,900.00	12.00	43.33	7,823.82	542.40	511.67	-467.50	0.00	0.00	0.00
8,000.00	12.00	43.33	7,921.64	557.52	525.94	-480.53	0.00	0.00	0.00
8,100.00	12.00	43.33	8,019.45	572.65	540.21	-493.57	0.00	0.00	0.00
8,200.00	12.00	43.33	8,117.27	587.77	554.48	-506.61	0.00	0.00	0.00
8,300.00	12.00	43.33	8,215.08	602.90	568.75	-519.64	0.00	0.00	0.00
8,400.00	12.00	43.33	8,312.90	618.02	583.02	-532.68	0.00	0.00	0.00
8,473.52	12.00	43.33	8,384.81	629.14	593.51	-542.27	0.00	0.00	0.00
8,500.00	11.51	44.34	8,410.73	633.04	597.24	-545.61	2.00	-1.84	3.80
8,600.00	9.71	49.02	8,509.02	645.70	610.58	-556.34	2.00	-1.81	4.69
8,700.00	7.99	55.76	8,607.83	655.14	622.70	-564.04	2.00	-1.71	6.73
8,800.00	6.44	65.90	8,707.04	661.35	633.57	-568.70	2.00	-1.55	10.15
8,900.00	5.21	81.55	8,806.53	664.31	643.18	-570.32	2.00	-1.23	15.64
9,000.00	4.56	103.93	8,906.17	664.02	651.53	-568.90	2.00	-0.65	22.39
9,100.00	4.73	128.74	9,005.85	660.48	658.61	-564.43	2.00	0.17	24.81
9,200.00	5.65	148.53	9,105.45	653.70	664.40	-556.92	2.00	0.92	19.79
9,300.00	7.04	161.70	9,204.84	643.68	668.89	-546.38	2.00	1.38	13.17
9,400.00	8.66	170.26	9,303.90	630.44	672.09	-532.83	2.00	1.63	8.57
9,500.00	10.42	176.06	9,402.52	614.00	673.99	-516.28	2.00	1.76	5.79
9,586.41	12.00	179.68	9,487.28	597.21	674.57	-499.57	2.00	1.83	4.19
9,600.00	13.36	179.68	9,500.54	594.23	674.59	-496.62	10.00	10.00	0.00
9,700.00	23.36	179.68	9,595.33	562.78	674.77	-465.43	10.00	10.00	0.00
9,800.00	33.36	179.68	9,683.21	515.34	675.03	-418.40	10.00	10.00	0.00
9,900.00	43.36	179.68	9,761.53	453.36	675.38	-356.95	10.00	10.00	0.00
10,000.00	53.36	179.68	9,827.89	378.72	675.80	-282.96	10.00	10.00	0.00
10,100.00	63.36	179.68	9,880.28	293.70	676.28	-198.66	10.00	10.00	0.00
10,200.00	73.36	179.68	9,917.12	200.87	676.80	-106.63	10.00	10.00	0.00
10,300.00	83.36	179.68	9,937.27	103.05	677.35	-9.65	10.00	10.00	0.00

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Arkenstone 31 Federal Com 4H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=26.5' @ 3371.10ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=26.5' @ 3371.10ft
Site:	Arkenstone 31 Federal	North Reference:	Grid
Well:	Arkenstone 31 Federal Com 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,370.30	90.39	179.68	9,941.10	32.90	677.74	59.89	10.00	10.00	0.00
10,400.00	90.39	179.68	9,940.90	3.20	677.91	89.34	0.00	0.00	0.00
10,500.00	90.39	179.68	9,940.22	-96.80	678.47	188.48	0.00	0.00	0.00
10,600.00	90.39	179.68	9,939.54	-196.79	679.03	287.61	0.00	0.00	0.00
10,700.00	90.39	179.68	9,938.87	-296.79	679.59	386.75	0.00	0.00	0.00
10,800.00	90.39	179.68	9,938.19	-396.78	680.16	485.89	0.00	0.00	0.00
10,900.00	90.39	179.68	9,937.51	-496.78	680.72	585.03	0.00	0.00	0.00
11,000.00	90.39	179.68	9,936.83	-596.78	681.28	684.16	0.00	0.00	0.00
11,100.00	90.39	179.68	9,936.15	-696.77	681.84	783.30	0.00	0.00	0.00
11,200.00	90.39	179.68	9,935.48	-796.77	682.40	882.44	0.00	0.00	0.00
11,300.00	90.39	179.68	9,934.80	-896.76	682.96	981.58	0.00	0.00	0.00
11,400.00	90.39	179.68	9,934.12	-996.76	683.53	1,080.71	0.00	0.00	0.00
11,500.00	90.39	179.68	9,933.44	-1,096.76	684.09	1,179.85	0.00	0.00	0.00
11,600.00	90.39	179.68	9,932.77	-1,196.75	684.65	1,278.99	0.00	0.00	0.00
11,700.00	90.39	179.68	9,932.09	-1,296.75	685.21	1,378.13	0.00	0.00	0.00
11,800.00	90.39	179.68	9,931.41	-1,396.75	685.77	1,477.26	0.00	0.00	0.00
11,900.00	90.39	179.68	9,930.73	-1,496.74	686.33	1,576.40	0.00	0.00	0.00
12,000.00	90.39	179.68	9,930.05	-1,596.74	686.90	1,675.54	0.00	0.00	0.00
12,100.00	90.39	179.68	9,929.38	-1,696.73	687.46	1,774.67	0.00	0.00	0.00
12,200.00	90.39	179.68	9,928.70	-1,796.73	688.02	1,873.81	0.00	0.00	0.00
12,300.00	90.39	179.68	9,928.02	-1,896.73	688.58	1,972.95	0.00	0.00	0.00
12,400.00	90.39	179.68	9,927.34	-1,996.72	689.14	2,072.09	0.00	0.00	0.00
12,500.00	90.39	179.68	9,926.66	-2,096.72	689.70	2,171.22	0.00	0.00	0.00
12,600.00	90.39	179.68	9,925.99	-2,196.71	690.27	2,270.36	0.00	0.00	0.00
12,700.00	90.39	179.68	9,925.31	-2,296.71	690.83	2,369.50	0.00	0.00	0.00
12,800.00	90.39	179.68	9,924.63	-2,396.71	691.39	2,468.64	0.00	0.00	0.00
12,900.00	90.39	179.68	9,923.95	-2,496.70	691.95	2,567.77	0.00	0.00	0.00
13,000.00	90.39	179.68	9,923.28	-2,596.70	692.51	2,666.91	0.00	0.00	0.00
13,100.00	90.39	179.68	9,922.60	-2,696.70	693.07	2,766.05	0.00	0.00	0.00
13,200.00	90.39	179.68	9,921.92	-2,796.69	693.64	2,865.18	0.00	0.00	0.00
13,300.00	90.39	179.68	9,921.24	-2,896.69	694.20	2,964.32	0.00	0.00	0.00
13,400.00	90.39	179.68	9,920.56	-2,996.68	694.76	3,063.46	0.00	0.00	0.00
13,500.00	90.39	179.68	9,919.89	-3,096.68	695.32	3,162.60	0.00	0.00	0.00
13,600.00	90.39	179.68	9,919.21	-3,196.68	695.88	3,261.73	0.00	0.00	0.00
13,700.00	90.39	179.68	9,918.53	-3,296.67	696.44	3,360.87	0.00	0.00	0.00
13,800.00	90.39	179.68	9,917.85	-3,396.67	697.01	3,460.01	0.00	0.00	0.00
13,900.00	90.39	179.68	9,917.18	-3,496.66	697.57	3,559.15	0.00	0.00	0.00
14,000.00	90.39	179.68	9,916.50	-3,596.66	698.13	3,658.28	0.00	0.00	0.00
14,100.00	90.39	179.68	9,915.82	-3,696.66	698.69	3,757.42	0.00	0.00	0.00
14,200.00	90.39	179.68	9,915.14	-3,796.65	699.25	3,856.56	0.00	0.00	0.00
14,300.00	90.39	179.68	9,914.46	-3,896.65	699.81	3,955.70	0.00	0.00	0.00
14,400.00	90.39	179.68	9,913.79	-3,996.64	700.38	4,054.83	0.00	0.00	0.00
14,500.00	90.39	179.68	9,913.11	-4,096.64	700.94	4,153.97	0.00	0.00	0.00
14,600.00	90.39	179.68	9,912.43	-4,196.64	701.50	4,253.11	0.00	0.00	0.00
14,700.00	90.39	179.68	9,911.75	-4,296.63	702.06	4,352.24	0.00	0.00	0.00
14,800.00	90.39	179.68	9,911.07	-4,396.63	702.62	4,451.38	0.00	0.00	0.00
14,900.00	90.39	179.68	9,910.40	-4,496.63	703.18	4,550.52	0.00	0.00	0.00
15,000.00	90.39	179.68	9,909.72	-4,596.62	703.75	4,649.66	0.00	0.00	0.00
15,100.00	90.39	179.68	9,909.04	-4,696.62	704.31	4,748.79	0.00	0.00	0.00
15,200.00	90.39	179.68	9,908.36	-4,796.61	704.87	4,847.93	0.00	0.00	0.00
15,300.00	90.39	179.68	9,907.69	-4,896.61	705.43	4,947.07	0.00	0.00	0.00
15,400.00	90.39	179.68	9,907.01	-4,996.61	705.99	5,046.21	0.00	0.00	0.00
15,500.00	90.39	179.68	9,906.33	-5,096.60	706.55	5,145.34	0.00	0.00	0.00
15,533.93	90.39	179.68	9,906.10	-5,130.53	706.75	5,178.98	0.00	0.00	0.00

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Arkenstone 31 Federal Com 4H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=26.5' @ 3371.10ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=26.5' @ 3371.10ft
Site:	Arkenstone 31 Federal	North Reference:	Grid
Well:	Arkenstone 31 Federal Com 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL (Arkenstone 31 - plan hits target center - Point	0.00	0.00	9,906.10	-5,130.53	706.75	456,420.80	701,729.20	32° 15' 13.358538 N	103° 48' 52.164410
FTP (Arkenstone 31 - plan hits target center - Point	0.00	0.00	9,941.10	32.90	677.74	461,583.90	701,700.20	32° 16' 4.451899 N	103° 48' 52.211498

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
4,015.00	4,015.00	0.00	0.00	Build 2.00°/100'	
4,615.06	4,610.68	45.55	42.97	Hold 12.00° Tangent	
8,473.52	8,384.81	629.14	593.51	Turn 2.00°/100'	
9,586.41	9,487.28	597.21	674.57	KOP, Build 10.00°/100'	
10,370.30	9,941.10	32.90	677.74	Landing Point	
15,533.93	9,906.10	-5,130.53	706.75	TD at 15533.93' MD	



Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
 Site: Arkenstone 31 Federal
 Well: Arkenstone 31 Federal Com 4H
 Wellbore: WB00
 Design: Permitting Plan

PROJECT DETAILS: NM DIRECTIONAL PLANS (NAD 1983)

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

WELL DETAILS: Arkenstone 31 Federal Com 4H

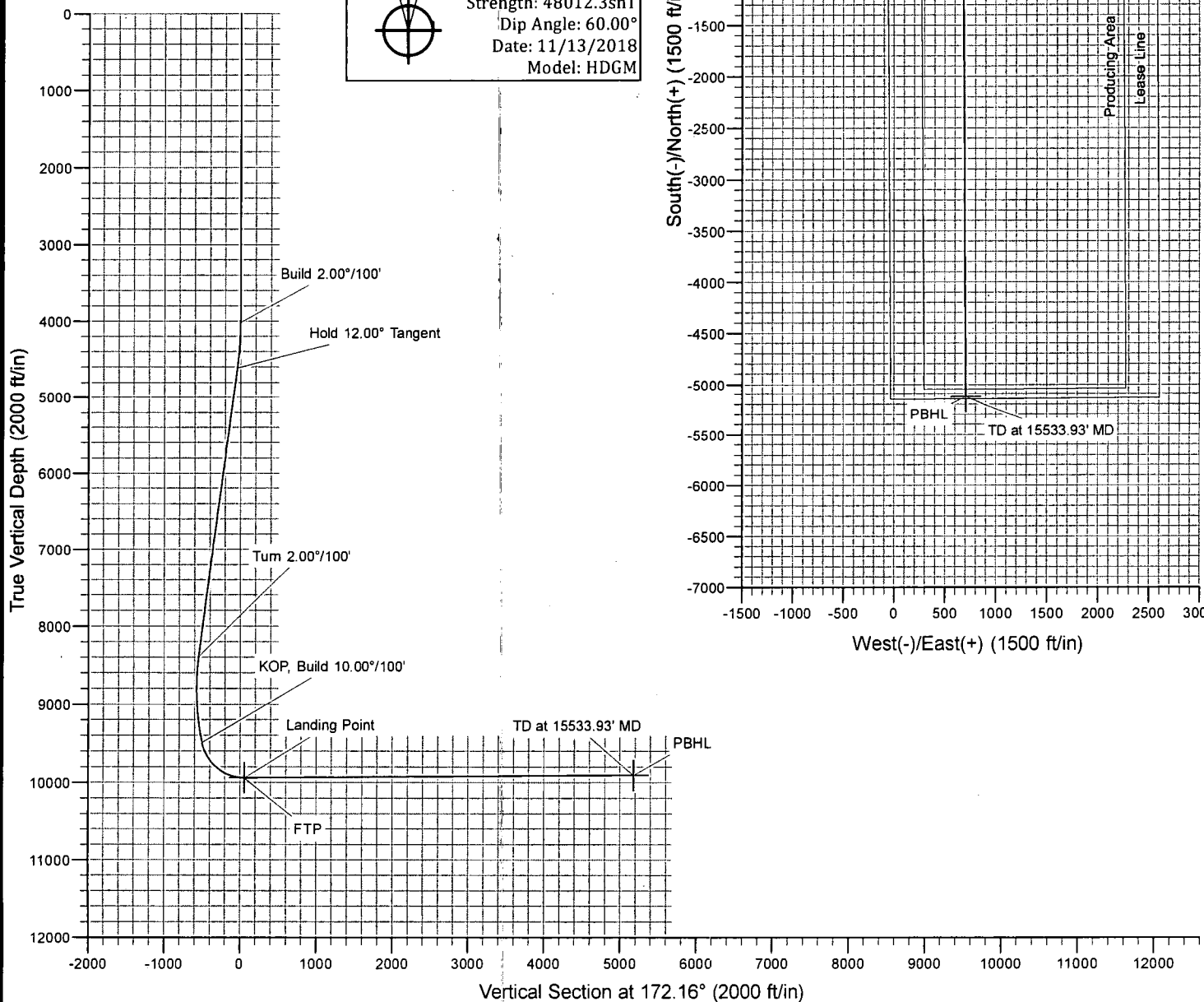
+N/-S	+E/-W	Northing	Ground Level Easting	3344.60	Latitude	Longitude
0.00	0.00	461551.00	701022.50		32° 16' 4.158687 N	103° 49' 0.106425 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4015.00	0.00	0.00	4015.00	0.00	0.00	0.00	0.00	0.00	Build 2.00°/100'
4615.06	12.00	43.33	4610.68	45.55	42.97	2.00	43.33	-39.26	Hold 12.00° Tangent
8473.52	12.00	43.33	8384.81	629.14	593.51	0.00	0.00	-542.27	Turn 2.00°/100'
9586.41	12.00	179.68	9487.28	597.21	674.57	2.00	157.73	-499.57	KOP, Build 10.00°/100'
10370.30	90.39	179.68	9941.10	32.90	677.74	10.00	0.00	59.89	Landing Point
15533.93	90.39	179.68	9906.10	-5130.53	706.75	0.00	0.00	5178.98	TD at 15533.93' MD



Azimuths to Grid North
 True North: -0.28°
 Magnetic North: 6.61°
 Magnetic Field
 Strength: 48012.3snT
 Dip Angle: 60.00°
 Date: 11/13/2018
 Model: HDGM



OXY USA Inc
APD ATTACHMENT: SPUDDER RIG DATA

OPERATOR NAME / NUMBER: OXY USA Inc

1. SUMMARY OF REQUEST:

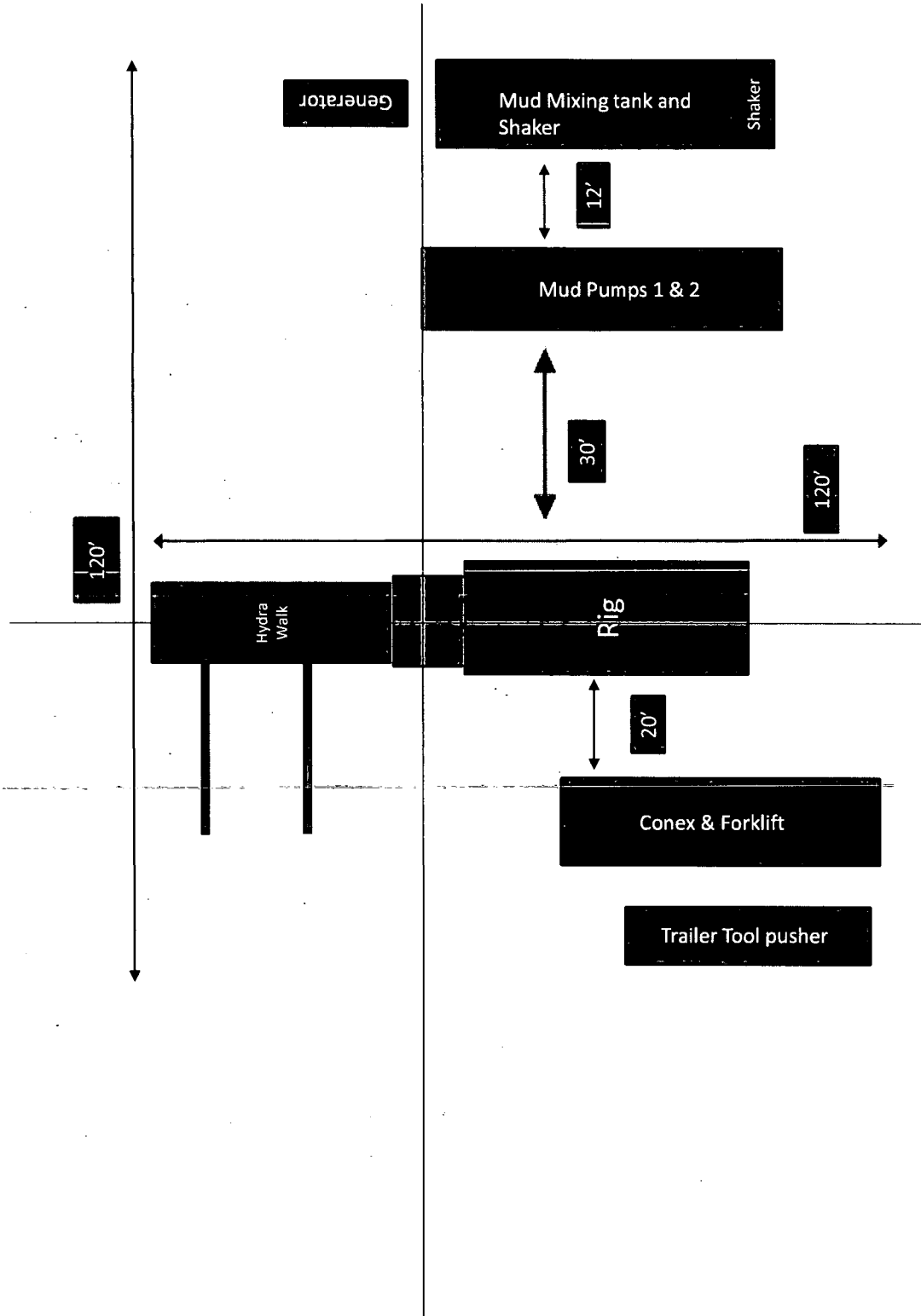
Oxy USA respectfully requests approval for the following operations for the surface hole in the drill plan:

1. Utilize a spudder rig to pre-set surface casing for time and cost savings.

2. Description of Operations

1. Spudder rig will move in to drill the surface hole and pre-set surface casing on the well.
 - a. After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
 - b. The spudder rig will utilize fresh water-based mud to drill the surface hole to TD. Solids control will be handled entirely on a closed loop basis. No earth pits will be used.
2. The wellhead will be installed and tested as soon as the surface casing is cut off and the WOC time has been reached.
3. A blind flange at the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with needle valves installed on two wingvalves.
 - a. A means for intervention will be maintained while the drilling rig is not over the well.
4. Spudder rig operations are expected to take 2-3 days per well on the pad.
5. The BLM will be contacted and notified 24 hours prior to commencing spudder rig operations.
6. Drilling operations will begin with a larger rig and a BOP stack equal to or greater than the pressure rating that was permitted will be nipped up and tested on the wellhead before drilling operations resume on each well.
 - a. The larger rig will move back onto the location within 90 days from the point at which the wells are secured and the spudder rig is moved off location.
 - b. The BLM will be contacted / notified 24 hours before the larger rig moves back on the pre-set locations.
7. Oxy will have supervision on the rig to ensure compliance with all BLM and NMOCD regulations and to oversee operations.
8. Once the rig is removed, Oxy will secure the wellhead area by placing a guard rail around the cellar area.

Spudder Rig Layout



OXY USA Inc. - Arkenstone 31 Federal 4H - Amended Drill Plan

1. Geologic Formations

TVD of target	9941'	Pilot Hole Depth	N/A
MD at TD:	15533'	Deepest Expected fresh water:	369'

Delaware Basin

Formation	TVD - RKB	Expected Fluids
Rustler	369	
Salado	689	Salt
Castile	2,605	Salt
Lamar/Delaware	4,059	Oil/Gas/Brine
Bell Canyon	4,099	Oil/Gas/Brine
Cherry Canyon	4,984	Oil/Gas/Brine
Brushy Canyon	6,270	Losses
Bone Spring	7,954	Oil/Gas
1st Bone Spring	8,988	Oil/Gas
2nd Bone Spring	9,628	Oil/Gas

*H2S, water flows, loss of circulation, abnormal pressures, etc.

2. Casing Program

Primary Plan:

Hole Size (in)	Casing Interval		Csg. Size (in)	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	Buoyant	Buoyant
	From (ft)	To (ft)							Body SF Tension	Joint SF Tension
17.5	0	419	13.375	54.5	J-55	BTC	1.125	1.2	1.4	1.4
12.25	0	4109	9.625	40	L-80	BTC	1.125	1.2	1.4	1.4
8.5	0	10036	5.5	20	P-110	DQX	1.125	1.2	1.4	1.4
8.5	10036	15533	4.5	13.5	P-110	DQX	1.125	1.2	1.4	1.4
SF Values will meet or Exceed										

Contingency Plan:

Hole Size (in)	Casing Interval		Csg. Size (in)	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	Buoyant	Buoyant
	From (ft)	To (ft)							Body SF Tension	Joint SF Tension
17.5	0	419	13.375	54.5	J-55	BTC	1.125	1.2	1.4	1.4
12.25	0	4109	9.625	40	L-80	BTC	1.125	1.2	1.4	1.4
8.5	0	9486	7.625	26.4	L-80 HC	SF (0 ft to 4000 ft) FJ (4000 ft to 9486 ft)	1.125	1.2	1.4	1.4
6.75	0	10036	5.5	20	P-110	DQX	1.125	1.2	1.4	1.4
6.75	10036	15533	4.5	13.5	P-110	DQX	1.125	1.2	1.4	1.4
SF Values will meet or Exceed										

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

*Oxy requests the option to run the 7.625" Intermediate II as a contingency string to be run only if severe hole conditions dictate an additional casing string necessary.

OXY USA Inc. - Arkenstone 31 Federal 4H – Amended Drill Plan

*Oxy requests the option to set casing shallower yet still below the salts if losses or hole conditions require this. Cement volumes may be adjusted if casing is set shallower and a DV tool may be run in case hole conditions merit pumping a second stage cement job to comply with permitted top of cement. If cement circulated to surface during first stage, we will drop a cancellation cone and not pump the second stage.

*Oxy requests the option to run production casing with DQX, SF TORQ and/or DQW TORQ connections to accommodate hole conditions or drilling operations.

Annular Clearance Variance Request

As per the agreement reached in the Oxy/BLM meeting on Feb 22, 2018, Oxy requests permission to allow deviation from the 0.422" annular clearance requirement from Onshore Order #2 under the following conditions:

1. Annular clearance to meet or exceed 0.422" between intermediate casing ID and production casing coupling only on the first 500' overlap between both casings.
2. Annular clearance less than 0.422" is acceptable for the curve and lateral portions of the production open hole section.

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	Y
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	Y
If yes, are the first three strings cemented to surface?	Y
Is 2 nd string set 100' to 600' below the base of salt?	Y
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

OXY USA Inc. - Arkenstone 31 Federal 4H - Amended Drill Plan

3. Cementing Program

Primary Plan:

Casing String	# Sks	Wt. (lb/gal)	Yld (ft3/sack)	H2O (gal/sk)	500# Comp. Strength (hours)	Slurry Description
Surface (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Surface (Tail)	449	14.8	1.33	6.365	5:26	Class C Cement, Accelerator
Intermediate (Lead)	955	12.9	1.73	8.784	15:26	Pozzolan Cement, Retarder
Intermediate (Tail)	155	14.8	1.33	6.368	7:11	Class C Cement, Accelerator
Production 1st Stage (Lead)	250	13.2	1.38	6.692	17:50	Class H Cement, Retarder, Dispersant, Salt
Production 1st Stage (Tail)	1329	13.2	1.38	6.686	3:49	Class H Cement, Retarder, Dispersant, Salt
2nd Stage Production Lead Slurry to be pumped as Bradenhead Squeeze from surface, down the Production annulus.						
Production 2nd Stage (Tail)	942	12.9	1.872	10.11	21:54	Class C Cement, Accelerator

Casing String	Top (ft)	Bottom (ft)	% Excess
Surface (Lead)	N/A	N/A	N/A
Surface (Tail)	0	419	100%
Intermediate (Lead)	0	3609	50%
Intermediate (Tail)	3609	4109	20%
Production 1st Stage (Lead)	6520	7954	5%
Production 1st Stage (Tail)	7954	15533	5%
Production 2nd Stage (Tail)	0	6520	25%

Contingency Plan:

Casing String	# Sks	Wt. (lb/gal)	Yld (ft3/sack)	H2O (gal/sk)	500# Comp. Strength (hours)	Slurry Description
Surface (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Surface (Tail)	449	14.8	1.33	6.365	5:26	Class C Cement, Accelerator
Intermediate (Lead)	879	12.9	1.88	10.130	14:22	Pozzolan Cement, Retarder
Intermediate (Tail)	155	14.8	1.33	6.370	12:45	Class C Cement, Accelerator
Intermediate II 1st Stage (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Intermediate II 1st Stage (Tail)	146	13.2	1.65	8.640	11:54	Class H Cement, Retarder, Dispersant, Salt
Intermediate II 2nd Stage (Tail Slurry) to be pumped as Bradenhead Squeeze from surface, down the Intermediate annulus						
Intermediate II 2nd Stage (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Intermediate II 2nd Stage (Tail)	360	12.9	1.92	10.410	23:10	Class C Cement, Accelerator
Production (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Production (Tail)	742	13.2	1.38	6.686	3:49	Class H Cement, Retarder, Dispersant, Salt

Casing String	Top (ft)	Bottom (ft)	% Excess
Surface (Lead)	N/A	N/A	N/A
Surface (Tail)	0	419	100%
Intermediate (Lead)	0	3609	50%
Intermediate (Tail)	3609	4109	20%
Intermediate II 1st Stage (Lead)	N/A	N/A	N/A
Intermediate II 1st Stage (Tail)	6520	9486	5%
Intermediate II 2nd Stage (Lead)	N/A	N/A	N/A
Intermediate II 2nd Stage (Tail)	0	6520	25%
Production (Lead)	N/A	N/A	N/A
Production (Tail)	8986	15533	20%

*Contingency design will only be employed if Oxy elects to run 7.625" Intermediate II string.

*OXY requests a variance to cement the 7-5/8" intermediate casing strings offline, see attached for additional information.

OXY USA Inc. - Arkenstone 31 Federal 4H – Amended Drill Plan

4. Pressure Control Equipment

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12.25" Hole	13-5/8"	3M	Annular	✓	70% of working pressure
		3M	Blind Ram	✓	250 psi / 3000 psi
			Pipe Ram		
			Double Ram	✓	
			Other*		
8.5" Hole	13-5/8"	3M	Annular	✓	70% of working pressure
		3M	Blind Ram	✓	250 psi / 3000 psi
			Pipe Ram		
			Double Ram	✓	
			Other*		
6.75" Hole (Contingency)	13-5/8"	3M	Annular	✓	70% of working pressure
		3M	Blind Ram	✓	250 psi / 3000 psi
			Pipe Ram		
			Double Ram	✓	
			Other*		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
Y	Are anchors required by manufacturer?
	A multibowl or a unionized multibowl wellhead system will be employed. The wellhead and connection to the BOPE will meet all API 6A requirements. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. We will test the flange connection of the wellhead with a test port that is directly in the flange. We are proposing that we will run the wellhead through the rotary prior to cementing surface casing as discussed with the BLM on October 8, 2015. See attached schematics.

OXY USA Inc. - Arkenstone 31 Federal 4H - Amended Drill Plan

BOP Break Testing Request

As per the agreement reached in the Oxy/BLM meeting on Feb 22, 2018, Oxy requests permission to allow BOP Break Testing under the following conditions:

- After a full BOP test is conducted on the first well on the pad.
- When skidding to drill an intermediate section that casing point is either shallower than the third Bone Spring or 10,000 feet TVD.
- Full BOP test will be required prior to drilling any production hole.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From (ft)	To (ft)				
0	419	Water-Based Mud	8.6-8.8	40-60	N/C
419	4109	Saturated Brine-Based Mud	9.8-10.0	35-45	N/C
4109	15533	Water-Based or Oil-Based Mud	8.0-9.6	38-50	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times. The following is a general list of products: Barite, Bentonite, Gypsum, Lime, Soda Ash, Caustic Soda, Nut Plug, Cedar Fiber, Cotton Seed Hulls, Drilling Paper, Salt Water Clay, CACL2. Oxy will use a closed mud system.

What will be used to monitor the loss or gain of fluid?	PVT/MD Totco/Visual Monitoring
---	--------------------------------

6. Logging and Testing Procedures

Logging, Coring and Testing.	
Yes	Will run GR from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
No	Logs are planned based on well control or offset log information.
No	Drill stem test? If yes, explain
No	Coring? If yes, explain

Additional logs planned		Interval
No	Resistivity	
No	Density	
No	CBL	
Yes	Mud log	ICP - TD
No	PEX	

OXY USA Inc. - Arkenstone 31 Federal 4H – Amended Drill Plan

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	4963 psi
Abnormal Temperature	No
BH Temperature at deepest TVD	160°F

Pump high viscosity sweeps as needed for hole cleaning. The mud system will be monitored visually/manually as well as with an electronic PVT. The necessary mud products for additional weight and fluid loss control will be on location at all times. Appropriately weighted mud will be used to isolate potential gas, oil, and water zones until such time as casing can be cemented into place for zonal isolation.

Hydrogen Sulfide (H₂S) monitors will be installed prior to drilling out the surface shoe. If H₂S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.

N	H ₂ S is present
Y	H ₂ S Plan attached

8. Other facets of operation

	Yes/No
Will the well be drilled with a walking/skidding operation? If yes, describe. We plan to drill the three well pad in batch by section: all surface sections, intermediate sections and production sections. The wellhead will be secured with a night cap whenever the rig is not over the well.	Yes
Will more than one drilling rig be used for drilling operations? If yes, describe. Oxy requests the option to contract a Surface Rig to drill, set surface casing, and cement for this well. If the timing between rigs is such that Oxy would not be able to preset surface, the Primary Rig will MIRU and drill the well in its entirety per the APD. Please see the attached document for information on the spudder rig.	Yes

Total estimated cuttings volume: 1464.4 bbls.

9. Company Personnel

Name	Title	Office Phone	Mobile Phone
Linsay Earle	Drilling Engineer	713-350-4921	832-596-5507
Margaret Giltner	Drilling Engineer Supervisor	713-366-5026	210-683-8480
Simon Benavides	Drilling Superintendent	713-522-8652	281-684-6897
Diego Tellez	Drilling Manager	713-350-4602	713-303-4932

OXY USA Inc. – Arkenstone 31 Federal #4H – Amended Cementing Program

3. Cementing Program - Amended

Primary Plan:

Casing String	# Sk	Wt. (lb/gal)	Yld (ft ³ /sack)	H ₂ O (gal/sk)	500# Comp. Strength (hours)	Slurry Description
Surface (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Surface (Tail)	449	14.8	1.33	6.365	5:26	Class C Cement, Accelerator
Intermediate (Lead)	955	12.9	1.73	8.784	15:26	Pozzolan Cement, Retarder
Intermediate (Tail)	155	14.8	1.33	6.368	7:11	Class C Cement, Accelerator
Production 1st Stage (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Production 1st Stage (Tail)	1805	13.2	1.38	6.686	3:49	Class H Cement, Retarder, Dispersant, Salt
2nd Stage Production Lead Slurry to be pumped as Bradenhead Squeeze from surface, down the Production annulus.						
Production 2nd Stage (Tail)	1016	12.9	1.872	10.11	21:54	Class C Cement, Accelerator

Casing String	Top (ft)	Bottom (ft)	% Excess
Surface (Lead)	N/A	N/A	N/A
Surface (Tail)	0	419	100%
Intermediate (Lead)	0	3609	50%
Intermediate (Tail)	3609	4109	20%
Production 1st Stage (Lead)	N/A	N/A	N/A
Production 1st Stage (Tail)	6520	15533	5%
Production 2nd Stage (Tail)	0	N/A	50%

6520

OXY USA Inc.
APD Attachment
Offline Cementing

OXY respectfully requests a variance to cement the 9-5/8" and/or 7-5/8" intermediate casing strings offline.

The summarized operational sequence will be as follows:

1. Run casing as per normal operations. While running casing, conduct negative pressure test and confirm integrity of the float equipment (float collar and shoe).
2. Land casing.
3. Fill pipe with kill weight fluid, and confirm well is static.
 - a. If well is not static notify BLM and kill well.
 - b. Once well is static notify BLM with intent to proceed with nipple down and offline cementing.
4. Set and pressure test annular packoff.
5. After confirmation of both annular barriers and internal barriers, nipple down BOP and install cap flange. If any barrier fails to test, the BOP stack will not be nipped down until after the cement job is completed.
6. Skid rig to next well on pad.
7. Confirm well is static before removing cap flange.
8. If well is not static notify BLM and kill well prior to cementing or nipping up for further remediation.
9. Install offline cement tool.
10. Rig up cement equipment.
 - a. Notify BLM prior to cement job.
11. Perform cement job.
12. Confirm well is static and floats are holding after cement job.
13. Remove cement equipment, offline cement tools and install night cap with pressure gauge for monitoring.



U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

SUPO Data Report

01/07/2020

APD ID: 10400038590

Submission Date: 01/29/2019

Highlighted data
reflects the most
recent changes

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Arkenstone31Fd4H_LocDrillPathAmd_20190829100009.pdf

Arkenstone31Fd4H_NewRoadAmd_20190829100009.pdf

Arkenstone31Fd4H_VicinityMapAmd_20190829100020.pdf

Existing Road Purpose: FLUID TRANSPORT

Row(s) Exist? NO

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

Arkenstone31Fd4H_NewRoadAmd_20190829100113.pdf

New road type: LOCAL

Length: 2902

Feet

Width (ft.): 25

Max slope (%): 0

Max grade (%): 0

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 14

New road access erosion control: Watershed Diversion every 200' if needed.

New road access plan or profile prepared? YES

New road access plan attachment:

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

Arkenstone31Fd4H_NewRoadAmd_20190829100137.pdf

Access road engineering design? NO

Access road engineering design attachment:

Turnout? N

Access surfacing type: OTHER

Access topsoil source: ONSITE

Access surfacing type description: Caliche

Access onsite topsoil source depth: 0

Offsite topsoil source description:

Onsite topsoil removal process: If available

Access other construction information: None

Access miscellaneous information: The access road will run from an existing road going 184' southwest, then 1659' northwest, then 798' north, then 261' east through pasture to the southwest corner of the pad.

Number of access turnouts:

Access turnout map:

Drainage Control

New road drainage crossing: CULVERT

Drainage Control comments: Watershed Diversion every 200' if needed.

Road Drainage Control Structures (DCS) description: Watershed Diversion every 200' if needed.

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

Arkenstone31Fd4H_ExistWells_20190129104631.pdf

Section 4 - Location of Existing and/or Proposed Production Facilities

Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description: a. In the event the well is found productive, the Sand Dunes Precious Central Tank Battery would be utilized and the necessary production equipment will be installed at the well site. See proposed facilities layout diagram. b. All flow lines will adhere to API standards. They will consist of 3 – 4" composite flowlines operating 75% MAWP, surface to follow surveyed route. Survey of a strip of land 30' wide and 2151.4' in length crossing USA land in Sections 30 & 31, T23S R31E, NMPM, Eddy County, NM and being 15' left and 15' right of the centerline survey. Two–6" steel gas lift hp line operating 1500 psig, buried, lines to follow surveyed route. Survey of a strip of land 30' wide and 2654.2'

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

in length crossing USA land in Section 30 & 31, T23S R31E, NMPM, Eddy County, NM and being 15' left and 15' right of the centerline survey. See attached. c. Electric line will follow a route approved by the BLM. Survey of a strip of land 30' wide and 1492.6' in length crossing USA land in Sections 31 T23S R31E NMPM, Eddy County, NM and being 15' left and 15' right of the centerline survey, see attached. d. See attached for additional information on the Sand Dunes Precious/Arkenstone Central Corridor Surface Production Facilities.

Production Facilities map:

Arkenstone31Fd4H_FacilityPLELAmd_20190829100310.pdf

Arkenstone31Fd4H_LeaseFacilityInfoAmd_20190829100323.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Water source type: GW WELL

Water source use type: SURFACE CASING
INTERMEDIATE/PRODUCTION
CASING
OTHER

Describe use type: Drilling

Source latitude:

Source longitude:

Source datum:

Water source permit type: WATER WELL

Water source transport method: TRUCKING
PIPELINE

Source land ownership: COMMERCIAL

Source transportation land ownership: COMMERCIAL

Water source volume (barrels): 2000

Source volume (acre-feet): 0.25778618

Source volume (gal): 84000

Water source and transportation map:

Arkenstone31Fd4H_GRRWtrSrc_20190129104723.pdf

Arkenstone31Fd4H_MesqWtrSrc_20190129104733.pdf

Water source comments: This well will be drilled using a combination of water mud systems. It will be obtained from commercial water stations (Gregory Rockhouse, Mesquite) in the area and will be hauled to location by transport truck using existing and proposed roads.

New water well? NO

New Water Well Info

Well latitude:

Well Longitude:

Well datum:

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

Well target aquifer:

Est. depth to top of aquifer(ft):

Est thickness of aquifer:

Aquifer comments:

Aquifer documentation:

Well depth (ft):

Well casing type:

Well casing outside diameter (in.):

Well casing inside diameter (in.):

New water well casing?

Used casing source:

Drilling method:

Drill material:

Grout material:

Grout depth:

Casing length (ft.):

Casing top depth (ft.):

Well Production type:

Completion Method:

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Using any construction materials: YES

Construction Materials description: Primary - All caliche utilized for the drilling pad and proposed access road will be obtained from an existing BLM/State/Fee approved pit or from prevailing deposits found on the location. Will use BLM recommended extra caliche from other locations close by for roads, if available. Secondary - The secondary way of obtaining caliche to build locations and roads will be by "turning over" the location. This means, caliche will be obtained from the actual well site. A caliche permit will be obtained from BLM prior to pushing up any caliche. 2400 cubic yards is max amount of caliche needed for pad and roads. Amount will vary for each pad. The procedure below has been approved by BLM personnel: a. The top 6" of topsoil is pushed off and stockpiled along the side of the location. b. An approximate 120' X 120' area is used within the proposed well site to remove caliche. c. Subsoil is removed and piled alongside the 120' X 120' within the pad site. d. When caliche is found, material will be stockpiled within the pad site to build the location and road. e. Then subsoil is pushed back in the hole and caliche is spread accordingly across entire location and road. f. Once the well is drilled the stockpiled top soil will be used for interim reclamation and spread along areas where caliche is picked up and the location size is reduced. Neither caliche nor subsoil will be stockpiled outside of the well pad. Topsoil will be stockpiled along the edge of the pad. Caliche will be provided from a pit located in Section 7 T24S R31E. Water will be provided from a frac pond located in Sections 7 T24S R31E.

Construction Materials source location attachment:

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Water-Based Cuttings, Water-Based Mud, Oil-Based Cuttings, Oil-Based Mud, Produced Water

Amount of waste: 1464.4 barrels

Waste disposal frequency : Daily

Safe containment description: Haul-Off Bins

Safe containmant attachment:

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL

Disposal type description:

Disposal location description: An approved facility that can process drill cuttings, drill fluids, flowback water, produced water, contaminated soils, and other non-hazardous wastes.

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

Reserve pit length (ft.)

Reserve pit width (ft.)

Reserve pit depth (ft.)

Reserve pit volume (cu. yd.)

Is at least 50% of the reserve pit in cut?

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? YES

Description of cuttings location A closed loop system will be utilized consisting of above ground steel tanks and haul-off bins. Disposal of liquids, drilling fluids and cuttings will be disposed of at an approved facility.

Cuttings area length (ft.)

Cuttings area width (ft.)

Cuttings area depth (ft.)

Cuttings area volume (cu. yd.)

Is at least 50% of the cuttings area in cut?

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

Section 9 - Well Site Layout

Well Site Layout Diagram:

Arkenstone31Fd4H_WellSiteCLAmD_20190829100417.pdf

Comments: V-Door-East - CL Tanks-North - 330' X 1240' – 9 Well Pad

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance

Multiple Well Pad Name: ARKENSTONE 31 FEDERAL

Multiple Well Pad Number: 3H

Recontouring attachment:

Drainage/Erosion control construction: Reclamation to be wind rowed as needed to control erosion

Drainage/Erosion control reclamation: Reclamation to be wind rowed as needed to control erosion

Well pad proposed disturbance (acres): 9.39	Well pad interim reclamation (acres): 2.13	Well pad long term disturbance (acres): 7.26
Road proposed disturbance (acres): 2	Road interim reclamation (acres): 1.07	Road long term disturbance (acres): 0.93
Powerline proposed disturbance (acres): 1.03	Powerline interim reclamation (acres): 1.03	Powerline long term disturbance (acres): 0
Pipeline proposed disturbance (acres): 3.31	Pipeline interim reclamation (acres): 2.21	Pipeline long term disturbance (acres): 1.1
Other proposed disturbance (acres): 0	Other interim reclamation (acres): 0.33	Other long term disturbance (acres): 0
Total proposed disturbance: 15.73	Total interim reclamation: 6.77	Total long term disturbance: 9.29

Disturbance Comments: See Below

Reconstruction method: If the well is deemed commercially productive, caliche from the areas of the pad site not required for operations will be reclaimed. The original topsoil will be returned to the area of the drill pad not necessary to operate the well. These unused areas of the drill pad will be contoured, as close as possible, to match the original topography, and the area will be seeded with an approved BLM mixture to re-establish vegetation. After concluding the drilling and/or completion operations, if the well is found non-commercial, the caliche will be removed from the pad and transported to the original caliche pit or used for other drilling locations. The road will be reclaimed as directed by the BLM. The original topsoil will again be returned to the pad and contoured, as close as possible, to the original topography, and the area will be seeded with an approved BLM mixture to re-establish vegetation.

Topsoil redistribution: The original topsoil will be returned to the area of the drill pad not necessary to operate the well.

Soil treatment: To be determined by the BLM.

Existing Vegetation at the well pad: To be determined by the BLM at Onsite.

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: To be determined by the BLM at Onsite.

Existing Vegetation Community at the road attachment:

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

Existing Vegetation Community at the pipeline: To be determined by the BLM at Onsite.

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: To be determined by the BLM at Onsite.

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed Summary

Total pounds/Acre:

Seed Type	Pounds/Acre
-----------	-------------

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: Jim

Last Name: Wilson

Phone: (575)631-2442

Email: jim_wilson@oxy.com

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

Weed treatment plan description: To be determined by the BLM.

Weed treatment plan attachment:

Monitoring plan description: To be determined by the BLM.

Monitoring plan attachment:

Success standards: To be determined by the BLM.

Pit closure description: NA

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Disturbance type: PIPELINE

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Disturbance type: OTHER

Describe: Electric Line

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

Disturbance type: NEW ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Section 12 - Other Information

Right of Way needed? YES

Use APD as ROW? YES

ROW Type(s): 281001 ROW - ROADS,285003 ROW – POWER TRANS,288100 ROW – O&G Pipeline,289001 ROW- O&G Well Pad

ROW Applications

SUPO Additional Information: Permian Basin MOA - To be submitted after APD acceptance. GIS Shapefiles available for BLM download from shared FTP site after APD submittal.

Use a previously conducted onsite? NO

Previous Onsite information:

Other SUPO Attachment

Arkenstone31Fd4H_StakeForm_20190129105339.pdf

Arkenstone31Fd4H_GasCapPlanAmd_20190829100614.pdf

Arkenstone31Fd4H_ImageryMapAmd_20190829100615.pdf

Arkenstone31Fd4H_LandStatusMapAmd_20190829100618.pdf

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

Arkenstone31Fd4H_SUPOAmd_20190829100635.pdf

Arkenstone31Fd4H_VicinityMapAmd_20190829100637.pdf

Arkenstone31Fd4H_TopoMapAmd_20190829100636.pdf

Arkenstone31Fd4H_LocDrillPathAmd_20190829100744.pdf

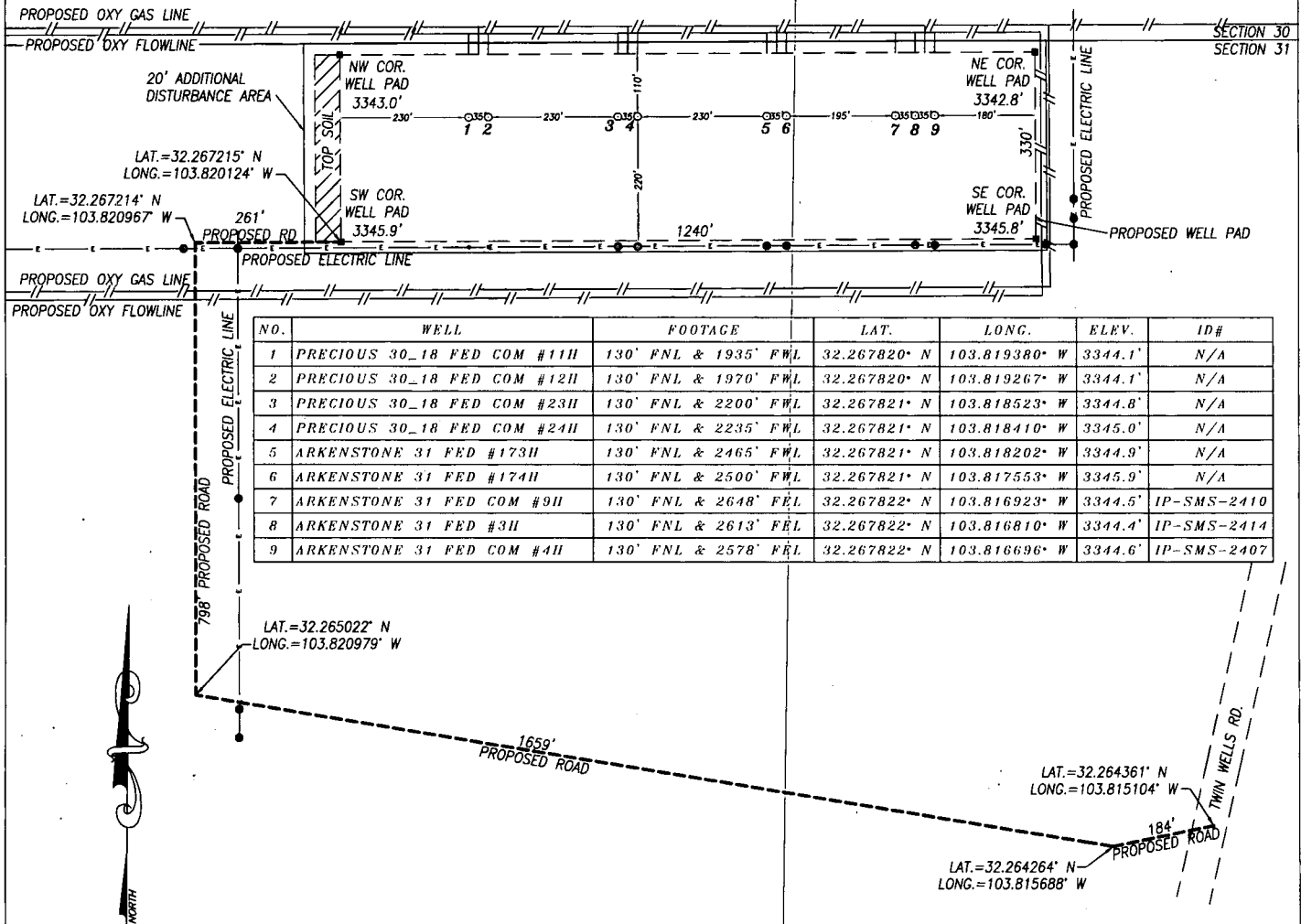
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OXY USA INC.

SITE PLAN

SNDDNS 3113

FAA PERMIT: NO



NOTES:

- 1) LATS & LONGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983.
- 2) DISTANCES ARE GRID VALUES.
- 3) ALL FEATURES ARE EXISTING UNLESS OTHERWISE NOTED

CERTIFICATION

I, CHAD HARCROW, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



Chad Harcrow
CHAD HARCROW N.M.P.S. NO. 17777

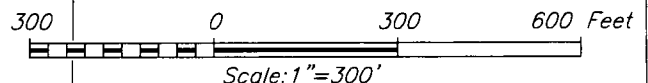
7/22/19
DATE

HARCROW SURVEYING, LLC

2316 W. MAIN ST, ARTESIA, N.M. 88210

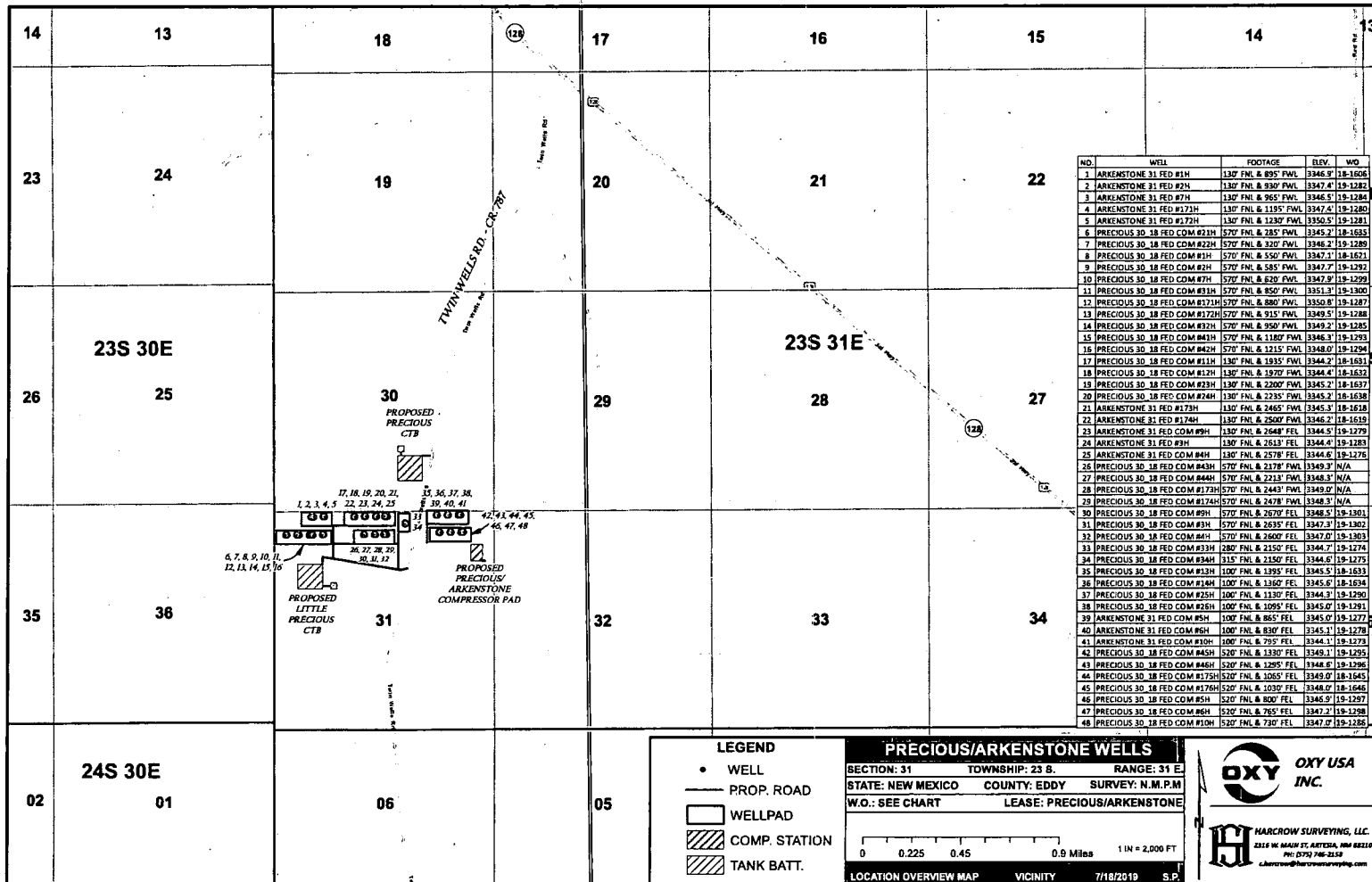
PH: (575) 746-2158

c.harcrow@harcrowsurveying.com



OXY USA INC.

SURVEY DATE: JULY 10, 2019	SITE PLAN
DRAFTING DATE: JULY 19, 2019	PAGE: 1 OF 1
APPROVED BY: CH	DRAWN BY: AM FILE: 19-1279

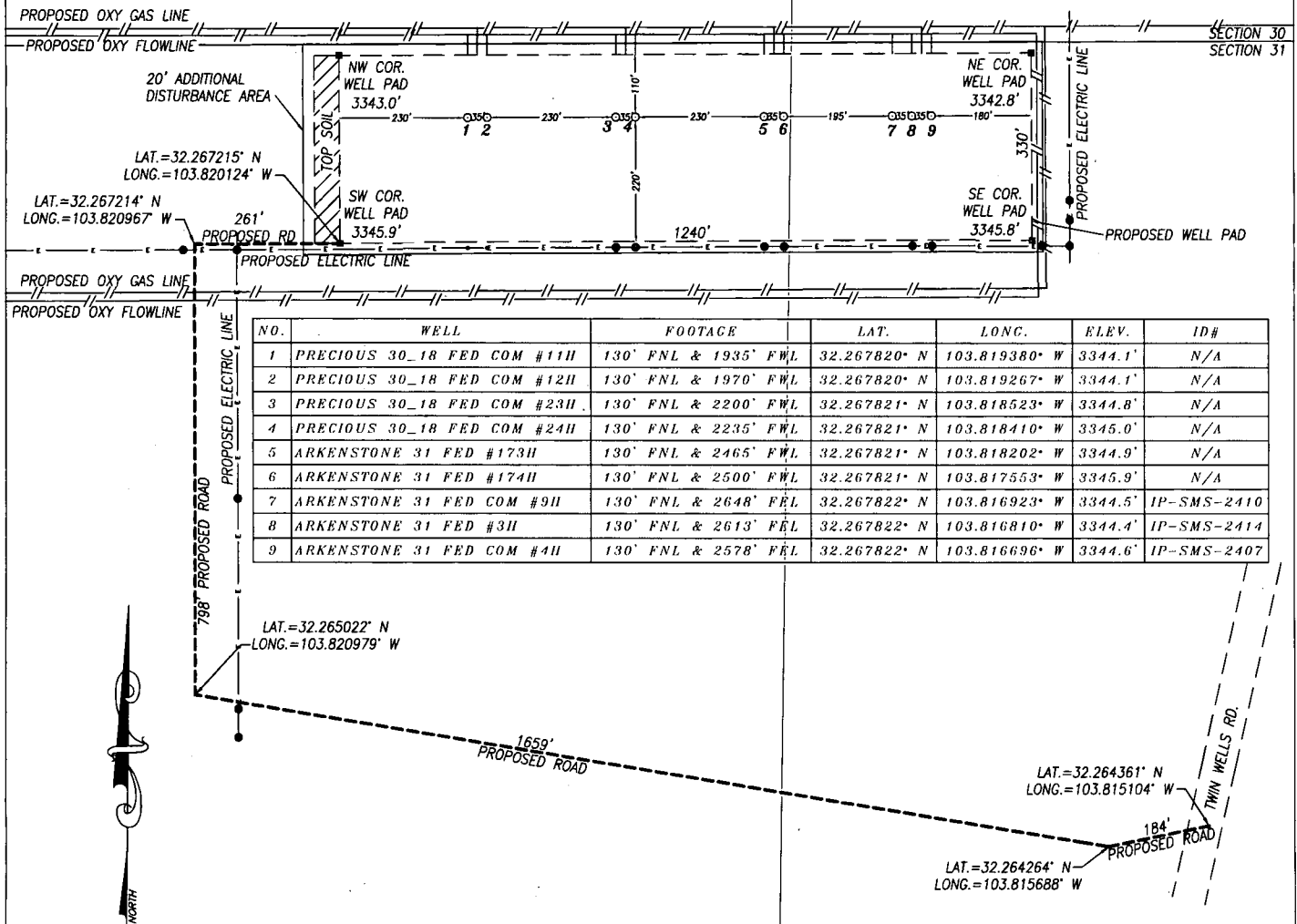


OXY USA INC.

SITE PLAN

SNDDNS 3113

FAA PERMIT: NO

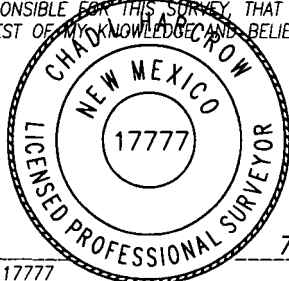


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7/22/19

DATE

HARCROW SURVEYING, LLC

2316 W. MAIN ST, ARTESIA, N.M. 88210

PH: (575) 746-2158

c.harcrow@harcrowsurveying.com



300 0 300 600 Feet



Scale: 1"=300'

OXY USA INC.

SURVEY DATE: JULY 10, 2019

SITE PLAN

DRAFTING DATE: JULY 19, 2019

PAGE: 1 OF 1

APPROVED BY: CH

DRAWN BY: AM

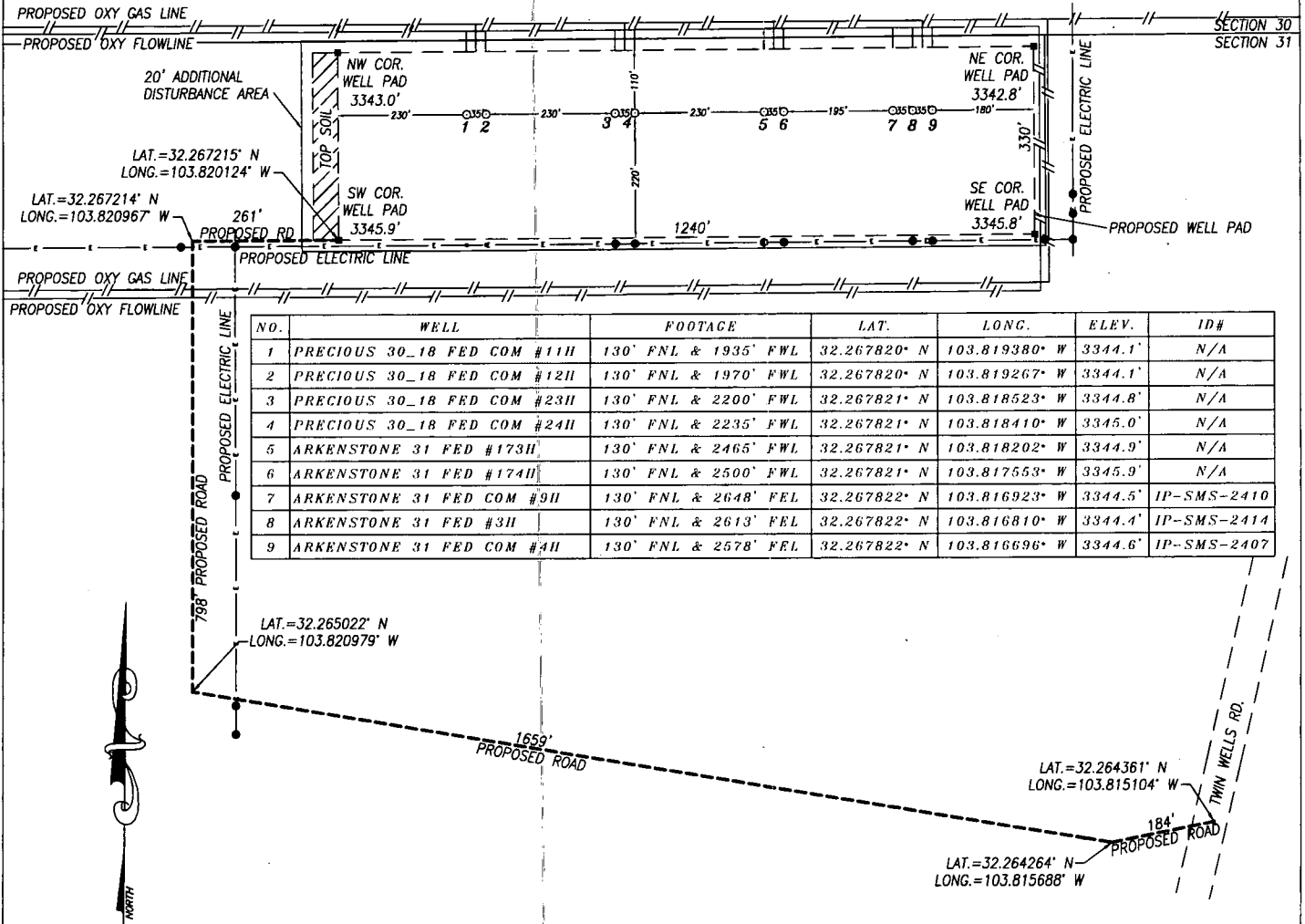
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OXY USA INC.

SITE PLAN

SNDDNS 3113

FAA PERMIT: NO

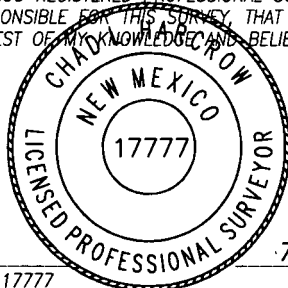


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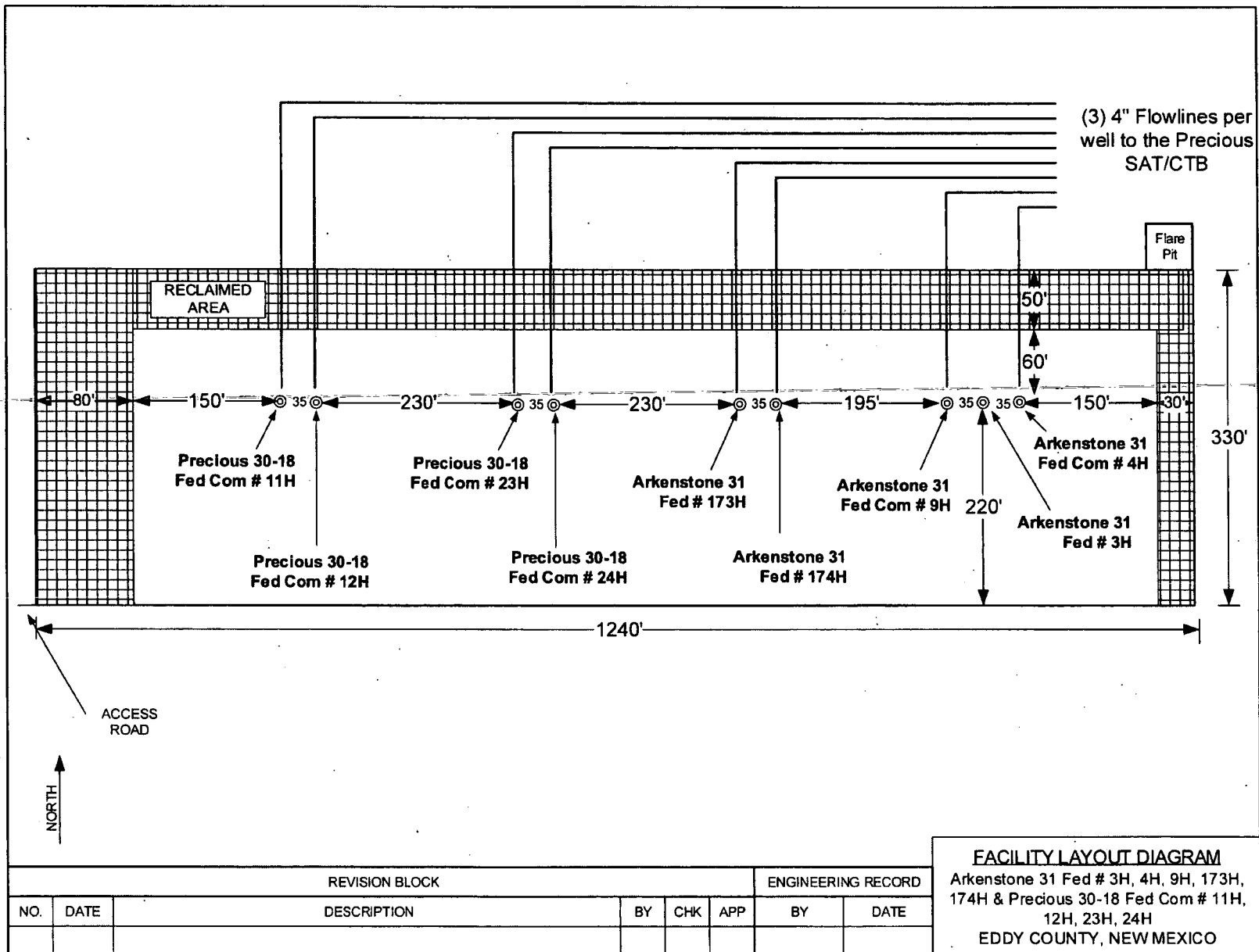
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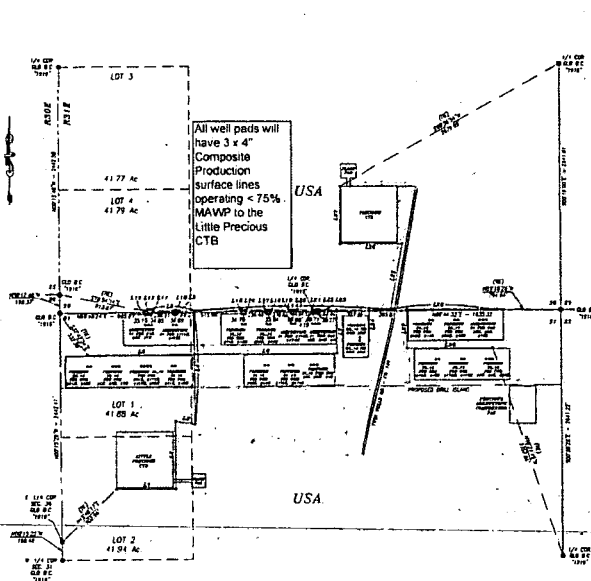
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OXY USA INC.		
SURVEY DATE: JULY 10, 2019	SITE PLAN	
DRAFTING DATE: JULY 19, 2019	PAGE: 1	OF 1
APPROVED BY: CH	DRAWN BY: AM	FILE: 19-1279



FLOWLINE SYSTEM OXY USA INC.

A PROPOSED FLOWLINE SYSTEM KNOWN AS THE "PRECIOUS/ARKENSTONE FLOWLINE SYSTEM" IN
SECTIONS 30 & 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



DESCRIPTION

NINE STRIPS OF LAND 30.0 FEET WIDE AND TOTALING 1,372.6 FEET OR 831.73 RODS OR 2,599 MILES IN LENGTH CROSSING USA LAND IN SECTIONS 30 & 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEYS.

LEGEND

- MONUMENT FOUND AS NOTED
- WELL SHA
- PROPOSED ROAD
- WATER LINE
- OL LINE
- ELECTRIC LINE
- GLS LINE

NOTE
LATS & LONGS SHOWN HEREON
ARE GRID VALUES

LINE 11
A PROPOSED FLOWLINE BETWEEN THE "LITTLE PRECIOUS CTB"

WELL	WELL NO.	WELL TYPE	WELL DEPTH	WELL LOCATION
11-1	11-1	W	11-1	11-1
11-2	11-2	W	11-2	11-2
11-3	11-3	W	11-3	11-3
11-4	11-4	W	11-4	11-4
11-5	11-5	W	11-5	11-5
11-6	11-6	W	11-6	11-6
11-7	11-7	W	11-7	11-7
11-8	11-8	W	11-8	11-8
11-9	11-9	W	11-9	11-9
11-10	11-10	W	11-10	11-10
11-11	11-11	W	11-11	11-11
11-12	11-12	W	11-12	11-12
11-13	11-13	W	11-13	11-13
11-14	11-14	W	11-14	11-14
11-15	11-15	W	11-15	11-15
11-16	11-16	W	11-16	11-16
11-17	11-17	W	11-17	11-17
11-18	11-18	W	11-18	11-18
11-19	11-19	W	11-19	11-19
11-20	11-20	W	11-20	11-20
11-21	11-21	W	11-21	11-21
11-22	11-22	W	11-22	11-22
11-23	11-23	W	11-23	11-23
11-24	11-24	W	11-24	11-24
11-25	11-25	W	11-25	11-25
11-26	11-26	W	11-26	11-26
11-27	11-27	W	11-27	11-27
11-28	11-28	W	11-28	11-28
11-29	11-29	W	11-29	11-29
11-30	11-30	W	11-30	11-30
11-31	11-31	W	11-31	11-31
11-32	11-32	W	11-32	11-32
11-33	11-33	W	11-33	11-33
11-34	11-34	W	11-34	11-34
11-35	11-35	W	11-35	11-35
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11-37	11-37	W	11-37	11-37
11-38	11-38	W	11-38	11-38
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11-97	11-97	W	11-97	11-97
11-98	11-98	W	11-98	11-98
11-99	11-99	W	11-99	11-99
11-100	11-100	W	11-100	11-100

LINE 12

CD FLOWLINE BETWEEN THE "PRECIOUS 30-14 FED CON"

WELL 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL TYPE 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL DEPTH 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL LOCATION 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL STATUS 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL COMMENTS 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL NOTES 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL DATA 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL RECORD 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL HISTORY 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL ANALYSIS 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL SUMMARY 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL CONCLUSION 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL RECOMMENDATION 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL ACTION PLAN 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL MONITORING 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL EVALUATION 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL REPORT 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL APPENDIX 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL GLOSSARY 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL INDEX 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL BIBLIOGRAPHY 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL REFERENCES 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL ACKNOWLEDGEMENTS 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL DISTRIBUTION 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL REVISIONS 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL APPROVALS 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL SIGNATURES 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL DATES 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL TIMES 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL PLACES 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL PEOPLE 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL THINGS 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL IDEAS 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL QUESTIONS 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL ANSWERS 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL COMMENTS 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL NOTES 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL DATA 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL RECORD 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL HISTORY 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL ANALYSIS 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

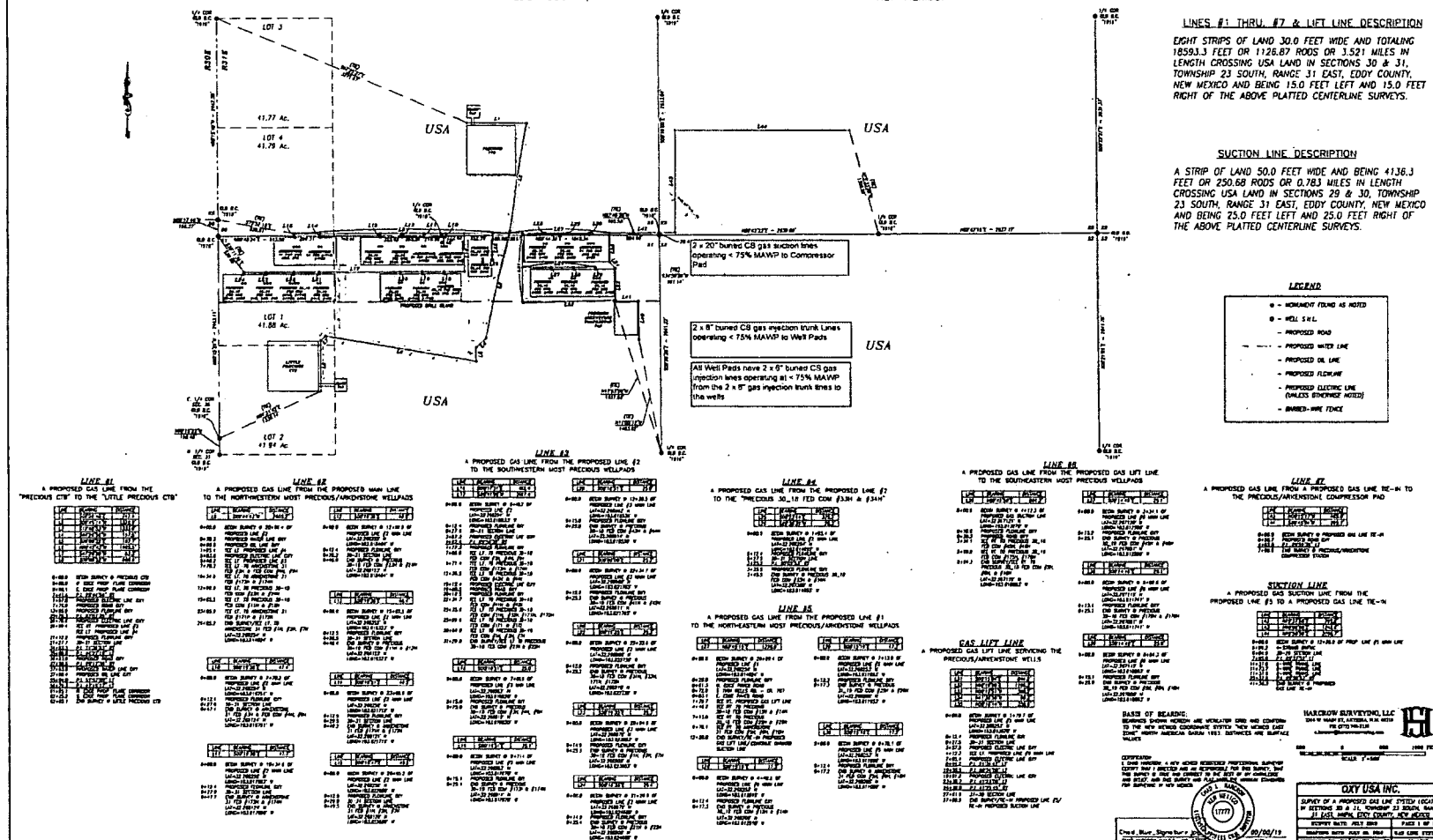
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WELL CONCLUSION 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL RECOMMENDATION 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

WELL ACTION PLAN 12-1 12-2 12-3 12-4 12-5 12-6 12-7 12-8 12-9 12-10 12-11 12-12

A PROPOSED GAS LINE SYSTEM KNOWN AS THE "PRECIOUS/ARKENSTONE GAS LINE SYSTEM" IN SECTIONS 29, 30, 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.



Sand Dunes Precious/Arkenstone Development – Surface Production Facilities – Amended 2

CTB/Satellite Site

Two new Central Tank Batteries in SE section 30 and in NW section 31 are required which will be composed of (3) tracts each with the following dimensions: 600'x600', 200'x30', and 150'x150' and access roads. These will be called the Precious CTB and Little Precious CTB respectively.

Reference plats:

- (1) John West Surveying Company W.O. No: 18110359 Survey: 3/26/18 CAD: 4/11/18
- (1) Harcrow Surveying, LLC File No: 19-1406 Site Easement Survey: 7/10/19 CAD: 7/29/19
- (1) Harcrow Surveying, LLC File No: 19-1273 Access Road Survey: 7/19 CAD: 7/25/19

Production Flowlines

Each well will have (3) surface laid flowlines operating at less than 75% of the MAWP of the flowline per the survey plats from the well site to the CTB following access roads. The flowlines will be routed to both CTBs and have the potential to be scrubbed of gas initially at the Precious CTB and the fluid may be transferred to the Little Precious CTB via two (2) 16" buried HDPE lines operating at < 300 PSIG for further liquid separation.

Reference plats per well APD package

- (1) Harcrow Surveying, LLC File No: No: 19-1273 Water line System Survey: 7/19 CAD: 7/26/19
- (2) Harcrow Surveying, LLC File No: No: 19-1273 Flowline System Survey: 7/19 CAD: 7/25/19

Gas Lift

A new Centralized Gas Lift Station will be required in NE section 31 with two (2) 20" CS buried suction lines operating at < 250 PSIG and two (2) 8" CS buried gas lift injection trunk lines operating at < 1500 PSIG. Each well pad will have two (2) 6" CS buried gas lift supply lines operating at < 1500 PSIG branching off the 2 common 8" CS main lines.

Reference plats per well APD package

- (1) Harcrow Surveying, LLC File No: 19-1273 Gas Line System Survey: 7/19 CAD: 7/26/19
- (1) Harcrow Surveying, LLC File No: 19-46 Survey: 11/18 CAD: 1/9/19

Gas Sales

The Precious CTB in Section 30 and the Little Precious CTB in Section 31 will require gas sales pipelines to existing 3rd party compression. Gas will flow into two (2) 20" CS buried sales line operating at < 250 PSIG.

Reference plats:

- (1) John West Surveying Company W.O. No: 18110384 Survey: 3/29/18 CAD: 4/11/18

Oil Sales

The Little Precious CTB will require an oil sales pipeline. Oil will be pumped into two (2) 12" buried pipelines operating less than 750 PSIG and will be sold via pipeline through a 3rd Party Processor.

Reference plats:

- (1) John West Surveying Company W.O. No: 18110384 Survey: 3/29/18 CAD: 4/11/18

Water Disposal

The Precious CTB and Little Precious CTB will require a Water Disposal pipeline to the existing water disposal system. Water will be pumped through two (2) 16" HDPE buried lines operating at less than 300 PSIG.

Reference plats:

- (1) John West Surveying Company W.O. No: 18110360 Survey: 3/28/18 CAD: 4/11/18
- (1) Harcrow Surveying, LLC File No: 19-1273 Water Line Survey: 7/19 CAD: 7/26/19

Electrical Systems

The new Precious CTB and Little Precious CTB will require electricity for site lighting, PLC, pumps, etc. Overhead electrical will be taken from the main electrical lines. Electrical overhead connections are required from the existing electrical infrastructure to connect to each individual well pad.

Reference plats:

- (1) Harcrow Surveying, LLC File No: 19-1273 Electrical System Survey: 7/19 CAD: 7/26/19

BEGINNING AT THE NORTHWEST CORNER OF THIS TRACT WHICH LIES S24°50'51"E 1397.7 FEET FROM THE NORTHWEST CORNER; THEN S89°59'48"E 600.0 FEET; THEN S00°00'12"W 510.0 FEET; THEN S89°59'48"E 200.0 FEET; THEN N00°00'12"E 60.0 FEET; THEN S89°59'48"E 150.0 FEET; THEN S00°00'12"W 150.0 FEET; THEN N89°59'48"W 150.0 FEET; N00°00'12"E 60.0 FEET; THEN N89°59'48"W 200.0 FEET; THEN S00°00'12"W 60.0 FEET; THEN N89°59'48"W 600.0 FEET; THEN N00°00'12"E 600.0 FEET TO THE POINT OF BEGINNING AND CONTAINING 8.917 ACRES MORE OR LESS.

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

I, RONALD J. EIDSON, NEW MEXICO PROFESSIONAL SURVEYOR No. 3239, DO HEREBY CERTIFY THAT THE SURVEY, PLAN AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH THIS MAP WAS PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION, WAS MY RESPONSIBILITY FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

RONALD J. EIDSON

DATE: 4/13/201

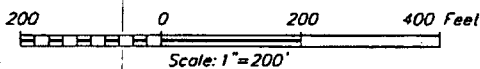
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SINCE 1945**

JOHN WEST SURVEYING COMPANY

412 N. DAL PASO HOBBS, N.M. 88240
(575) 393-3117 www.jwsc.biz

TBP15# 10021000

- DENOTES FOUND CORNER AS NOTED
 ● DENOTES SPIKE NAIL



OXY U.S.A. INC.

**SURVEY FOR THE SAND DUNES CENTRAL CORRIDOR
CTB AND FLARE PAD**

SITUATED IN THE NW/4 OF SECTION 31,
TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

Survey Date: 03/26/18

CAD Date: 04/12/18

Drawn By: LSL

W.O. No.: 18110359

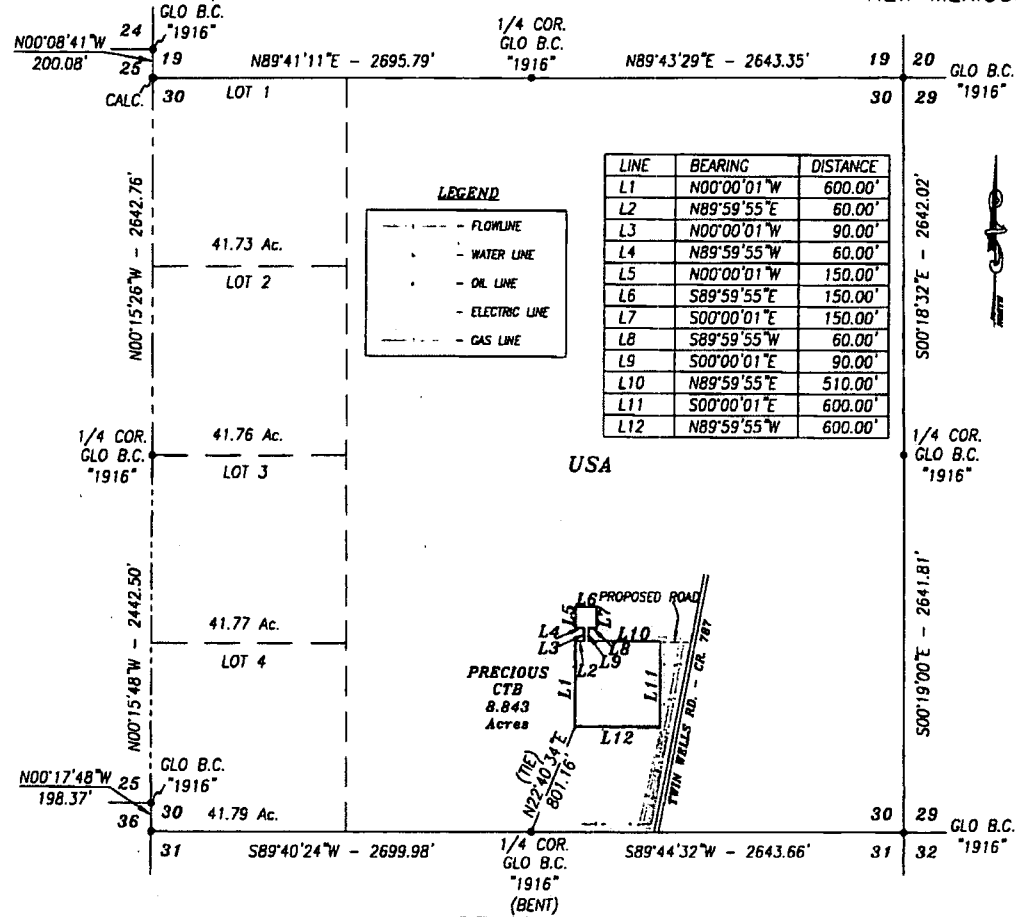
Rev:

Rel. W.O.:

Sheet 1 of 1

SURFACE SITE EASEMENT OXY USA INC.

A SURFACE SITE EASEMENT FOR THE PROPOSED
"PRECIOUS CENTRAL TANK BATTERY" & ATTACHED PROPOSED FLARE PAD IN
SECTION 30, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



DESCRIPTION

A PROPOSED CENTRAL TANK BATTERY & FLARE PAD LYING WITHIN USA LAND IN SECTION 30, TOWNSHIP 23 SOUTH, RANGE 31 EAST, NMPM, EDDY COUNTY, NEW MEXICO AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID CENTRAL TANK BATTERY, WHICH LIES N22°40'34"E 801.16 FEET FROM THE SOUTH QUARTER CORNER OF SAID SECTION; THEN N00°00'01"W 600.00 FEET; THEN N89°59'55" 60.00 FEET; THEN N00°00'01"W 90.00 FEET; THEN N89°59'55"W 60.00 FEET; THEN N00°00'01"W 150.00 FEET; THEN S89°59'55"E 150.00 FEET; THEN S00°00'01"E 150.00 FEET; THEN S89°59'55" 60.00 FEET; THEN S00°00'01"E 90.00 FEET; THEN N89°59'55"E 510.00 FEET; THEN S00°00'01"E 600.00 FEET; THEN N89°59'55"W 600.00 FEET TO THE POINT OF BEGINNING.

SAID CENTRAL TANK BATTERY & FLARE PAD CONTAINS 8.847 ACRES.

BASIS OF BEARING:

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

CERTIFICATION

I, CHAD HARCROW, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAN MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.



Chad Harcrow
CHAD HARCROW N.M.P.S. NO. 17777

7/29/19
DATE

HARCROW SURVEYING, LLC

2316 W. MAIN ST. ARTESIA, N.M. 88210
PH: (575) 746-2158
c.harcrow@harcrowsurveying.com



1000 0 1000 2000 FEET
SCALE: 1"=1000'

OXY USA INC.

SURVEY OF A PROPOSED CENTRAL TANK BATTERY
LOCATED IN SECTION 30, TOWNSHIP 23 SOUTH, RANGE
31 EAST, NMPM, EDDY COUNTY, NEW MEXICO

SURVEY DATE: JULY 10, 2019

SITE EASEMENT

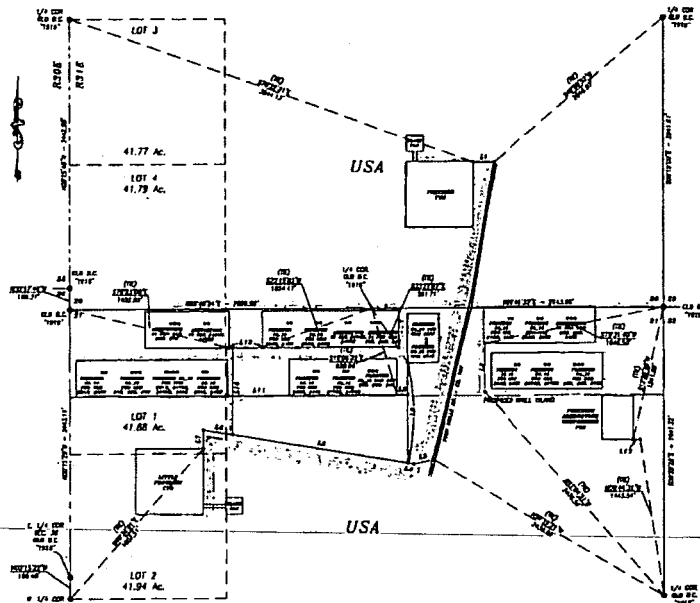
DRAFTING DATE: JULY 29, 2019

PAGE 1 OF 1

APPROVED BY: CH DRAWN BY: AM

FILE: 19-1408

A PROPOSED ACCESS ROAD SYSTEM KNOWN AS THE "PRECIOUS/ARKENSTONE ACCESS ROAD SYSTEM" IN SECTIONS 30 & 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.



NINE STRIPS OF LAND 30.0 FEET WIDE AND TOTALING 5648.7 FEET OR 342.35 RODS OR 1.070 MILES IN LENGTH CROSSING USA LAND IN SECTIONS 30 & 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEYS.

B - MOMENTUM FOLLOWS AS NOTED

- - MOMENTUM FOUND AS NOTED
- - WELL SHALL
- - WATER LINE
- - OIL LINE
- - ELECTRIC LINE
- - GAS LINE

NOTE:
LATS & LONGS SHOWN HEREON
ARE GRID VALUES.

A PROPOSED ACCESS ROAD SERVICING
THE "PRECIOUS CTB"

LINE	BEARING	DISTANCE
1.	N 89° 34' 55" W	1.04.0

0+00.0 BEGIN SURVEY @ FAWN WELLS RD
0+29.2 PROP CITY POWERLINE
0+50.3 PROP CITY GASLINE
1+71.6 PROP CITY WATERLINE
1+84.0 PROP CITY CL. LINE
1+94.0 END SURVEY @ PREVIOUS CTR

A PROPOSED ACCESS ROAD SERVING THE SAND DUNES 3118

LINE	BEARING	DISTANCE
L2	N00°14'41"W	446.8'

0103.0 BEGIN SURVEY @ DUSTING ROAD
3+67.2 PROP. CITY FURNISHING
3+82.4 PROP. CITY CASING
4+37.0 PROP. CITY FURNISHING
4+48.3 END SURVEY @ SAND CLINES 3116 WELLMAN

A PROPOSED ACCESS ROAD SERVING THE
"LITTLE PRECIOUS CENTRAL TANKBATTERY"

LINE	FLARING	DISTANCE
13	5/8" 13 1/4" W	181.9"
14	NEOST 1/2" 13 1/4" W	31.1"
15	NEOST 1/2" 13 1/4" W	1603.9"
16	NEOST 1/2" 13 1/4" W	79.4"
17	NEOST 1/2" 13 1/4" W	13.1"

0100.0 BEGIN SURVEY @ TOWN BELLS AC
1+40.1 PROP CITY CASLINE
1+43.5 PROP CITY INTERLINE
1+48.1 P.A. 207727.1' ST
1+118.2 PROP. CITY DE. LINE
2+37.0 P.A. 207730.1' ST
PROP. ACCESS ROAD
17+64.0 PROP. CITY POWERLINE
18+42.0 P.A. 207734.1' ST
PROP. ACCESS ROAD
19+63.5 PROP. CITY FLOWLINE
21+05.0 P.A. 207737.1' ST
22+77.0 END SURVEY @ LITTLE PROGRESS CTR

PROPOSED ACCESS ROAD SERVING THE
SAND DUNES STGS

LINE	BLANKING	DISTANCE
10	NOOT 19 50 W	970.8'

04000 BEGIN SURVEY @ PROP. ACCESS ROAD
LAT=32.254797 N
LONG=103.815857 W
04060 PROP ACCESS ROAD
04200 END SURVEY @ SAND DUNE 3105

PROPOSED ACCESS ROAD SERVING THE
SAND DUNES 3117

LINE	BEARING	DISTANCE
LD	S89.79°W	100.1

04000 BEGIN SURVEY @ PROP. ACCESS ROAD
LAT=32.760000 N
LONG=103.815000 W
14001 END SURVEY @ SAND DUNES 3117

PROPOSED ACCESS ROAD SERVING OTHER
PROPOSED ACCESS ROADS

CME	BLANK	DISTANCE
C18	AKC/DO DO W	7978

0+00.0 BEGIN SURVEY @ PROP. ACCESS ROAD
LAT=33 250027 N
LONG=101.670979 W
3+47.6 PROP. CITY POWERLINE
3+57.3 PROP. ACCESS ROAD
8+00.0 PROP. CITY FLOWLINE
7+13.0 PROP. CITY GASLINE
7+87.7 PROP. CITY POWERLINE
7+87.8 END SURVEY @ PROPOSED ACCESS ROAD
LAT=33 251734 N
LONG=101.670987 W

PROPOSED ACCESS ROAD SERVING THE
PRECIOUS/ARDENSTONE COMPRESSOR STATION

LINE	BEARING	DISTANCE
113	S 87° 47' 11" W	61.9

0+00.0 BEGIN SURVEY @ EXISTING ROAD
0+68.4 PROP. CITY GASLINE
0+83.5 END SURVEY @ PREVIOUS/ABANDONED COMPRESSOR STATION

PROPOSED ACCESS ROAD SERVING THE
SAND DUNES 3103 WELLPAD & THE SAND
DUNES 3117 WELLPAD

LINE	BEARING	DISTANCE
411	N87°35'32"E	33.2

0-0008 BEGIN SURVEY @ SAND DUNES 3103 WELLMAD
LAT=J2760004 N
LONG=181821127 N
PROP. CITY FLOWLINE
0-0253 PROP. CITY ACCESS ROAD
0-4473 PROP. CITY FLOWLINE
1-241 PROP. CITY FLOWLINE
5-5277 END SURVEY @ SAND DUNES 3117 WELLMAD
LAT=J2760004 N
LONG=181829329 N

PROPOSED ACCESS ROAD SERVING THE
SAND DUMES 3102 WELLPAD & THE SAND
DUMES 3113 WELLPAD

LINE	BEARING	DISTANCE
112	N 87° 37' 13" E	799.1'

0+00.0 BEGIN SURVEY @ SAND DUNES 3707 WELLPAD
0+10.0 PROP. CITY FLOWLINE
0+34.5 PROP. CITY ACCESS ROAD
1+10.4 PROP. CITY POWERLINE
2+85.1 END SURVEY @ SAND DUNES 3113 WELLPAD

BASIS OF DRAUGHT:
DRAUGHTS SHOWN HEREON ARE INDICATION ONLY AND CONFORM
TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST
ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE
VALUES.

HALCROW SURVEYING, LLC
2200 W. 20th ST., AUSTIN, TEXAS 78741
PH (512) 746-2100



1. I AM AWARE, A NEW SOURCE RECEIVED PROFESSIONAL SUPPORT
EXCEPT FOR I OFFERS AND AM RESPONSIBLE FOR THE RISK. THE
THE SURVEY IS THE ONLY ONE TO THE BEST OF MY KNOWLEDGE
AND BELIEF, AND THE SURVEY AND PLACE WITH THE SOURCE CHANGES
FOR SURVEYING IN NEW AREA.



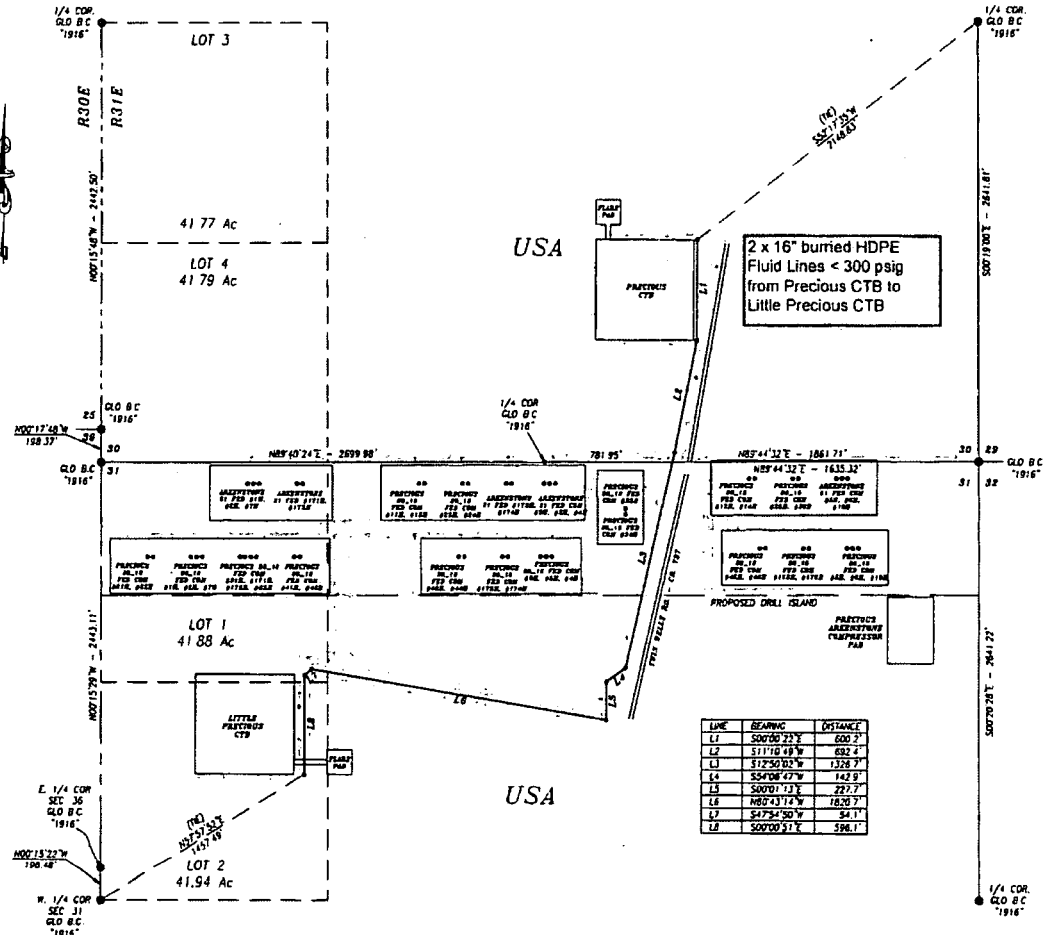
OXY USA INC.	
SURVEY OF A PROPOSED ACCESS ROAD SYSTEM LOCATED IN SECTIONS 30 & 31, TOWNSHIP 27 SOUTH RANGE 31 EAST, HARRIS COUNTY, NEW MEXICO	
EXPIRY DATE JULY 2003	PAGE 1 OF 1
DRAFTING DATE JULY 01, 2003	ASSEMBLY DATE SEPTEMBER 2003
APPROVED BY: [Signature]	15-1173

U
T
B
-
W

WL-1

WATER LINE EASEMENT OXY USA INC.

A PROPOSED WATER LINE KNOWN AS THE "PRECIOUS/ARKENSTONE WATER LINE" IN
SECTIONS 30 & 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



DESCRIPTION

A STRIP OF LAND 30.0 FEET WIDE AND BEING 5460.8 FEET OR 330.96 RODS OR 1.034 MILES IN LENGTH CROSSING USA LAND IN SECTIONS 30 & 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

LEGEND

- - MONUMENT FOUND AS NOTED
- - WELL S.H.L.
- PROPOSED ROAD
- FLOWLINE
- OIL LINE
- ELECTRIC LINE
- GAS LINE

STATIONING

0+00.0 BEGIN SURVEY @ PRECIOUS CTB
0+05.0 PROP ACCESS ROAD
6+00.2 P.I. 11°11'11" RT
6+15.5 PROP OXY FLOWLINE
12+52.6 P.I. 01°35'11" RT
12+53.4 PROP OXY POWERLINE
13+22.2 PROP OXY GASLINE
13+34.9 PROP OXY FLOWLINE
13+50.5 SECTION LINE
26+19.3 P.I. 41°18'45" RT
27+62.2 P.I. 54°08'00" LT
28+67.5 PROP ACCESS ROAD
29+59.5 PROP OXY GASLINE
29+69.9 P.I. 98°17'59" RT
30+24.7 PROP OXY OIL LINE
48+10.6 P.I. 51°21'58" LT
48+64.7 P.I. 45°55'41" LT
53+70.9 N EDGE OF FLARE CORRIDOR
54+00.9 S EDGE OF FLARE CORRIDOR
54+60.8 END SURVEY @ LITTLE PRECIOUS CTB

BASIS OF BEARING:

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

CERTIFICATION
I, CHAD HARCROW, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR, CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAN MEET THE MEXICAN STANDARDS FOR SURVEYING IN NEW MEXICO.

CHAD L. HARCROW
NEW MEXICO
1777
REGISTERED PROFESSIONAL SURVEYOR
7/26/19
CHAD HARCROW N.M.P.S. NO. 17777

HARCROW SURVEYING, LLC
2318 W. MAIN ST. ARTESIA, N.M. 88210
PH: (505) 746-2133
charcrow@harcrowsurveying.com



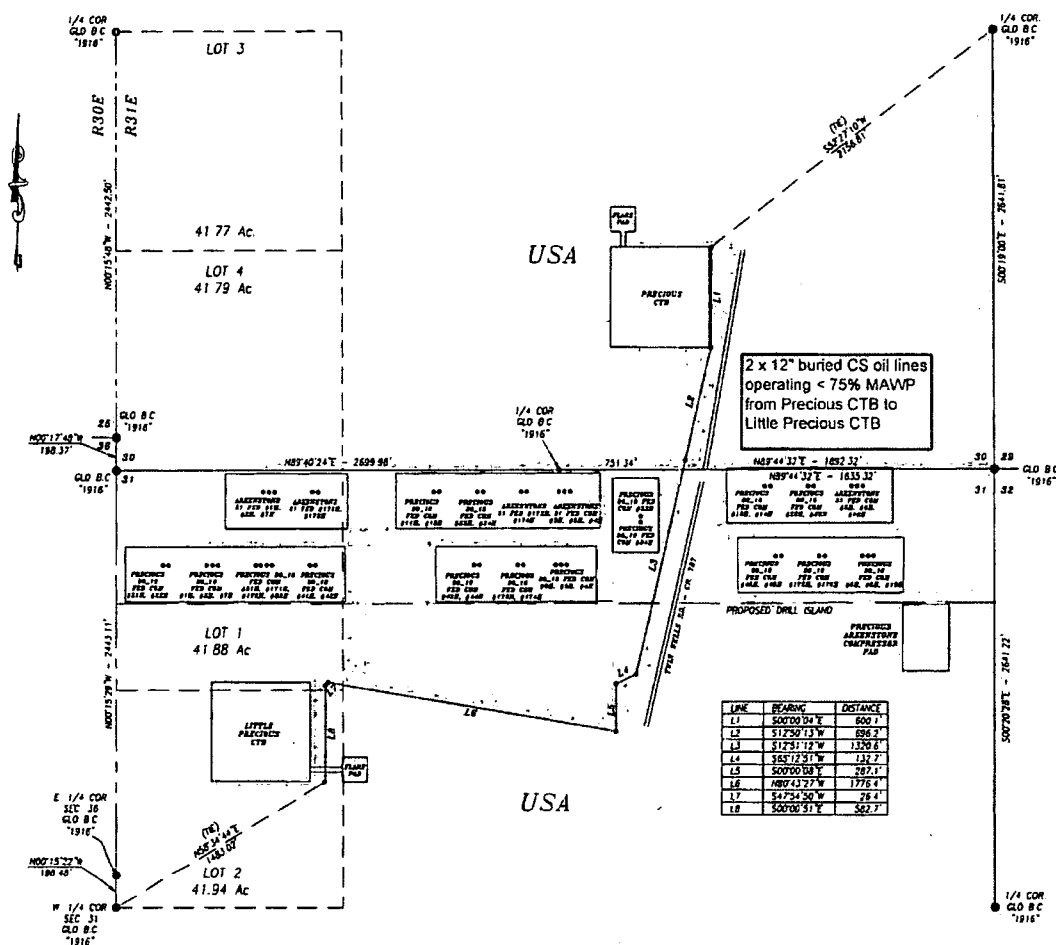
500 0 500 1000 FEET
SCALE 1"=500'

OXY USA INC.

SURVEY OF A PROPOSED WATER LINE LOCATED IN SECTIONS 30 & 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.
SURVEY DATE: JULY 2019 WATER LINE
DRAWING DATE: JULY 28, 2019 PAGE 1 OF 1
APPROVED BY: CH DRAWN BY: JH FILE: 19-1273

OIL LINE EASEMENT OXY USA INC.

A PROPOSED OIL LINE KNOWN AS THE "PRECIOUS/ARKENSTONE OIL LINE" IN
SECTIONS 30 & 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



DESCRIPTION

A STRIP OF LAND 30.0 FEET WIDE AND BEING 5422.2 FEET OR 328.62 RODS OR 1.027 MILES IN LENGTH CROSSING USA LAND IN SECTIONS 30 & 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

LEGEND

- - MONUMENT FOUND AS NOTED
- - WELL S.H.L.
- PROPOSED ROAD
- FLOWLINE
- WATER LINE
- ELECTRIC LINE
- GAS LINE

BASIS OF BEARING:
BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM (NEW MEXICO EAST ZONE) NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

CERTIFICATION:
I, CHAD HARCROW, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR, CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAT MEET THE MANDATORY STANDARDS FOR SURVEYING IN NEW MEXICO.

CHAD L. HARCROW
NEW MEXICO
17777
LICENSED PROFESSIONAL SURVEYOR
1/28/19
CHAD HARCROW N.M.P.S. NO. 17777

STATIONING

0+00.0 BEGIN SURVEY @ PRECIOUS CTB
0+04.9 PROP ACCESS ROAD
6+00.1 P.I. 12°50'12" RT
6+15.4 PROP OXY FLOWLINE
12+36.3 P.I. 60°00'55" RT
12+57.7 PROP OXY POWERLINE
13+26.5 PROP OXY GASLINE
13+39.2 PROP OXY FLOWLINE
13+54.8 SECTION LINE
25+16.5 P.I. 5°21'35" RT
27+49.6 P.I. 65°12'50" LT
28+64.2 PROP ACCESS ROAD
29+75.9 PROP OXY GASLINE
30+08.3 PROP OXY WATERLINE
30+36.7 P.I. 98°16'41" RT
48+73.1 P.I. 51°21'43" LT
48+39.5 P.I. 47°55'41" LT
53+52.1 N. EDGE OF FLARE CORRIDOR
53+62.2 S. EDGE OF FLARE CORRIDOR
54+22.2 END SURVEY @ LITTLE PRECIOUS CTB

HARCROW SURVEYING, LLC
2318 W. MAIN ST., ARTESIA, N.M. 88210
PH: (505) 346-2138
chad@harcrowsurveyingllc.com

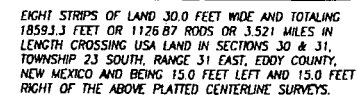


500 0 500 1000 FEET
SCALE 1"=500'

OXY USA INC.

SURVEY OF A PROPOSED OIL LINE SYSTEM LOCATED IN SECTIONS 30 & 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO
SURVEY DATE: JULY 2018 OIL LINE
DRAFTING DATE: JULY 28, 2018 PAGE 1 OF 1
APPROVED BY: CH DRAWN BY: JH FILE: 19-1073

A PROPOSED GAS LINE SYSTEM KNOWN AS THE "PRECIOUS/ARKENSTONE GAS LINE SYSTEM" IN SECTIONS 29, 30, 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.



A STRIP OF LAND 50.0 FEET WIDE AND BEING 4136.3 FEET OR 250.68 RODS OR 0.783 MILES IN LENGTH CROSSING USA LAND IN SECTIONS 29 & 30, TOWNSHIP 23 SOUTH, RANGE 31 EAST, EDDY COUNTY, NEW MEXICO AND BEING 25.0 FEET LEFT AND 25.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEYS.

R = MOMENT PER UNIT AS NOTED

- - WELL S.H.L.
- PROPOSED ROAD
- PROPOSED WATER LINE
- PROPOSED OIL LINE
- PROPOSED FLOWLINE
- PROPOSED ELECTRIC LINE (UNLESS OTHERWISE NOTED)
- BOUNDARY - SEE DEED

LINE 67
A PROPOSED GAS LINE FROM A PROPOSED GAS LINE TIE-IN TO
THE PREVIOUS/ARDISTONE COMPRESSOR PAD

[illegible]

**BASTS OF BEA
SEAPLANES SHOWN
TO THE NEW MCC
ZONE" NORTH AND
VALUED.**

**CONFIRMATION
A CHIEF ASSIGNED A
CONFIRM THAT A GROUP
THE SURVEY IS TRUE
AND REVEAL, AND THE
FOR SOMEONE IN THE**

HARLOW SURVEYING, LLC
2314 W. MAIN ST., ALBANY, N.Y. 12219
PR CITY 518-225-1130
a3300000@harlow-surveying.com

10-11-64

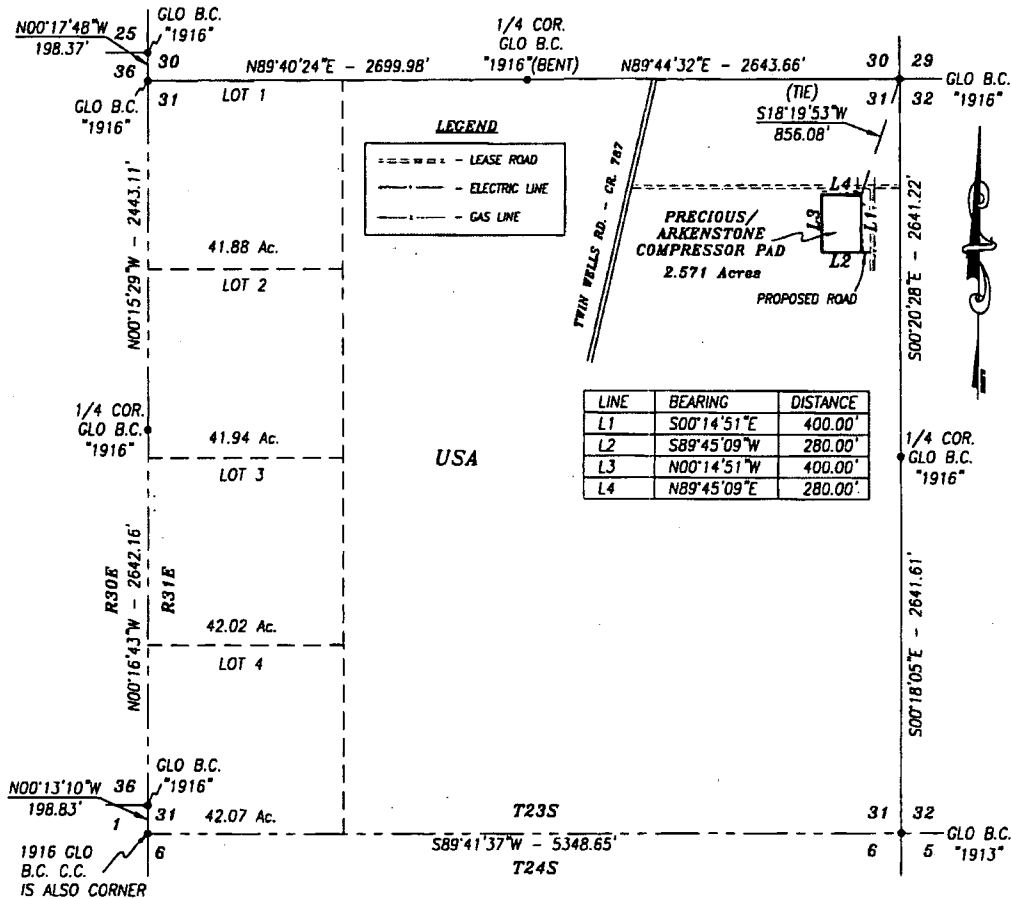
OXY USA INC.

SURVEY OF A PROPOSED GAS LINE SYSTEM LOCATED
IN SECTIONS 30 & 31, TOWNSHIP 23 SOUTH, RANGE
31 EAST, HANDEL CROFT COUNTY, NEW MEXICO

GL-2

SURFACE SITE EASEMENT OXY USA INC.

A SURFACE SITE EASEMENT FOR THE PROPOSED "PRECIOUS/ARKENSTONE COMPRESSOR PAD" IN
SECTION 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



DESCRIPTION

A PROPOSED COMPRESSOR PAD LYING WITHIN USA LAND IN SECTION 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, NMPM, EDDY COUNTY, NEW MEXICO AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF SAID COMPRESSOR PAD, WHICH LIES S18°19'53"W 856.08 FEET FROM THE NORTHEAST CORNER OF SAID SECTION; THEN S00°14'51"E 400.00 FEET; THEN S89°45'09"W 280.00 FEET; THEN N00°14'51"W 400.00 FEET; THEN N89°45'09"E 280.00 FEET TO THE POINT OF BEGINNING.

SAID COMPRESSOR PAD CONTAINS 2.571 ACRES.

BASIS OF BEARING:
BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

CERTIFICATION
I, CHAD HARCROW, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.



Chad Harcrow
CHAD HARCROW N.M.P.S. NO. 17777

1/10/19
DATE

HARCROW SURVEYING, LLC
2314 W. MAIN ST., ARTESIA, N.M. 88210
PH: (575) 746-2158 FAX: (575) 746-2158
c.harcrow@harcrowsurveying.com

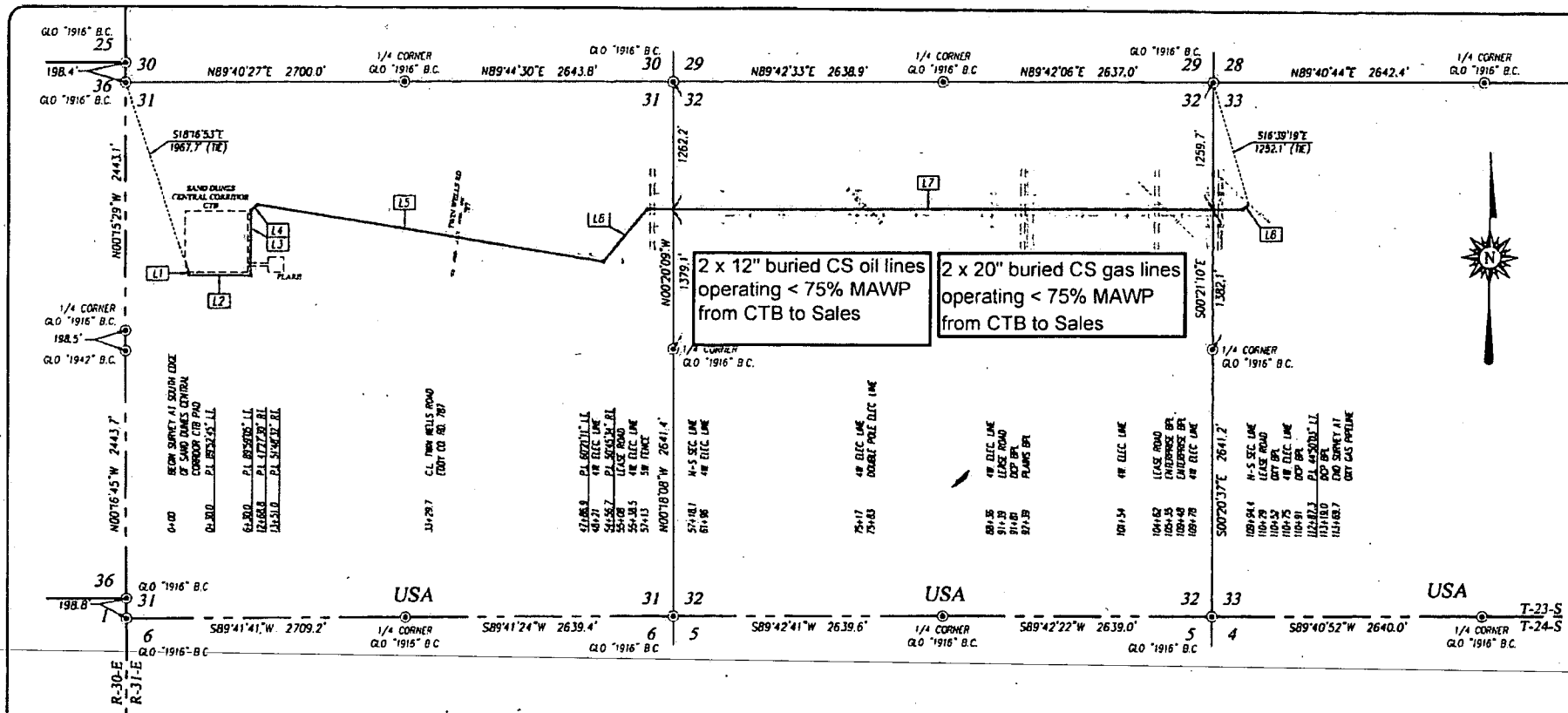


1000 0 1000 2000 FEET
SCALE: 1"=1000'

OXY USA INC.

SURVEY OF A PROPOSED COMPRESSOR PAD LOCATED
IN SECTION 31, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, NMPM, EDDY COUNTY, NEW MEXICO

SURVEY DATE: NOVEMBER 2018	SITE EASEMENT
DRAFTING DATE: JANUARY 9, 2019	PAGE 1 OF 1
APPROVED BY: CH	DRAWN BY: SP
	FILE: 19-48



LINE TABLE

LINE	BEARING	DISTANCE
L1	S00°07'54"E	30.0'
L2	N89°59'21"E	600.0'
L3	M00°00'16"E	638.8'
L4	N47°27'46"E	82.2'
L5	S80°43'42"E	3435.9'
L6	N38°55'08"E	669.8'
L7	S89°41'41"W	2709.2'
L8	S89°42'22"W	2639.6'

DESCRIPTION

SURVEY FOR A STRIP OF LAND 30.0 FEET WIDE AND 11369.7 FEET OR 2.153 MILES IN LENGTH CROSSING USA LAND IN SECTIONS 31, 32 & 33, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO, AND BEING 25.0 FEET LEFT AND 25.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

NOTE

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
 412 N. DAL PASO HOBBS, N.M. 88240
 (575) 393-3117 www.jwsurvey.com
 TPLSP 10021000

I, RONALD J. EIDSON, NEW MEXICO PROFESSIONAL SURVEYOR No. 3239, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION, THAT I AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO, AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

RONALD J. EIDSON DATE: 4/13/2018

© DRAFTING/Lorenzo/2018/OXY U.S.A. INC./PIPELINES/18110384 BURIED OIL & GAS TO OXY GAS ROW SEC 33 T23S R31E

LEGEND

⊙ DENOTES FOUND CORNER AS NOTED

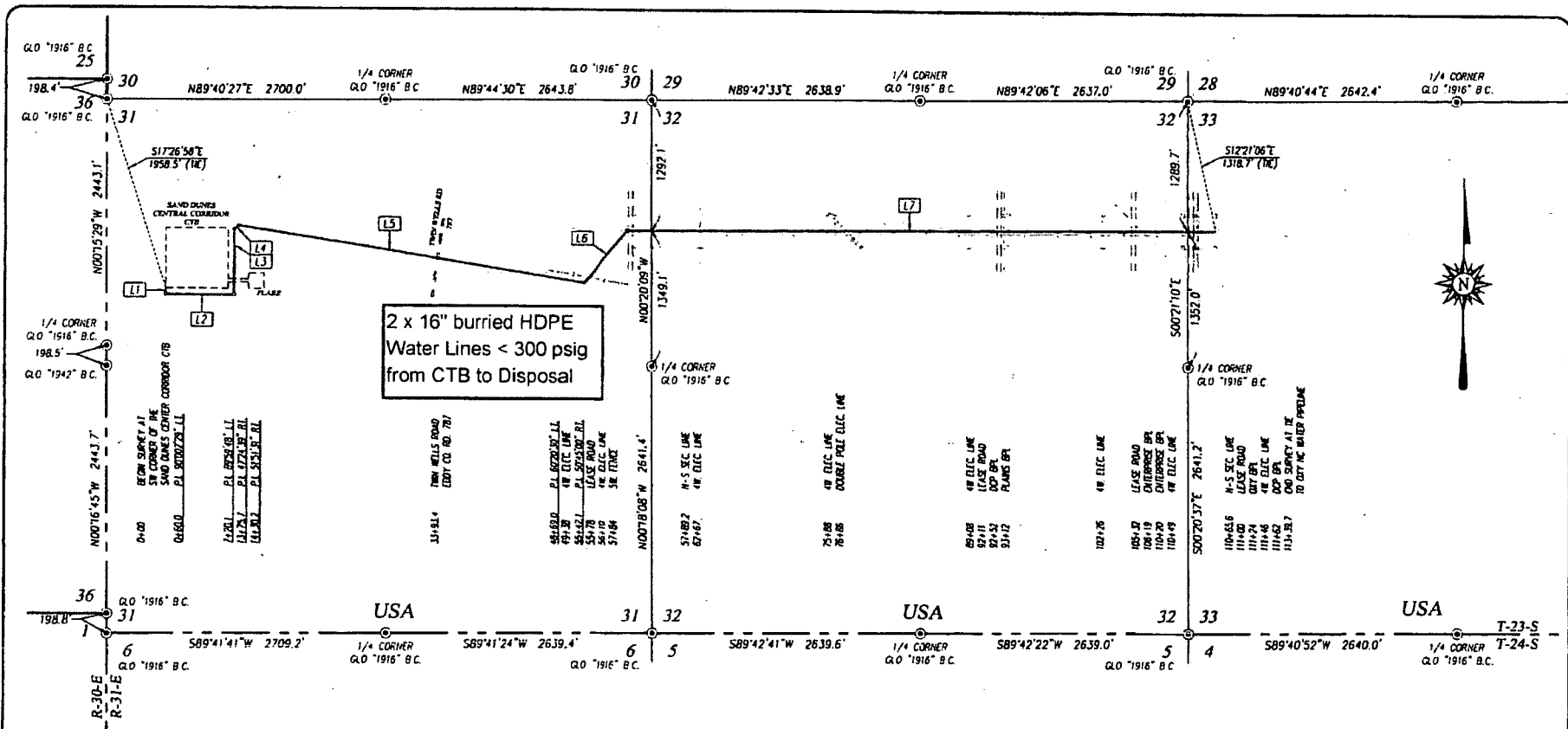
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 Scale: 1"=1000'

OXY U.S.A. INC.

SURVEY FOR BURIED OIL AND GAS LINE FROM SAND DUNES CENTRAL CORRIDOR CTB TO OXY WATER PIPELINE, CROSSING SECTIONS 31, 32 & 33, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

Survey Date: 03/29/18 CAD Date: 04/11/18 Drawn By: LSL
 W.O. No.: 18110384 Rev. Rel. W.O.: Sheet 1 of 1

GS-1
 105-1



LINE TABLE

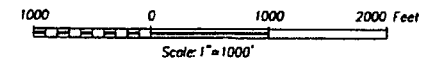
LINE	BEARING	DISTANCE
L1	S00D2'21"W	60.0'
L2	N89°59'52"E	660.1'
L3	M00D0'04"E	635.6'
L4	N47°24'43"E	54.4'
L5	S80°43'46"E	3438.8'
L6	N38°55'43"E	673.1'
L7	N89°42'22"E	2639.6'

DESCRIPTION

SURVEY FOR A STRIP OF LAND 30.0 FEET WIDE AND 11339.7 FEET OR 2.148 MILES IN LENGTH CROSSING USA LAND IN SECTIONS 31, 32 & 33, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO, AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

LEGEND

© DENOTES FOUND CORNER AS NOTED



OXY U.S.A. INC.

SURVEY FOR BURIED WATER LINE FROM SAND DUNES CENTRAL CORRIDOR CTB TO OXY WATER PIPELINE, CROSSING SECTIONS 31, 32 & 33, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

Survey Date: 03/28/18 CAD Date: 04/11/18 Drawn By: LSL
W.O. No.: 18110360 Rev: Rel. W.O.: Sheet 1 of 1

I, RONALD J. EIDSON, NEW MEXICO PROFESSIONAL SURVEYOR No. 3239, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

RONALD J. EIDSON DATE: 4/13/2018

© DRAFTING \\\w\m\2018\OXY U.S.A. INC\PIPELINES\18110360 BURIED WATER LINE TO OXY WATER ROW SEC 33 1235, R31E

NOTE

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.



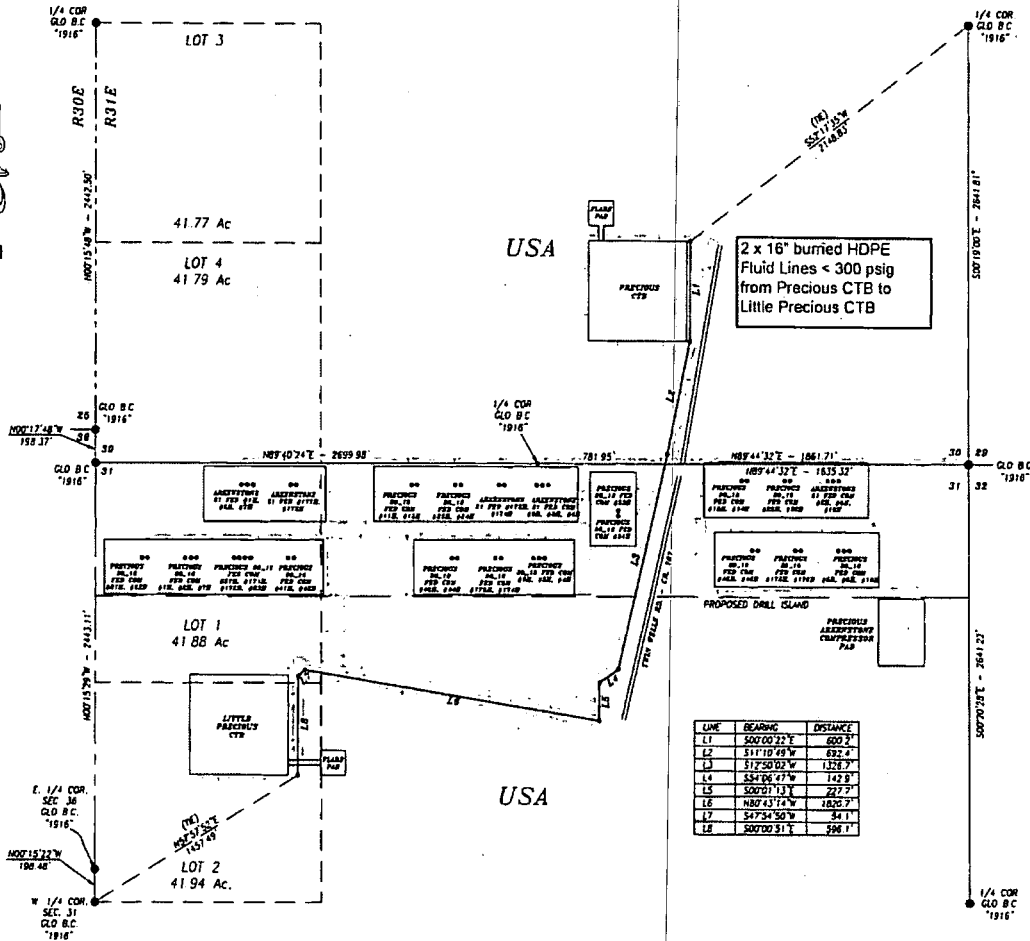
PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO HOBBS, N.M. 88240
(575) 393-3117 www.jwsurvey.com
TRPLSP 10021000

300-1

WD-2

WATER LINE EASEMENT OXY USA INC.

A PROPOSED WATER LINE KNOWN AS THE "PRECIOUS/ARKENSTONE WATER LINE" IN
SECTIONS 30 & 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.,
EDDY COUNTY,
NEW MEXICO.



DESCRIPTION

A STRIP OF LAND 30.0 FEET WIDE AND BEING 5460.8 FEET OR 330.96 RODS OR 1.034 MILES IN LENGTH CROSSING USA LAND IN SECTIONS 30 & 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

LEGEND

- - MONUMENT FOUND AS NOTED
- - WELL S.H.L.
- PROPOSED ROAD
- FLOWLINE
- DR. LINE
- ELECTRIC LINE
- GAS LINE

STATIONING

0+00.0 BEGIN SURVEY @ PRECIOUS CTB
0+05.0 PROP. ACCESS ROAD
6+00.2 P1 11°11'11" RT
6+18.5 PROP. OXY FLOWLINE
12+92.6 P1 01°19'10" RT
12+93.4 PROP. OXY POWERLINE
13+22.2 PROP. OXY GASLINE
13+34.9 PROP. OXY FLOWLINE
13+50.5 SECTION LINE
26+18.1 P1 41°16'45" RT
27+62.2 P1 54°08'00" LT
28+67.5 PROP. ACCESS ROAD
29+59.5 PROP. OXY GASLINE
29+89.9 P1 98°17'58" RT
30+24.7 PROP. OXY DR. LINE
48+10.6 P1 31°21'58" LT
48+64.7 P1 45°55'41" LT
53+70.9 N. EDGE OF FLARE CORRIDOR
54+00.9 S. EDGE OF FLARE CORRIDOR
54+60.8 END SURVEY @ LITTLE PRECIOUS CTB

BASIS OF BEARING

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983 DISTANCES ARE SURFACE VALUES

CERTIFICATION
I, CHAD HARCROW, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAT HAVE BEEN KEPT IN ACCORDANCE WITH THE STANDARDS FOR SURVEYING IN NEW MEXICO.

HARCROW SURVEYING, LLC
2318 W. MAIN ST., ALBUQUERQUE, N.M. 87102
PH: (505) 746-2138
charcrow@harcrowsurveying.com



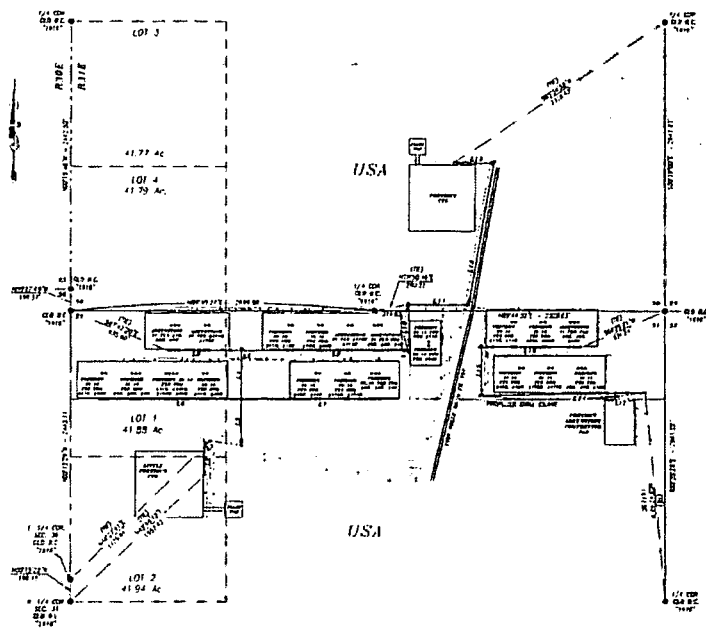
500 0 500 1000 FEET
SCALE: 1"=500'

OXY USA INC.

SURVEY OF A PROPOSED WATER LINE LOCATED IN SECTIONS 30 & 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO
SURVEY DATE: JULY 2019 WATER LINE
DRAWING DATE: JULY 2019 PAGE 1 OF 1
APPROVED BY: CH DRAWN BY: RH FILE: 19-1273

CHAD HARCROW
CHAD HARCROW N.M.P.S. NO. 17777
7/26/19
DATE

A PROPOSED ELECTRIC LINE SYSTEM KNOWN AS THE "PRECIOUS/ARKENSTONE ELECTRIC LINE SYSTEM" IN SECTIONS 30 & 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.A.L., EDDY COUNTY, NEW MEXICO



TEN STRIPS OF LAND 30.0 FEET WIDE AND TOTALING 11496.8 FEET OR 696.78 RODS OR 2.177 MILES IN LENGTH CROSSING USA LAND IN SECTIONS 30 & 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEYS

- MEASUREMENT FOUND AS NOTED
- WELL SHAL
- PROPOSED ROAD
- PROPOSED WATER LINE
- PROPOSED ON LOT
- PROPOSED FLOWLINE
- (USING EXISTING LINE)

NOTE:
LATS & LONGS SHOWN HEREON
ARE GRID VALUES.

BASES OF MEASURING:
MEASURES SHOWN HEREON ARE MEASUREMENTS OBTAINED AND CORRECTED TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

HARCROW SURVEYING, LLC
2310 W. MAIN ST., ASTORIA, OR 97103
PH (503) 325-2226
a.harcrow@harcrowsurveying.com

6. I AM AWARE OF MY OATHS AS A PROFESSIONAL SURVEYOR
 (CERTY) BUT I AM NOT RESPONSIBLE FOR THIS SURVEY BUT
 THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE
 AND BELIEF, AND THIS SURVEY AND PLAN WILL BE SUBMITTED TO THE
 SURVEYING IN MY AREA.

SCALE 1"=500'

A circular stamp from the Gerald R. Ford Library. The outer ring contains the text "GERALD R. FORD" at the top and "LIBRARY" at the bottom. The inner circle contains the year "1977".

OKY USA INC

Chad Hansen 7/26/10

REPORT DATE: JULY 2000

DATE	TIME	LOCATION	REMARKS
------	------	----------	---------

五、

Prepared by:
Dave Andersen
GRR Land Department

GRR, INC. WATER SOURCES
FOR OXY CERTAIN POND LOCATIONS

08/26/2016

Pond Name	Water Source1	Water Source2	Water Source3	Water Source4
Cedar Canyon	<u>Mine Industrial</u>	<u>C-3478</u>	<u>C-2772</u>	<u>C-1360</u>
Corral Fly	<u>C-1360</u>	<u>C-1361</u>	<u>C-3358</u>	<u>C-3836</u>
Cypress	<u>Mine Industrial</u>	<u>C-3478</u>	<u>C-2772</u>	<u>C-1361</u>
Mesa Verde	<u>C-2571</u>	<u>C-2574</u>	<u>J-27</u>	<u>J-5</u>
Peaches	<u>C-906</u>	<u>C-3200</u>	<u>SP-55 & SP-1279</u> <u>A</u>	<u>C-100</u>

GRR Inc.

NMOSE WELL NUMBER	WELL COMMON NAME	LAND OWNERSHIP	GPS LOCATION
C-100	Tres Rios - Next to well shack	PRIVATE	32.201921° -104.254317°
C-100-A	Tres Rios - Center of turnaround	PRIVATE	32.201856° -104.254443°
C-272-B	Tres Rios - Northwest	PRIVATE	32.202315° -104.254812°
C-906	Whites City Commercial	PRIVATE	32.176949° -104.374371°
C-1246-AC & C-1246-AC-S	Lackey	PRIVATE	32.266978° -104.271212°
C-1886	1886 Tank	BLM	32.229316° -104.312930°
C-1083	Petska	PRIVATE	32.30904° -104.16979°
C-1142	Winston West	BLM	32.507845 -104.177410
C-1360	ENG#1	PRIVATE	32.064922° -103.908818°
C-1361	ENG#2	PRIVATE	32.064908° -103.906266°
C-1573	Cooksey	PRIVATE	32.113463° -104.108092°
C-1575	ROCKHOUSE Ranch Well - Wildcat	BLM	32.493190° -104.444163°
C-2270	CW#1 (Oliver Kiehne)	PRIVATE	32.021440° -103.559208°
C-2242	Walterscheid	PRIVATE	32.39199° -104.17694°
C-2492POD2	Stacy Mills	PRIVATE	32.324203° -103.812472°
C-2569	Paduca well #2	BLM	32.160588 -103.742051
C-2569POD2	Paduca well replacement	BLM	32.160588 -103.742051
C-2570	Paduca (tank) well #4	BLM	32.15668 -103.74114
C-2571	Paduca (road) well	BLM	32.163993° -103.745457°
C-2572	Paduca well #6	BLM	32.163985 -103.7412
C-2573	Paduca (in the bush) well	BLM	32.16229 -103.74363
C-2574	Paduca well (on grid power)	BLM	32.165777° -103.747590°
C-2701	401 Water Station	BLM	32.458767° -104.528097°
C-2772	Mobley Alternate	BLM	32.305220° -103.852360°
C-3011	ROCKY ARROYO - MIDDLE	BLM	32.409046° -104.452045°
C-3060	Max Vasquez	PRIVATE	32.31291° -104.17033°
C-3095	ROCKHOUSE Ranch Well - North of Rockcrusher	PRIVATE	32.486794° -104.426227°
C-3200	Beard East	PRIVATE	32.168720 -104.276600
C-3260	Hayhurst	PRIVATE	32.227110° -104.150925°
C-3350	Winston Barn	PRIVATE	32.511871° -104.139094°
C-3358	Branson	PRIVATE	32.19214° -104.06201°
C-3363	Watts#2	PRIVATE	32.444637° -103.931313°
C-3453	ROCKY ARROYO - FIELD	PRIVATE	32.458657° -104.460804°
C-3478	Mobley Private	PRIVATE	32.294937° -103.888656°
C-3483pod1	ENG#3	BLM	32.065556° -103.894722°
C-3483pod3	ENG#5	BLM	32.06614° -103.89231°
C-3483POD4	CW#4 (Oliver Kiehne)	PRIVATE	32.021803° -103.559030°
C-3483POD5	CW#5 (Oliver Kiehne)	PRIVATE	32.021692° -103.560158°
C-3554	Jesse Baker #1 well	PRIVATE	32.071937° -103.723030°
C-3577	CW#3 (Oliver Kiehne)	PRIVATE	32.021773° -103.559738°
C-3581	ENG#4	BLM	32.066083° -103.895024°
C-3595	Oliver Kiehne house well #2	PRIVATE	32.025484° -103.682529°
C-3596	CW#2 (Oliver Kiehne)	PRIVATE	32.021793° -103.559018°

GRR Inc.

NMOSE WELL NUMBER	WELL COMMON NAME	LAND OWNERSHIP	GPS LOCATION
C-3614	Dale Hood #2 well	PRIVATE	32.449290° -104.214500°
C-3639	Jesse Baker #2 well	PRIVATE	32.073692° -103.727121°
C-3679	McCloy-Batty	PRIVATE	32.215790° -103.537690°
C-3689	Winston Barn_South	PRIVATE	32.511504° -104.139073°
C-3731	Ballard Construction	PRIVATE	32.458551° -104.144219°
C-3764	Watts#4	PRIVATE	32.443360° -103.942890°
C-3795	Beckham#6	BLM	32.023434° -103.321968°
C-3821	Three River Trucking	PRIVATE	32.34636° -104.21355
C-3824	Collins	PRIVATE	32.224053° -104.090129°
C-3829	Jesse Baker #3 well	PRIVATE	32.072545° -103.722258°
C-3830	Paduca	BLM	32.156400° -103.742060°
C-3836	Granger	PRIVATE	32.10073° -104.10284°
C-384	ROCKHOUSE Ranch Well - Rockcrusher	PRIVATE	32.481275° -104.420706°
C-459	Walker	PRIVATE	32.3379° -104.1498°
C-496pod2	Munoz #3 Trash Pit Well	PRIVATE	32.34224° -104.15365°
C-496pod3&4	Munoz #2 Corner of Porter & Derrick	PRIVATE	32.34182° -104.15272°
C-552	Dale Hood #1 well	PRIVATE	32.448720° -104.214330°
C-764	Mike Vasquez	PRIVATE	32.230553° -104.083518°
C-766(old)	Grandi	PRIVATE	32.32352° -104.16941°
C-93-S	Don Kidd well	PRIVATE	32.344876 -104.151793
C-987	ROCKY ARROYO - HOUSE	PRIVATE	32.457049° -104.461506°
C-98-A	Bindel well	PRIVATE	32.335125° -104.187255°
CP-1170POD1	Beckham#1	PRIVATE	32.065889° -103.312583°
CP-1201	Winston Ballard	BLM	32.580380° -104.115980°
CP-1202	Winston Ballard	BLM	32.538178° -104.046024°
CP-1231	Winston Ballard	PRIVATE	32.618968° -104.122690°
CP-1263POD5	Beckham#5	PRIVATE	32.065670° -103.307530°
CP-1414	Crawford #1	PRIVATE	32.238380° -103.260890°
CP-1414 POD 1	RRR	PRIVATE	32.23911° -103.25988°
CP-1414 POD 2	RRR	PRIVATE	32.23914° -103.25981°
CP-519	Bond Private	PRIVATE	32.485546 -104.117583
CP-556	Jimmy Mills (Stacy)	STATE	32.317170° -103.495080°
CP-626	Oi Loco (W)	STATE	32.692660° -104.068064°
CP-626-S	Beach Exploration/ Oi Loco (E)	STATE	32.694229° -104.064759°
CP-73	Laguna #1	BLM	32.615015° -103.747615°
CP-74	Laguna #2	BLM	32.615255° -103.747688°
CP-741	Jimmy Richardson	BLM	32.61913° -104.06101°
CP-742	Jimmy Richardson	BLM	32.614061° -104.017211°
CP-742	Hidden Well	BLM	32.614061 -104.017211
CP-745	Leaning Tower of Pisa	BLM	32.584619° -104.037179°
CP-75	Laguna #3	BLM	32.615499° -103.747715°
CP-924	Winston Ballard	BLM	32.545888° -104.110114°
CP-926	Winchester well (Winston)	BLM	32.601125° -104.128358°

GRR Inc.

NMOSE WELL NUMBER	WELL COMMON NAME	LAND OWNERSHIP	GPS LOCATION
J-27	Beckham	PRIVATE	32.020403° -103.299333°
J-5	EPNG Jal Well	PRIVATE	32.050232° -103.313117°
J-33	Beckham	PRIVATE	32.016443° -103.297714°
J-34	Beckham	PRIVATE	32.016443° -103.297714°
J-35	Beckham	PRIVATE	32.016443° -103.297714°
L-10167	Angell Ranch well	PRIVATE	32.785847° -103.644705°
L-10613	Northcutt3 (2nd House well)	PRIVATE	32.687922° -103.472452°
L-11281	Northcutt4	PRIVATE	32.687675° -103.471512°
L-12459	Northcutt1 (House well)	PRIVATE	32.689498° -103.472697°
L-12462	Northcutt8 Private Well	PRIVATE	32.686238° -103.435409°
L-13049	EPNG Maljamar well	PRIVATE	32.81274° -103.67730°
L-13129	Pearce State	STATE	32.726305° -103.553172°
L-13179	Pearce Trust	STATE	32.731304° -103.548461°
L-13384	Northcutt7 (State) CAZA	STATE	32.694651° -103.434997°
L-1880S-2	HB Intrepid well #7	PRIVATE	32.842212° -103.621299°
L-1880S-3	HB Intrepid well #8	PRIVATE	32.852415° -103.620405°
L-1881	HB Intrepid well #1	PRIVATE	32.829124° -103.624139°
L-1883	HB Intrepid well #4	PRIVATE	32.828041° -103.607654°
L-3887	Northcutt2 (Tower or Pond well)	PRIVATE	32.689036° -103.472437°
L-5434	Northcutt5 (State)	STATE	32.694074° -103.405111°
L-5434-S	Northcutt6 (State)	STATE	32.693355° -103.407004°
RA-14	Horner Can	PRIVATE	32.89348° -104.37208°
RA-1474	Irvin Smith	PRIVATE	32.705773° -104.393043°
RA-1474-B	NLake WS / Jack Clayton	PRIVATE	32.561221° -104.293095°
RA-9193	Angell Ranch North Hummingbird	PRIVATE	32.885162° -103.676376°
SP-55 & SP-1279-A	Blue Springs Surface POD	PRIVATE	32.181358° -104.294009°
SP-55 & SP-1279 (Bounds)	Bounds Surface POD	PRIVATE	32.203875° -104.247076°
SP-55 & SP-1279 (Wilson)	Wilson Surface POD	PRIVATE	32.243010° -104.052197°

City Treated Effluent	City of Carlsbad Waste Treatment Plant	PRIVATE	32.411122° -104.177030°
Mine Industrial	Mosaic Industrial Water	PRIVATE	32.370286° -103.947839°
Mobley State Well (NO OSE)	Mobley Ranch	STATE	32.308859° -103.891806°
EPNG Industrial	Monument Water Well Pipeline (Oil Center, Eunice)	PRIVATE	32.512943° -103.290300°
MCOX Commercial	Matt Cox Commercial	PRIVATE	32.529431° -104.188017°
AMAX Mine Industrial	Mosaic Industrial Water	N/A	VARIOUS TAPS
WAG Mine Industrial	Mosaic Industrial Water	N/A	VARIOUS TAPS
HB Mine Industrial	Intrepid Industrial Water	N/A	VARIOUS TAPS

Mesquite

Cedar Canyon

Major Source: C464 (McDonald) Sec. 13 T24S R28E

Secondary Source: C-00738 (McDonald/Faulk) Sec. 12 T24S R28E

Corral Fly – South of Cedar Canyon

Major Source: C464 (McDonald) Sec. 13 T24S R28E

Secondary Source: C-00738 (McDonald/Faulk) Sec. 12 T24S R28E

Cypress – North of Cedar Canyon

Major Source: Caviness B: C-501-AS2 Sec 23 T28S R15E

Secondary Source: George Arnis; C-1303

Sand Dunes – new frac pond

Major Source: 128 Fresh Water Pond (Mesquite/Mosaic) – located at MM 4 on 128; 240,000 bbl pond

Secondary Source: George Arnis; C-1303

Mesa Verde – east of Sand Dunes

Major Source: 128 Fresh Water Pond (Mesquite/Mosaic) – located at MM 4 on 128; 240,000 bbl pond

Secondary Source: Unknown at this time; needs coordinates to determine secondary source

Smokey Bits/Ivory/Misty – had posiden tanks before

Major Source: Unknown at this time; need coordinates to determine major source

Secondary Source: Unknown at this time; needs coordinates to determine secondary source

Red Tank/Lost Tank

Major Source: Unknown at this time; need coordinates to determine major source

Secondary Source: Unknown at this time; needs coordinates to determine secondary source

Peaches

Major Source: Unknown at this time; need coordinates to determine major source

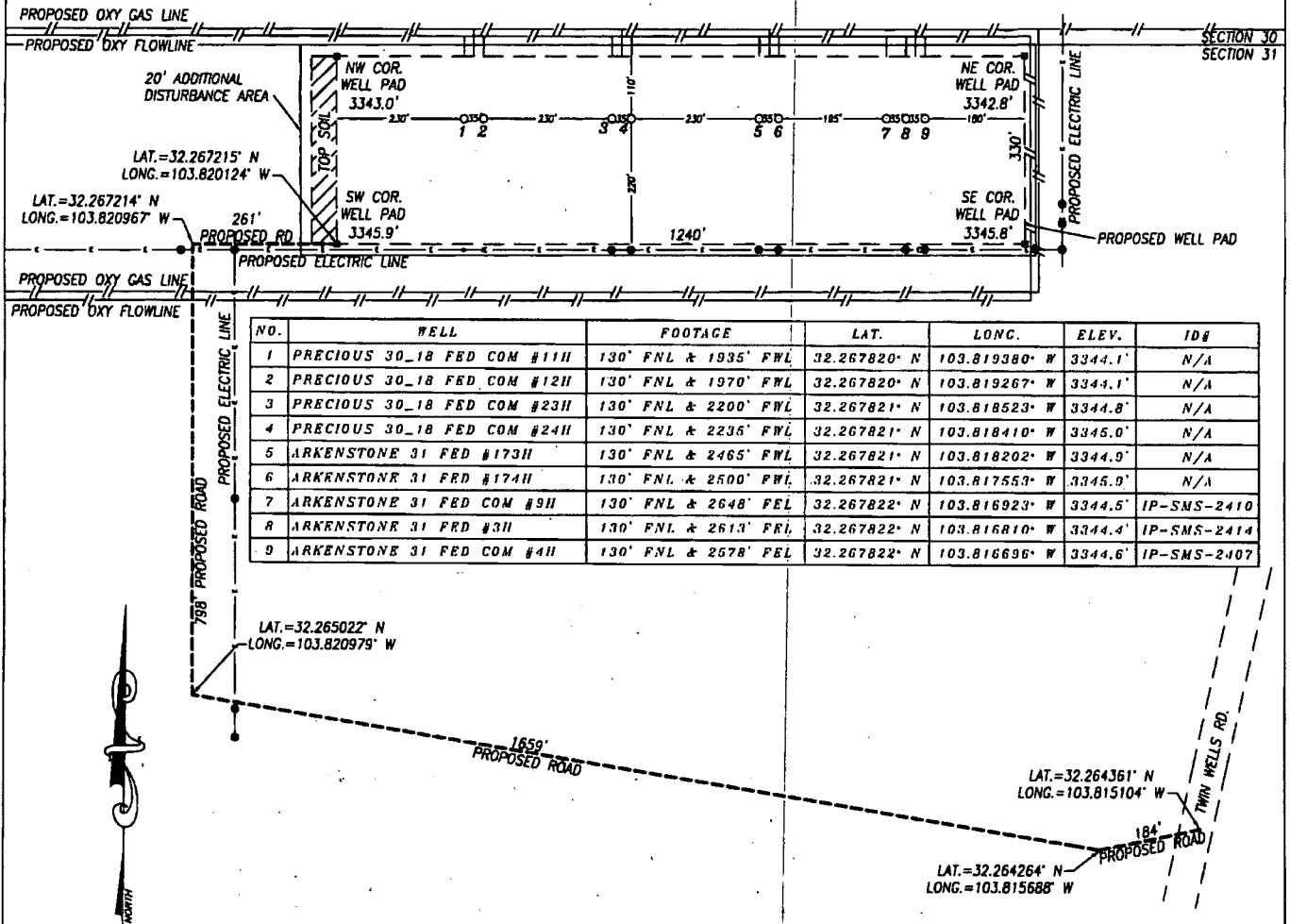
Secondary Source: Unknown at this time; needs coordinates to determine secondary source

OXY USA INC.

SITE PLAN

SNDDNS 3113

FAA PERMIT: NO

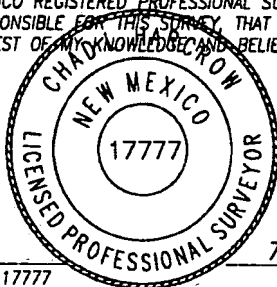


NOTES:

- 1) LATs & LONGs SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983.
- 2) DISTANCES ARE GRID VALUES.
- 3) ALL FEATURES ARE EXISTING UNLESS OTHERWISE NOTED

CERTIFICATION

I, CHAD HARCROW, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



Chad Harcrow
CHAD HARCROW N.M.P.S. NO. 17777

7/22/19
DATE

HARCROW SURVEYING, LLC
2316 W. MAIN ST, ARTESIA, N.M. 88210
PH: (575) 746-2158
c.harcrow@harcrowsurveying.com

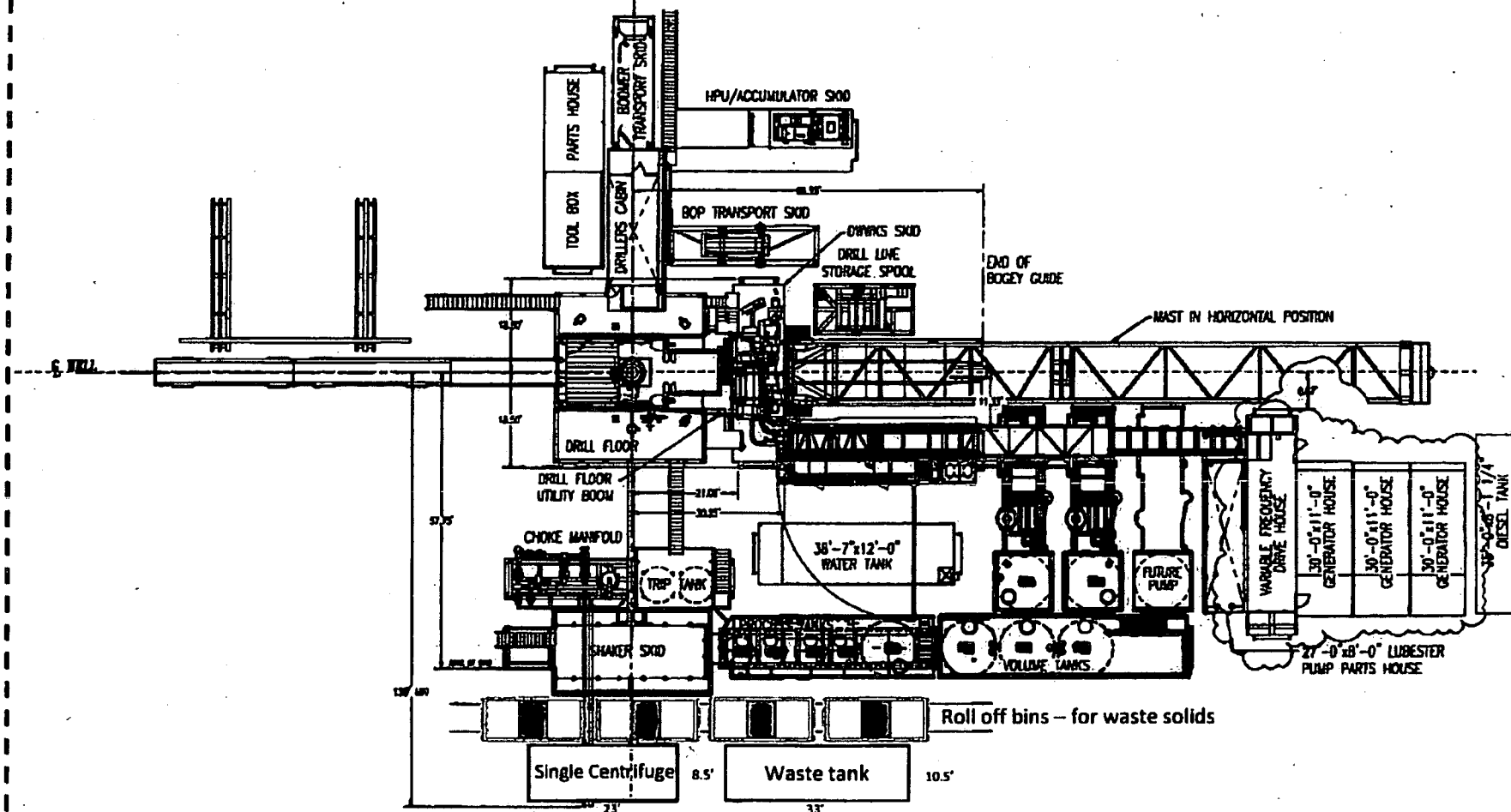


300 0 300 600 Feet
Scale: 1"=300'

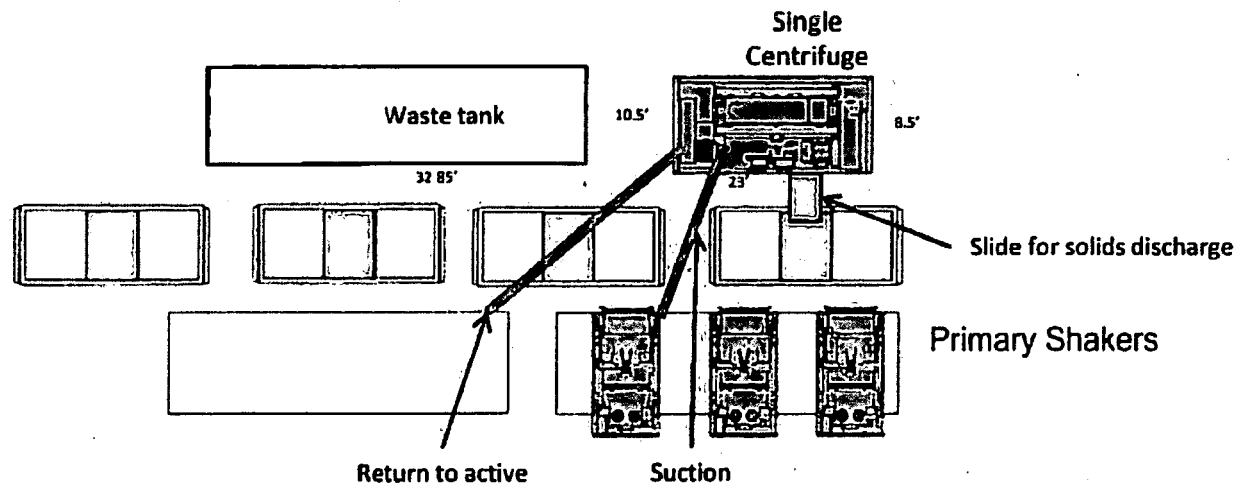
OXY USA INC.

SURVEY DATE: JULY 10, 2019	SITE PLAN
DRAFTING DATE: JULY 19, 2019	PAGE: 1 OF 1
APPROVED BY: CH	DRAWN BY: AM
FILE: 19-1279	

Oxy Single Centrifuge
Closed Loop System – New
Mexico Flex III
May 28, 2013



Oxy



Well Head



Oxy Single Centrifuge
Closed Loop System – New
Mexico Flex III
May 28, 2013

Pad
3113

OXY U.S.A. INC.

NEW MEXICO STAKING FORM

330 x 1240 Pad
8 Wells

Date Staked: 9-11-18

Lease / Well Name: Arkenstone 31 Fed #4H

Legal Description: 130' FNL 2578' FEL Sec 31 T23S R31E

Latitude: 32° 16' 04.16" NAD 83

Longitude: -103° 49' 00.11" NAD 83

X: 701022.53 NAD 83

Y: 461550.94 NAD 83

Elevation: 3344.2 NAD 83

Move information:

County: Eddy

Surface Owner: BLM

Nearest Residence: ?

Nearest Water Well:

V-Door: EAST

Top soil: West

Road Description: SW Cor From South

New Road:

Upgrade Existing Road:

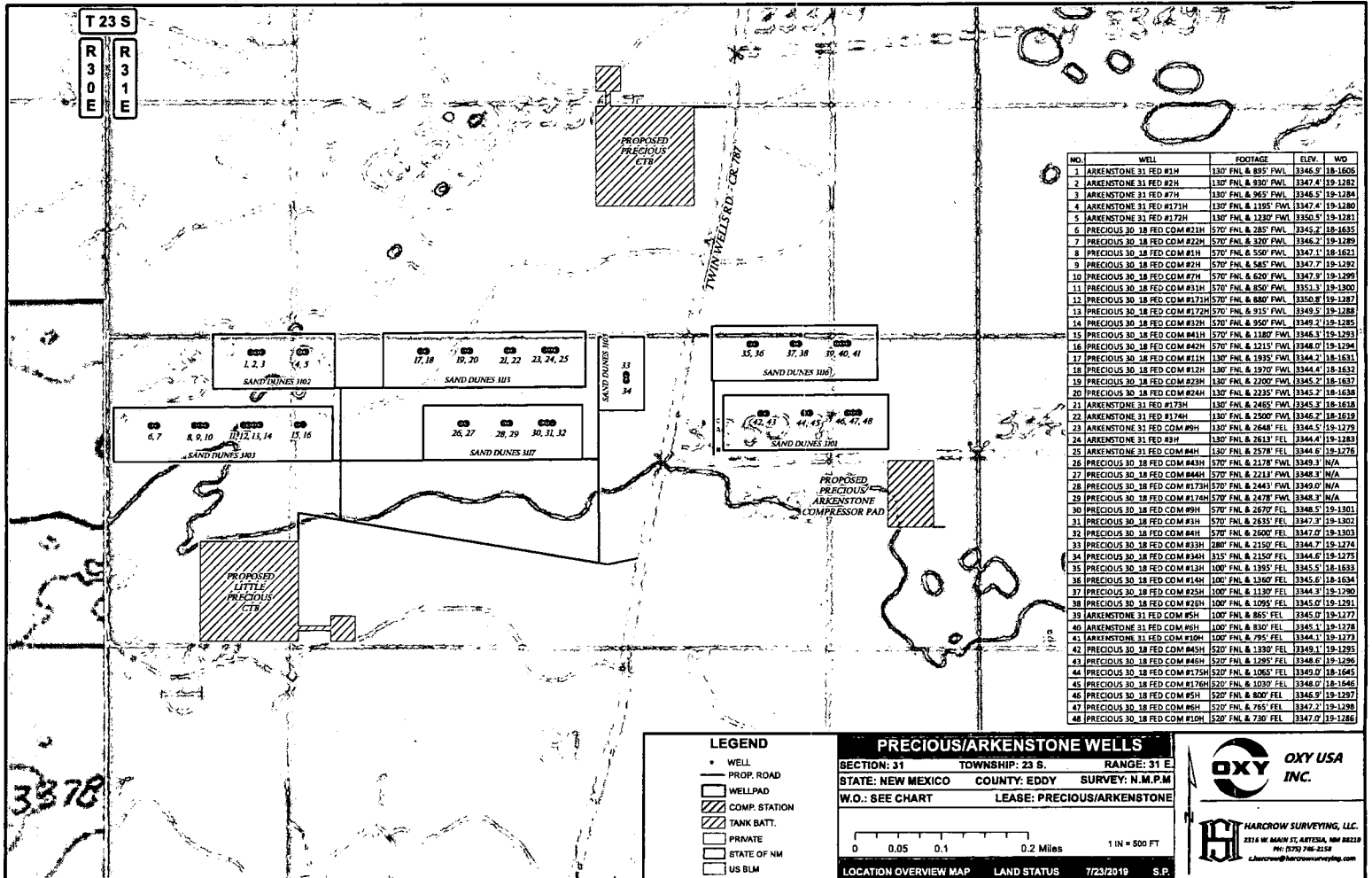
Interim Reclamation: 30' EAST 50' NORTH

Source of Caliche: JESSIE BASSETT - BLM

Onsite Attendees: SWCA Jim Wilson - OXY

DATE: 2-22-18 ASEL SURVEY





Surface Use Plan of Operations

Operator Name/Number: OXY USA Inc. – 16696
Lease Name/Number: Arkenstone 31 Federal #4H
Pool Name/Number: Wildcat Bone Spring
Surface Location: 130 FNL 2578 FEL NWNE (B) Sec 31 T23S R31E – NMNM0546732A
Bottom Hole Location: 20 FSL 1900 FEL SWSE (O) Sec 31 T23S R31E – NMNM0546732A

1. Existing Roads

- a. A copy of the USGS “Los Medanos, NM” quadrangle map is attached showing the proposed location. The well location is spotted on the map, which shows the existing road system.
- b. The well was staked by Terry J. Asel, Certificate No. 15079 on 7/10/19, certified 7/22/19.
- c. Directions to Location: From the intersection of NM State Hwy 128 and CR 787 (Twin Wells Rd), go south-southwest on CR 787 for 2.5 miles. Turn right on proposed road and go southwest 184', turn right and go northwest for 1659', turn right and go north 798', turn right and go east for 261' to location.

2. New or Reconstructed Access Roads:

- a. A new access road will be built. The access road will run from an existing road going 184' southwest, then 1659' northwest, then 798' north, then 261' east through pasture to the southwest corner of the pad.
- b. The maximum width of the road will be 14'. It will be crowned and made up of 6" of rolled and compacted caliche. Water will be deflected, as necessary, to avoid accumulation and prevent surface erosion.
- c. Surface material will be native caliche. This material will be obtained from a BLM approved pit nearest in proximity to the location. The average grade will be approximately 1%.
- d. No cattle guards, grates or fence cuts will be required. Turnouts every 1000' as needed.
- e. Blade, water and repair existing caliche roads as needed.
- f. Water Bars will be incorporated every 200' during the construction of the road.

3. Location of Existing Wells:

Existing wells within a one mile radius of the proposed well are shown on attached plat.

4. Location of Existing and/or Proposed Facilities:

- a. In the event the well is found productive, the Sand Dunes Precious Central Tank Battery would be utilized and the necessary production equipment will be installed at the well site. See proposed facilities layout diagram.
- b. All flow lines will adhere to API standards. They will consist of 3 – 4" composite flowlines operating < 75% MAWP, surface to follow surveyed route. Survey of a strip of land 30' wide and 2151.4' in length crossing USA land in Sections 30 & 31, T23S R31E, NMPM, Eddy County, NM and being 15' left and 15' right of the centerline survey. Two–6" steel gas lift hp line operating <1500 psig, buried, lines to follow surveyed route. Survey of a strip of land 30' wide and 2654.2' in length crossing USA land in Section 30 & 31, T23S R31E, NMPM, Eddy County, NM and being 15' left and 15' right of the centerline survey. See attached.
- c. Electric line will follow a route approved by the BLM. Survey of a strip of land 30' wide and 1492.6' in length crossing USA land in Sections 31 T23S R31E NMPM, Eddy County, NM and being 15' left and 15' right of the centerline survey, see attached.
- d. See attached for additional information on the Sand Dunes Precious/Arkenstone Central Corridor Surface Production Facilities.

5. Location and types of Water Supply

This well will be drilled using a combination of water mud systems. It will be obtained from commercial water stations in the area and will be hauled to location by transport truck using existing and proposed roads.

6. Construction Materials:

Primary

All caliche utilized for the drilling pad and proposed access road will be obtained from an existing BLM/State/Fee approved pit or from prevailing deposits found on the location. Will use BLM recommended extra caliche from other locations close by for roads, if available.

Secondary

The secondary way of obtaining caliche to build locations and roads will be by “turning over” the location. This means, caliche will be obtained from the actual well site. A caliche permit will be obtained from BLM prior to pushing up any caliche. 2400 cubic yards is max amount of caliche needed for pad and roads. Amount will vary for each pad. The procedure below has been approved by BLM personnel:

- a. The top 6” of topsoil is pushed off and stockpiled along the side of the location.
- b. An approximate 120’ X 120’ area is used within the proposed well site to remove caliche.
- c. Subsoil is removed and piled alongside the 120’ X 120’ within the pad site.
- d. When caliche is found, material will be stockpiled within the pad site to build the location and road.
- e. Then subsoil is pushed back in the hole and caliche is spread accordingly across entire location and road.
- f. Once the well is drilled the stockpiled top soil will be used for interim reclamation and spread along areas where caliche is picked up and the location size is reduced. Neither caliche nor subsoil will be stockpiled outside of the well pad. Topsoil will be stockpiled along the edge of the pad as depicted in the attached plat.

7. Methods of Handling Waste Material:

- a. A closed loop system will be utilized consisting of above ground steel tanks and haul-off bins. Disposal of liquids, drilling fluids and cuttings will be disposed of at an approved facility. Solids-CRI, Liquids-Laguna
- b. All trash, junk and other waste material will be contained in trash cages or bins to prevent scattering. When the job is completed, all contents will be removed and disposed of in an approved sanitary landfill.
- c. The supplier, including broken sacks, will pickup slats remaining after completion of well.
- d. A Porto-john will be provided for the rig crews. This equipment will be properly maintained during the drilling and completion operations and will be removed when all operations are complete.
- e. Disposal of fluids to be transported will be by the following companies. TFH Ltd, Laguna SWD Facility

8. Ancillary Facilities: None needed.

9. Well Site Layout:

The proposed well site layout with dimensions of the pad layout and equipment location.

V-Door – East

CL Tanks – North

Pad – 330’ X 1240’ – 9 Well Pad

10. Plans for Surface Reclamation:

- a. After concluding the drilling and/or completion operations, if the well is found non-commercial, the caliche will be removed from the pad and transported to the original caliche pit or used for other drilling locations. The road will be reclaimed as directed by the BLM. The original topsoil will again be returned to the pad and contoured, as close as possible, to the original topography, and the area will be seeded with an approved BLM mixture to re-establish vegetation.

- b. If the well is deemed commercially productive, caliche from the areas of the pad site not required for operations will be reclaimed. The original topsoil will be returned to the area of the drill pad not necessary to operate the well. These unused areas of the drill pad will be contoured, as close as possible, to match the original topography, and the area will be seeded with an approved BLM mixture to re-establish vegetation.

11. Surface Ownership:

The surface is owned by the U.S. Government and is administered by the BLM. The surface is multiple use with the primary uses of the region for the grazing of livestock and the production of oil and gas. The surface is leased to: Slash 46 Inc., P.O. Box 1358, Loving, NM 88256. They will be notified of our intention to drill prior to any activity.

12. Other Information:

- a. The vegetation cover is generally sparse consisting of mesquite, yucca, shinnery oak, sandsage and perennial native range grass. The topsoil is sandy in nature. Wildlife in the area is also sparse consisting of deer, coyotes, rabbits, rodents, reptiles, dove and quail.
- b. There is no permanent or live water in the general proximity of the location.
- c. There are no dwellings within one mile of the proposed well site.
- d. Cultural Resources Examination—This well is located in the Permian Basin PA. Payment to be determined by BLM. This well shares the same pad as the Arkenstone 31 Federal #3H, 9H, 173H, 174H, Precious 30-18 Federal Com #11H, 12H, 23H, 24H.

Copy of this application will be furnished to SWCA Environmental Consultants, 5647 Jefferson St. NE, Albuquerque, NM 87109. Potash lessee within one mile of surface location, Mosaic Potash Carlsbad, Inc., 1361 Potash Mines Rd., Carlsbad, NM 88220.

13. Bond Coverage:

Bond coverage is Individual-NMB000862, Nationwide-ESB00226.

14. Operators Representatives:

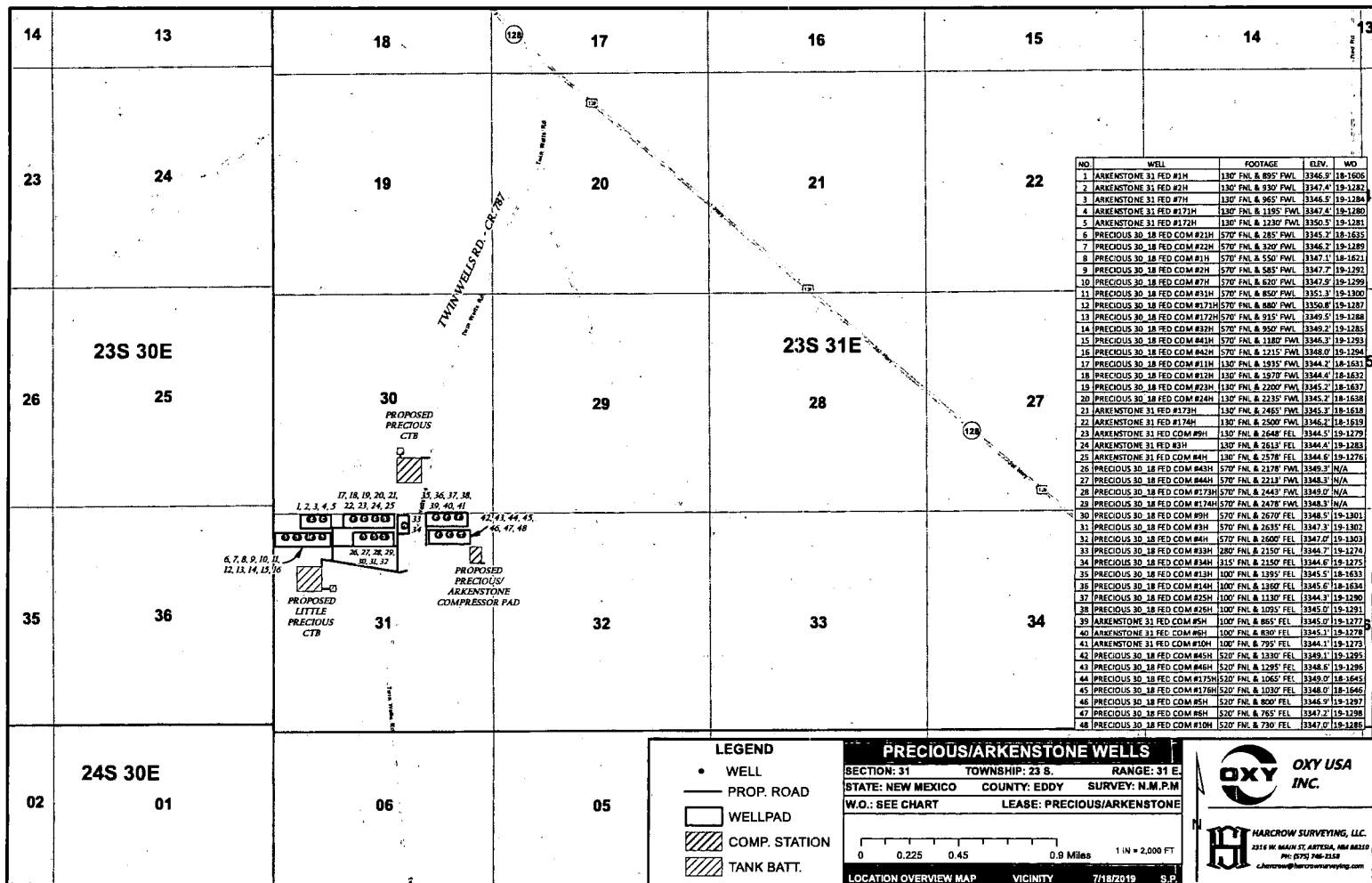
The OXY Permian representatives responsible for ensuring compliance of the surface use plan are listed below:

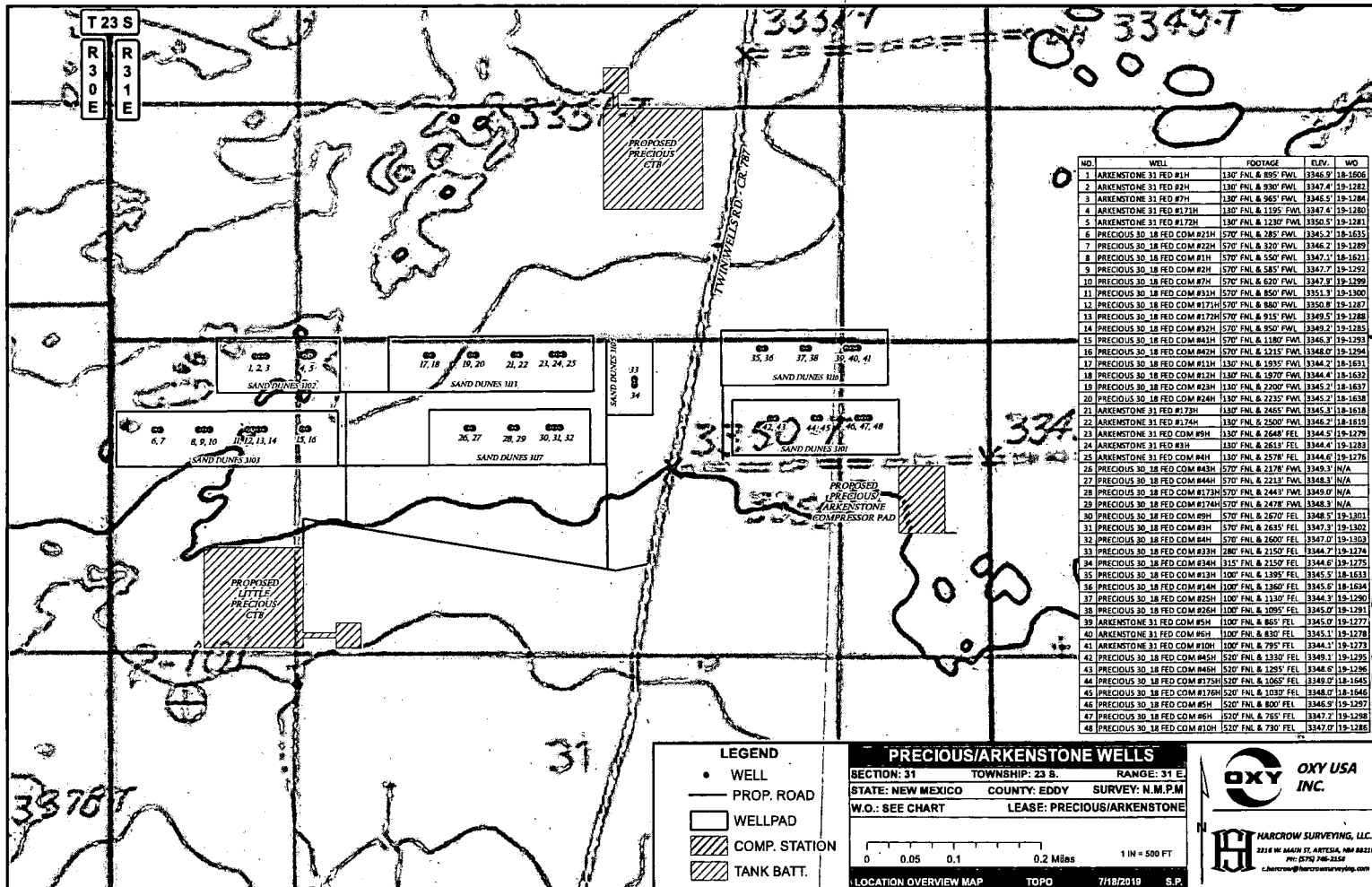
Leo Ortega
Operations Superintendent
1502 West Commerce Dr.
Carlsbad, NM 88220
Office – 575-628-4012
Cellular – 575-706-8995

Jim Wilson
Operation Specialist
P.O. Box 50250
Midland, TX 79710
Cellular – 575-631-2442

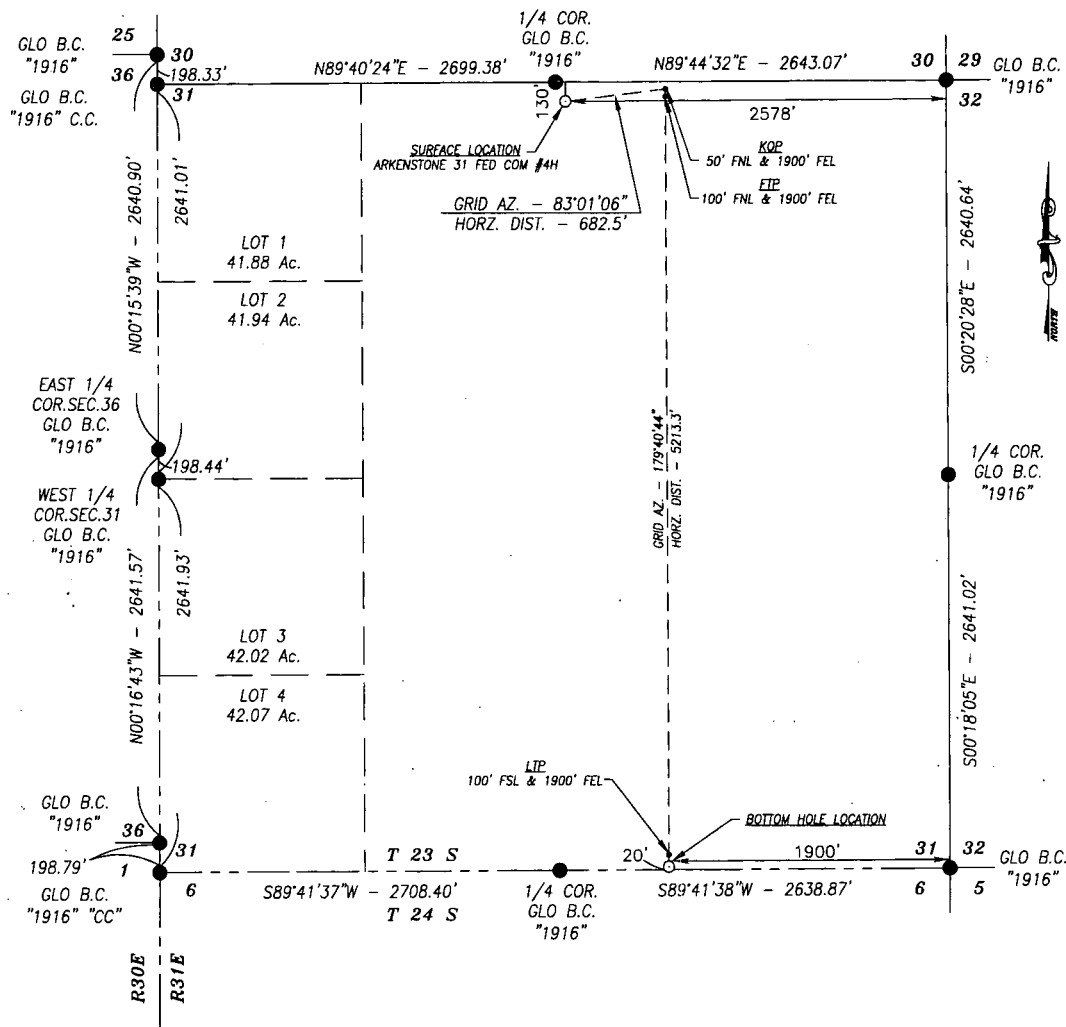
Cuong Q. Phan
Asset Manager
P.O. Box 4294
Houston, TX Carlsbad, NM 88220
Office – 713-513-6645
Cellular – 281-832-0978

Michael Walton
RMT Lead
P.O. Box 4294
Houston, TX 77210
Office – 713-366-5526
Cellular – 281-814-2971





SECTION 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



DIRECTIONS TO LOCATION:

BEGINNING AT THE INTERSECTION OF N.M. STATE HWY. 128 AND EDDY COUNTY ROAD 787 (TWIN WELLS ROAD), GO SOUTH-SOUTHWEST ON EDDY COUNTY ROAD 787 FOR APPROX. 2.5 MILES TO PROPOSED ROAD; TURN RIGHT AT PROPOSED ROAD AND GO WEST-SOUTHWEST APPROX. 184 FEET; BEND RIGHT AND CONTINUE WEST-NORTHWEST APPROX 0.31 MILES; TURN RIGHT AND GO NORTH APPROX. 0.15 MILES; TURN RIGHT AND GO EAST APPROX. 261 FEET TO THE SOUTHWEST CORNER PROPOSED PAD. THIS WELL IS EAST-NORTHEAST 1082 FEET.

BASIS OF BEARING:

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE GRID VALUES.

HARCROW SURVEYING, LLC

2316 W. MAIN ST, ARTESIA, N.M. 88210

PH: (575) 746-2158

c.harcrow@harcrowsurveying.com



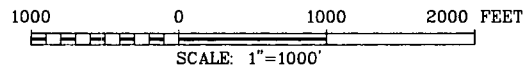
CERTIFICATION

I, CHAD HARCROW, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.



Chad Harcrow
CHAD HARCROW N.M.P.S. NO. 17777

7/22/19
DATE



OXY USA INC.

ARKENSTONE 31 FEDERAL COM #4H
SECTION 31, TOWNSHIP 23 SOUTH, RANGE 31 EAST,
NMPM, EDDY COUNTY, NEW MEXICO

SURVEY DATE: JULY 10, 2019

DRILL PATH

DRAFTING DATE: JULY 19, 2019

PAGE 1 OF 1

APPROVED BY: CH DRAWN BY: AM

FILE: 19-1276



U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

PWD Data Report

01/07/2020

APD ID: 10400038590

Submission Date: 01/29/2019

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - General

Would you like to address long-term produced water disposal? NO

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

Lined pit Monitor description:

Lined pit Monitor attachment:

Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD disturbance (acres):

PWD surface owner:

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Unlined pit: do you have a reclamation bond for the pit?

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number:

Injection well name:

Assigned injection well API number?

Injection well API number:

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Other PWD discharge volume (bbl/day):

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:



U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Bond Info Data Report

01/07/2020

APD ID: 10400038590

Submission Date: 01/29/2019

Highlighted data
reflects the most
recent changes

Operator Name: OXY USA INCORPORATED

Well Name: ARKENSTONE 31 FEDERAL

Well Number: 4H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Bond Information

Federal/Indian APD: FED

BLM Bond number: ESB000226

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment: