

From: [Tyler Moehlman](#)
To: [McClure, Dean, EMNRD](#)
Subject: [EXT] Amended Relocation Package - Siege 165 State SWD No. 1, Solaris Water Midstream
Date: Friday, November 1, 2019 7:24:10 AM
Attachments: [OCD Relocation Package_Siege 165 State SWD No. 1.pdf](#)

Hello Dean,

Good morning to you sir, this is Tyler Moehlman over at Lonquist! Attached I have a relocation package for Solaris Water Midstream's Siege 165 State SWD No. 1. This location has been moved at the request of an offset operator. We have identified no Devonian penetrators and the affected parties have remained the same for this well.

I ask that you please consider this amended package in the Siege's current position in queue. If there's anything else you need please just let me know.

Thank you and have a great Friday!

Tyler F. Moehlman,
Petroleum Engineer

Office: 713-987-4144 Cell: 713-494-0340
1001 McKinney, Suite 1650, Houston, Texas, 77002
tyler.moehlman@lonquist.com · www.lonquist.com

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LONQUIST & CO. LLC

PETROLEUM
ENGINEERS

ENERGY
ADVISORS

AUSTIN • HOUSTON • WICHITA • DENVER • CALGARY

November 1, 2019

New Mexico Energy, Minerals, and Natural Resources Department
Oil Conservation Division District IV
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
(505) 476-3440

**RE: SIEGE 165 STATE SWD NO. 1 AUTHORIZATION TO INJECT
UPDATED 1-MILE AOR, NOTICE PARTY DETERMINATION, & INJECTION STUDY
SOLARIS WATER MIDSTREAM, LLC**

To Whom It May Concern:

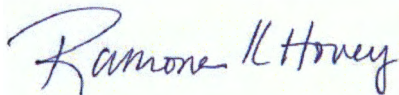
The proposed Siege 165 State SWD No. 1 well location has been relocated from Unit M to Unit L within Section 02-T24S-R29E to accommodate the operations of an offset oil and gas operator. The new location is shown in the attached C-102.

The 1-Mile AOR, evaluated for offset wellbores penetrating the injection formation and to determine notice parties as part of the C-108 Application, has been updated for the new location. The revised maps and list are attached. Relocation of the proposed wellbore resulted in additional notice parties. The 1-Mile AOR remains void of wellbores penetrating the injection formation and no new affected parties have been identified.

In consideration of the offset active, and permitted, Devonian disposals in the region, an injection study has been prepared alongside this amended package. The injection study is submitted to display the projected operations over a 20-year period. In review of the injection study performed, the drilling and completion of the Siege 165 will have minimal impact on the operations of offsetting Devonian disposal wells.

Any questions should be directed towards Solaris Water Midstream, LLC's agent Lonquist & Co., LLC.

Regards,



Ramona K. Hovey
Sr. Petroleum Engineer
Lonquist & Co., LLC

(512) 600-1777
ramona@lonquist.com

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone (505) 393-6161 Fax: (505) 393-0720

DISTRICT II
811 S. First St., Artesia, NM 88210
Phone (505) 748-1283 Fax: (505) 748-0720

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone (505) 334-8178 Fax: (505) 334-8170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone (505) 478-3450 Fax: (505) 478-3458

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code 97869	Pool Name DEVONIAN-SILURIAN
Property Code	Property Name SIEGE 165 STATE SWD	Well Number 1
GRID No. 371643	Operator Name SOLARIS WATER MIDSTREAM	Elevation 3063'

Surface Location

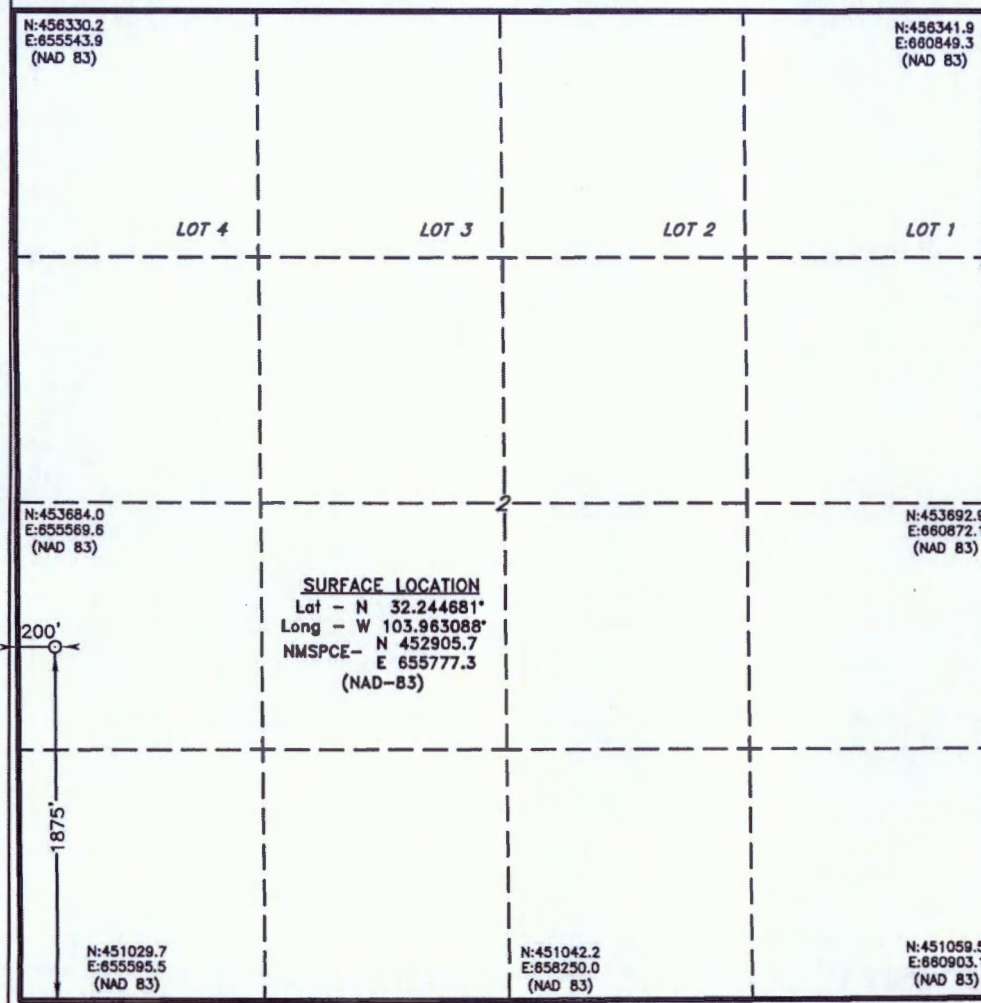
UL or lot No. L	Section 2	Township 24 S	Range 29 E	Lot Idn	Feet from the 1875	North/South line SOUTH	Feet from the 200	East/West line WEST	County EDDY
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Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
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Dedicated Acres Joint or Infill Consolidation Code Order No.

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



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or undivided 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 a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Ramona K. Hovey 10/30/19
Signature Date
RAMONA K. HOVEY
Printed Name
ramona@longquist.com
Email Address

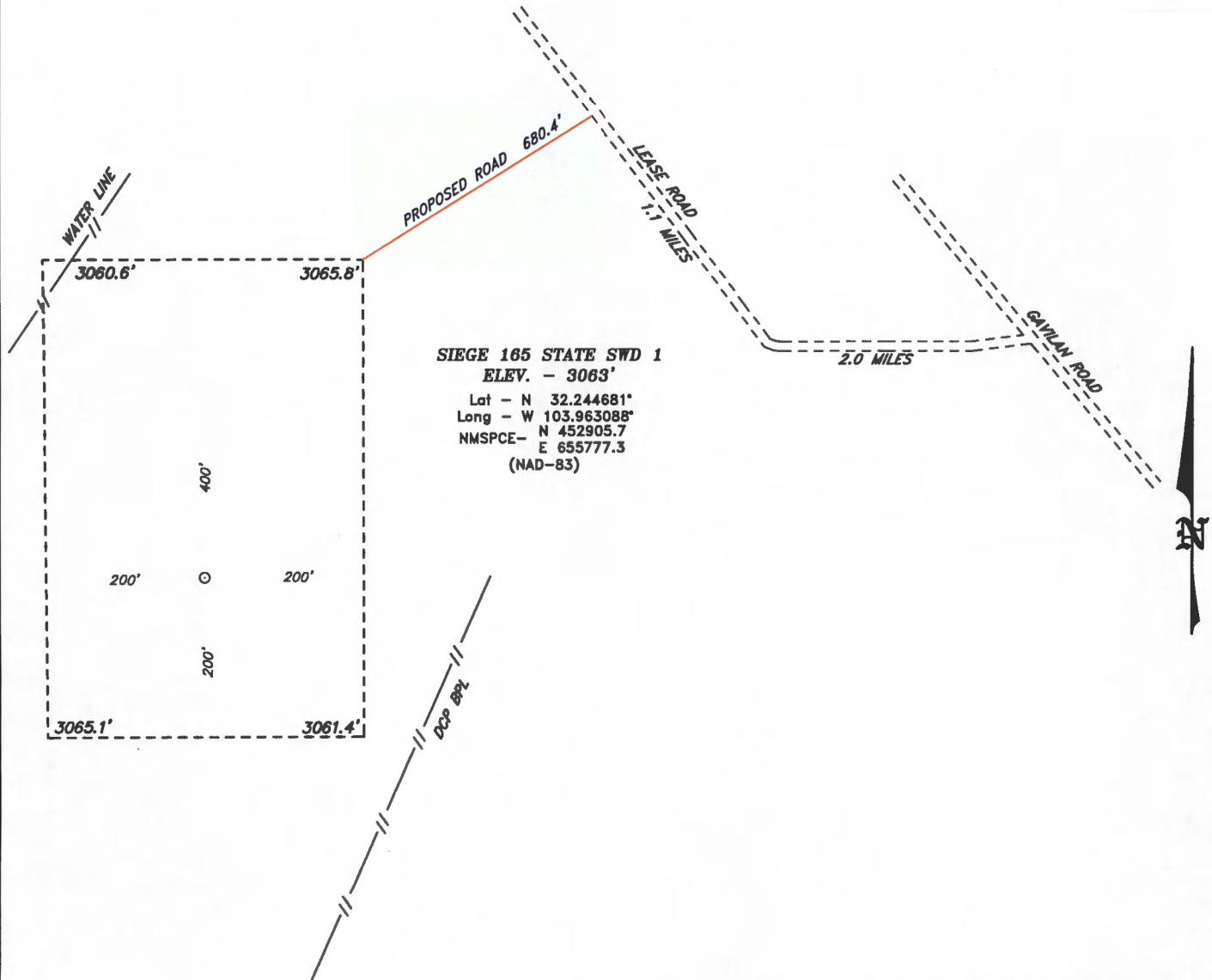
SURVEYOR CERTIFICATION

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.

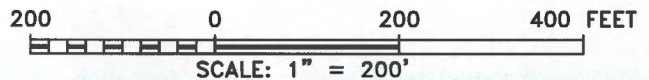
DATE SURVEYED
Signature & Seal of Professional Surveyor
7977
Certificate No. 7977
Date

0' 500' 1000' 1500' 2000'
SCALE: 1" = 1000'
WO Num.: 34685

**SECTION 2 TOWNSHIP 24 SOUTH, RANGE 29 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.**



MALAGA, NM IS ±6 MILES TO THE SOUTHWEST OF LOCATION.



	SOLARIS WATER MIDSTREAM
	REF: SIEGE 165 STATE SWD 1 / WELL PAD TOPO THE SIEGE 165 STATE SWD 1 LOCATED 1875' FROM THE SOUTH LINE AND 200' FROM THE WEST LINE OF SECTION 2, TOWNSHIP 24 SOUTH, RANGE 29 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

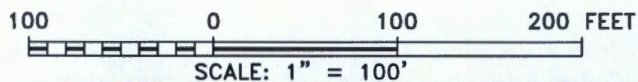
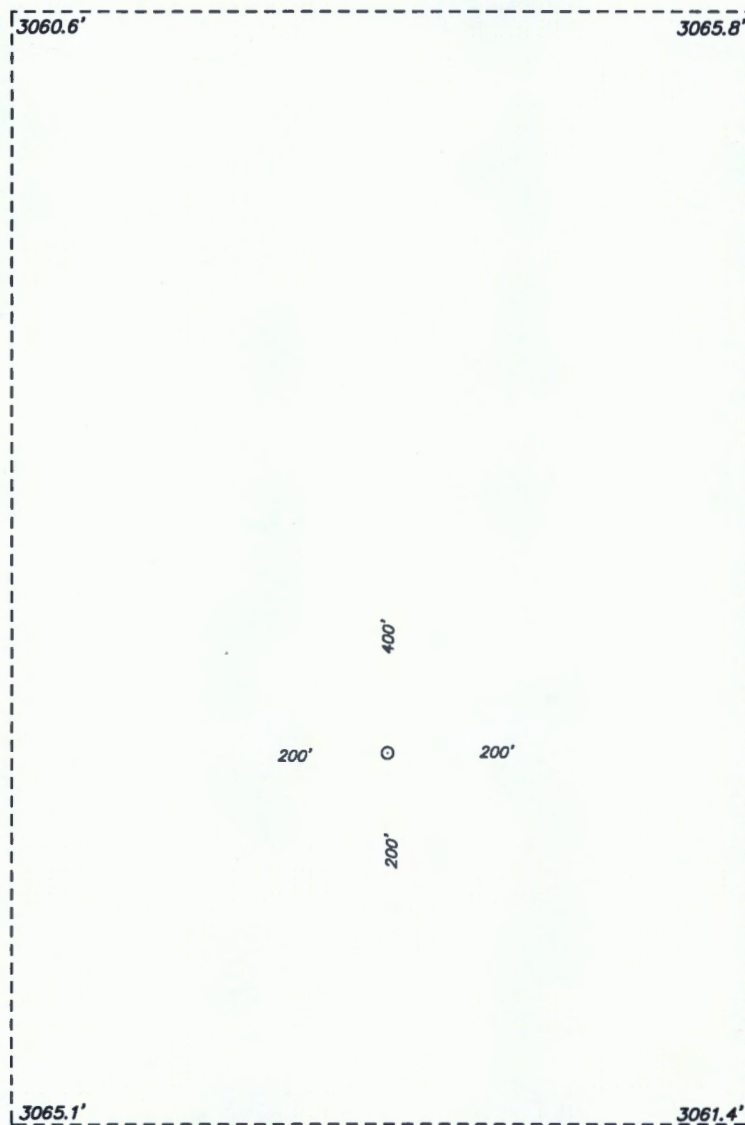
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 Hobbs, New Mexico 88241

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 (575) 392-2206 - Fax
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**SECTION 2 TOWNSHIP 24 SOUTH, RANGE 29 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.**



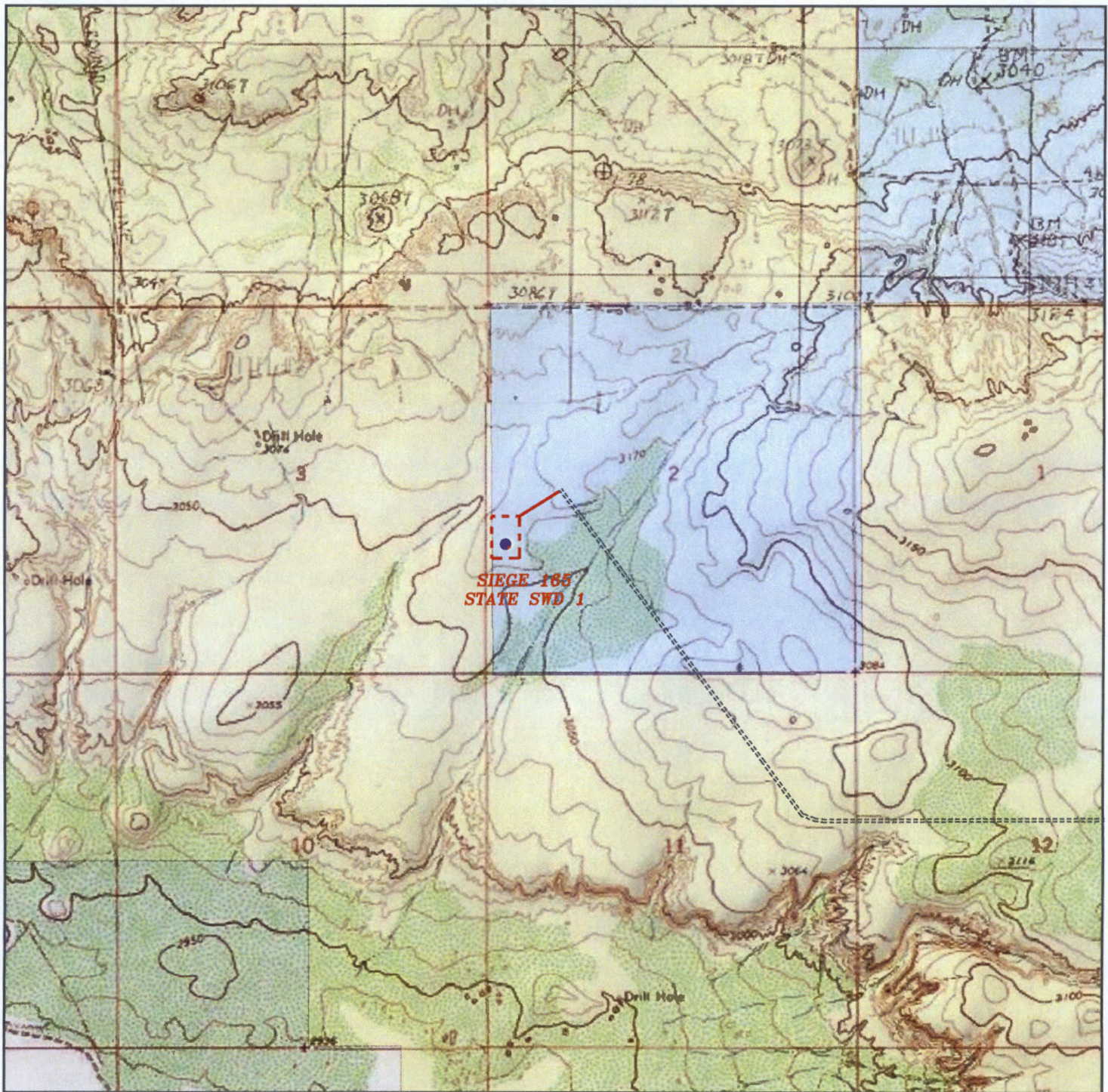
SOLARIS WATER MIDSTREAM

REF: SIEGE 165 STATE SWD 1 / WELL PAD TOPO

*THE SIEGE 165 STATE SWD 1 LOCATED 1875' FROM
THE SOUTH LINE AND 200' FROM THE WEST LINE OF
SECTION 2, TOWNSHIP 24 SOUTH, RANGE 29 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.*

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Hobbs, New Mexico 88241 basin-surveys.com



SIEGE 165 STATE SWD 1

Located 1875' FSL & 200' FWL
 Section 2, Township 24 South, Range 29 East,
 N.M.P.M., Eddy County, New Mexico.



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 1120 N. West County Rd.
 Hobbs, New Mexico 88241
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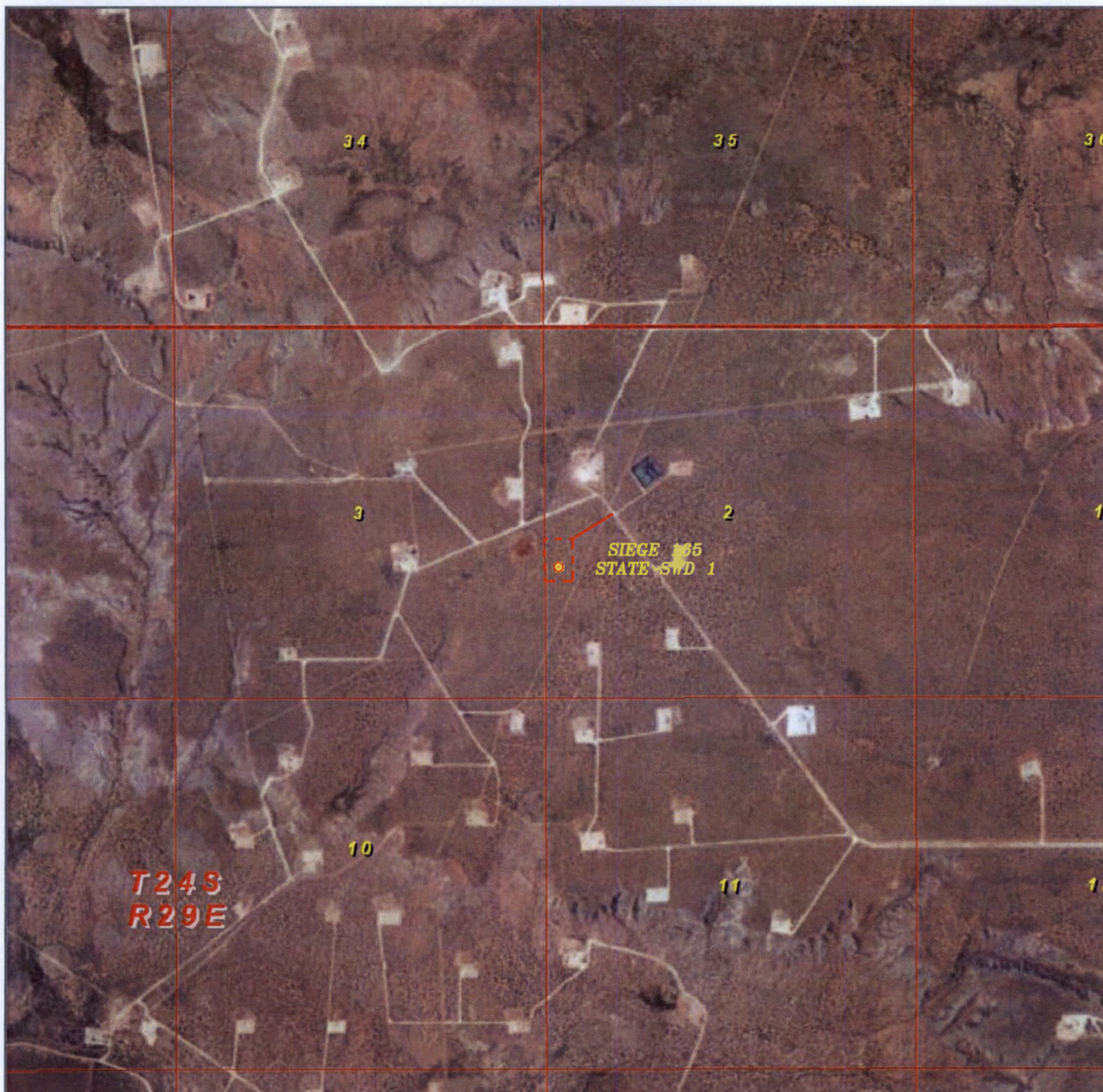
0' 1000' 2000' 3000' 4000'
 SCALE: 1" = 2000'

W.O. Number: JG - 34685

Survey Date: 7-1-2019

YELLOW TINT - USA LAND
 BLUE TINT - STATE LAND
 NATURAL COLOR - FEE LAND





SIEGE 165 STATE SWD 1

Located 1875' FSL & 200' FWL
 Section 2, Township 24 South, Range 29 East,
 N.M.P.M., Eddy County, New Mexico.

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0' 1000' 2000' 3000' 4000'

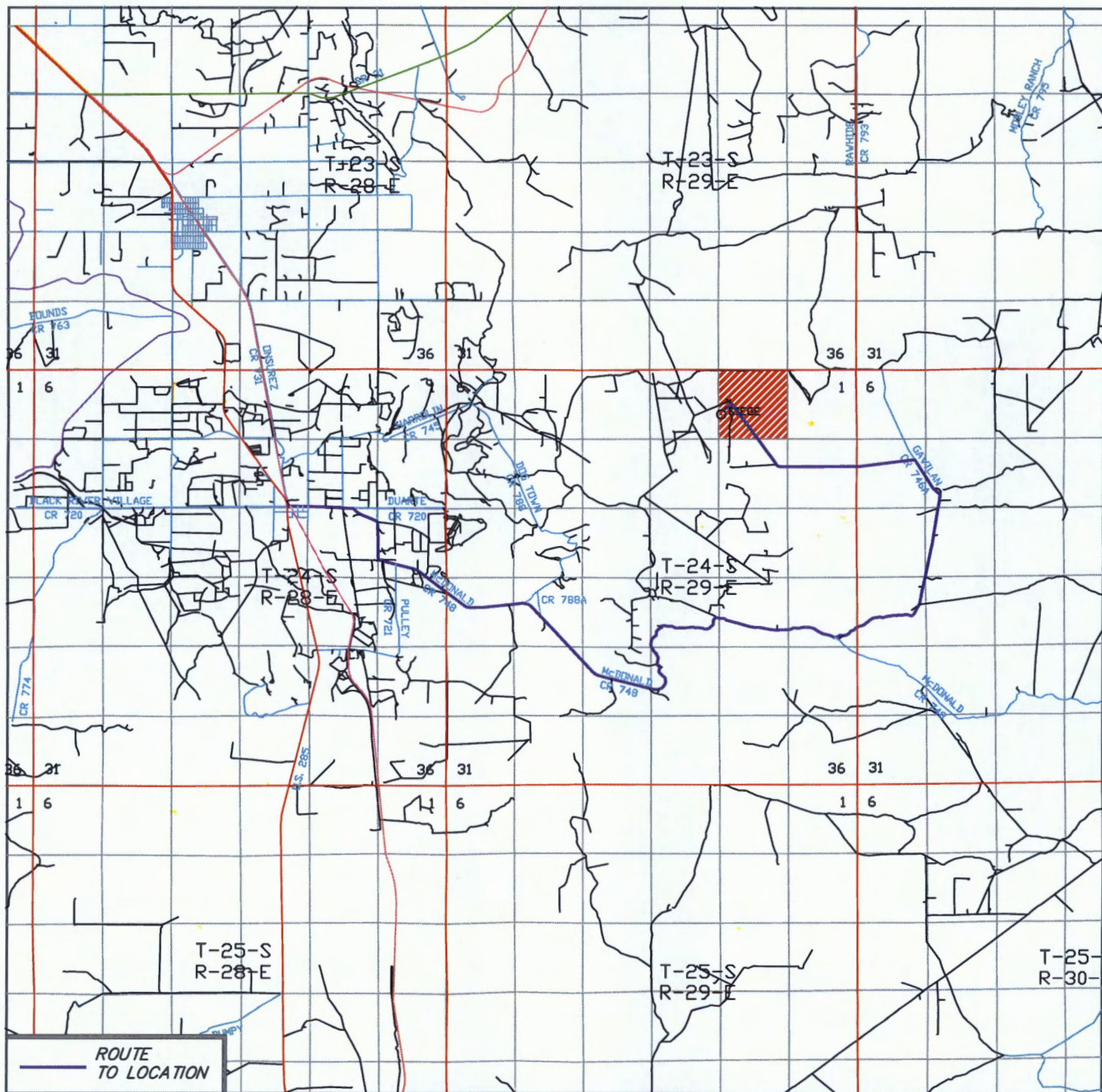
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SIEGE 165 STATE SWD 1

Located 1875' FSL & 200' FWL
Section 2, Township 24 South, Range 29 East,
N.M.P.M., Eddy County, New Mexico.



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Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
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0 1 MI 2 MI 3 MI 4 MI

SCALE: 1" = 2 MILES

W.O. Number: JG - 34685

Survey Date: 7-1-2019

YELLOW TINT - USA LAND
BLUE TINT - STATE LAND
NATURAL COLOR - FEE LAND



Siege 165 State SWD No. 1
2 Mile Area of Review
Solaris Water Midstream
Eddy County, NM

PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)

Drawn by: SJL Date: 8/15/2019 Approved by: CBW

LONQUIST & CO. LLC

PETROLEUM
ENGINEERS
ENERGY
ADVISORS

AUSTIN • HOUSTON • WICHITA • DENVER • CALGARY

+ Siege 165 State SWD No. 1

1/2 Mile Radius

1 Mile Radius

2 Mile Radius

QQ-Section (NM-PLSS 2nd Div.)

Section (NM-PLSS 1st Div.)

Township/Range (NM-PLSS)

Laterals

API (30-015-...) SHL Status - Type (Count)

Horizontal Surface Location (92)

Active - Oil (34)

Active - Gas (3)

Active - Salt Water Disposal (3)

Permitted - Gas (2)

Permitted - Miscellaneous (1)

Approved TA - Oil (6)

Approved TA - Gas (1)

Plugged (Site Released) - Oil (13)

Plugged (Site Released) - Gas (1)

Plugged (Site Released) - Salt Water Disposal (1)

Canceled Location (21)

API (30-015-...) BHL Status - Type (Count)

Active - Oil (44)

Active - Gas (8)

Permitted - Oil (14)

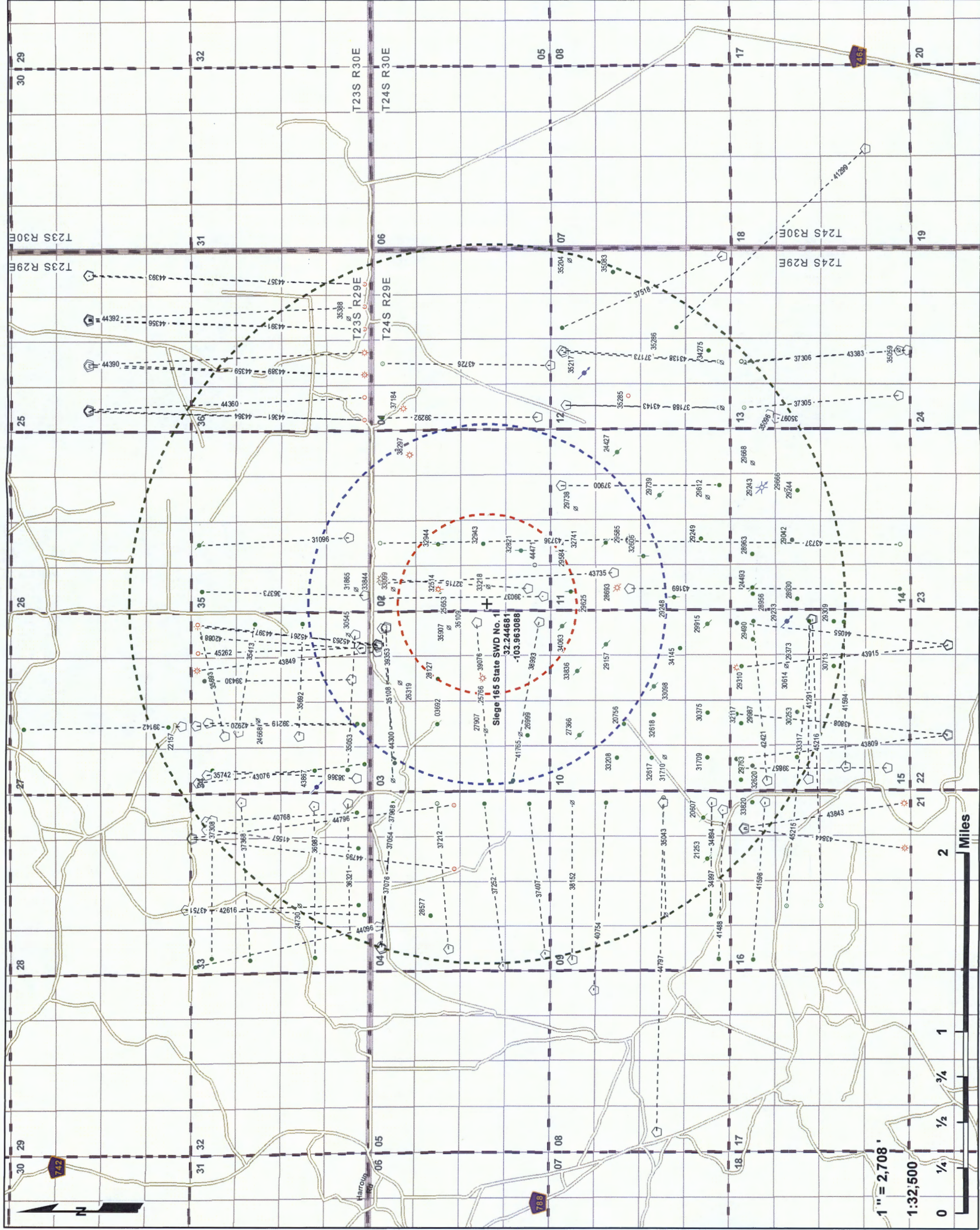
Permitted - Gas (13)

Plugged (Site Released) - Oil (3)

Plugged (Site Released) - Gas (1)

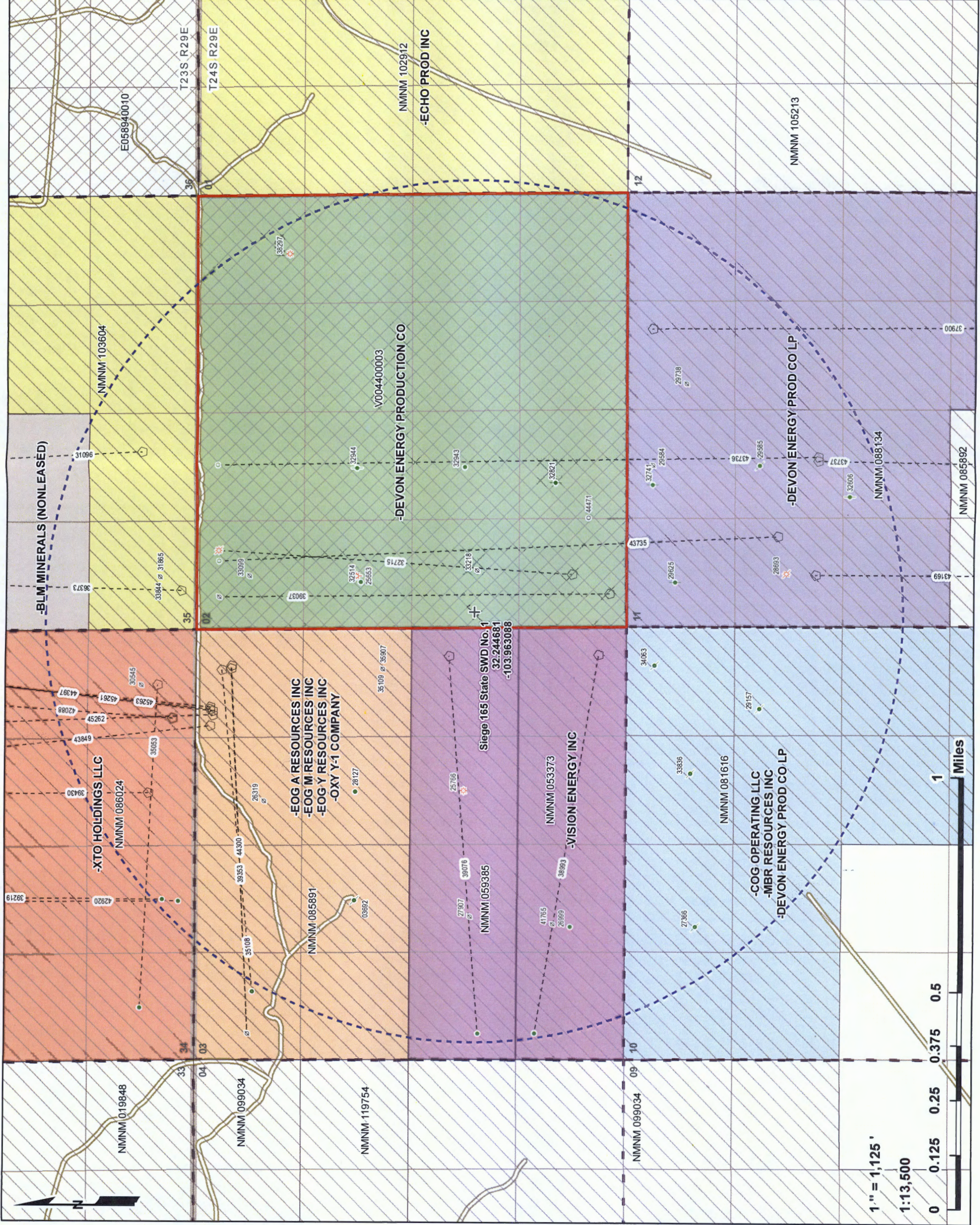
Canceled Location (9)

*Well Data Source: NM-OCD, DrillingInfo (2019)



Siege 165 State SWD No 1
1 Mile Area of Review List

API [30-015-...]	WELL NAME	WELL TYPE	STATUS	OPERATOR	TVD (FT.)	LATITUDE [NAD83 DD]	LONGITUDE [NAD83 DD]	SPUD DATE	FIELD
03692	KERR #001	O	P	WEINER-MCDOWELL	NR	32.2485962000	-103.974556000	NR	NR
25653	H B STATE #001	G	T	DEVON ENERGY PRODUCTION COMPANY, LP	14030	32.2485619000	-103.961715700	11/19/1986	[74480] CEDAR CANYON, MORROW (GAS)
25766	H. B. 3 FEDERAL #001	G	A	TAP ROCK OPERATING, LLC	13933	32.2449226000	-103.970230100	7/22/1987	[11520] CEDAR CANYON, BONE SPRING; [74480] CEDAR CANYON, MORROW (GAS)
26319	H. B. 3B FEDERAL #001	O	C	SANTA FE ENERGY OPERATING PARTNERS, LP	0	32.2516641644	-103.970631395	-	[74480] CEDAR CANYON, MORROW (GAS)
26999	H. B. 3 FEDERAL #002	O	A	TAP ROCK OPERATING, LLC	8010	32.2413101000	-103.975624100	7/11/1992	[11520] CEDAR CANYON, BONE SPRING
27366	CEDAR CANYON 10 FEDERAL #001	O	P	COG OPERATING LLC	8025	32.2370758000	-103.975624100	6/18/1993	[11520] CEDAR CANYON, BONE SPRING; [11560] CEDAR HILLS, BONE SPRING
27907	H. B. 3 FEDERAL #003	O	C	VISION ENERGY INC	0	32.2447000000	-103.975200000	-	CEDAR CANYON - UNDESIGNATED
28127	KNOLL AOK FEDERAL #001	O	A	EOG RESOURCES INC	8250	32.2485847000	-103.970253000	10/25/1994	[11520] CEDAR CANYON, BONE SPRING
28693	H B 11 FEDERAL #001	G	P	DEVON ENERGY PRODUCTION COMPANY, LP	14010	32.2340126000	-103.961647000	11/30/1995	[74480] CEDAR CANYON, MORROW (GAS); [97050] LAGUNA GRANDE, WOLFCAMP [G](ABOLISH; [98220] PURPLE SAGE, WOLFCAMP (GAS)
29157	H B 10 FEDERAL #001	O	P	DEVON ENERGY PRODUCTION COMPANY, LP	8290	32.2349281000	-103.966987600	10/6/1996	[11520] CEDAR CANYON, BONE SPRING
29584	H B 11 FEDERAL #005	O	C	DEVON SFS OPERATING INC	0	32.2385435258	-103.957355920	-	[11520] CEDAR CANYON, BONE SPRING
29585	H B 11 FEDERAL #006	O	P	DEVON ENERGY PRODUCTION COMPANY, LP	8450	32.2349243000	-103.957382200	5/14/1997	[96473] PIERCE CROSSING, BONE SPRING, EAST
29625	H B 11 FEDERAL #004	O	T	DEVON ENERGY PRODUCTION COMPANY, LP	8505	32.2377770000	-103.961975100	6/2/1997	[96473] PIERCE CROSSING, BONE SPRING, EAST
29738	H B 11 FEDERAL #009	O	C	DEVON SFS OPERATING INC	0	32.2373917323	-103.954143042	-	[11520] CEDAR CANYON, BONE SPRING
30545	COCHITI 34 FEDERAL #001	O	C	DEVON ENERGY PRODUCTION CO.	0	32.2558290495	-103.966047528	-	[11520] CEDAR CANYON, BONE SPRING
31096	GOODNIGHT 35 FEDERAL #001C	O	P	OXY USA INC	11593	32.2558141069	-103.956815071	4/28/2000	[11520] CEDAR CANYON, BONE SPRING; [97050] LAGUNA GRANDE, WOLFCAMP [G](ABOLISH; [97148] NASH DRAW, DELAWARE, SW
31865	GOODNIGHT 35 FEDERAL #003	G	C	KUKUI OPERATING COMPANY	0	32.2552153403	-103.961750990	-	CEDAR CANYON - UNDESIGNATED
32514	HB 2 STATE #002	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8440	32.2484245000	-103.961959800	3/26/2003	[11520] CEDAR CANYON, BONE SPRING
32606	H B 11 FEDERAL #007	O	T	DEVON ENERGY PRODUCTION COMPANY, LP	8401	32.2318878000	-103.958610500	3/7/2003	[50371] PIERCE CROSSING, BONE SPRING
32715	H B 2 STATE #003	G	P	DEVON ENERGY PRODUCTION COMPANY, LP	14083	32.2412720000	-103.961669900	4/18/2003	[11520] CEDAR CANYON, BONE SPRING; [74480] CEDAR CANYON, MORROW (GAS)
32741	H B 11 FEDERAL #005	O	T	DEVON ENERGY PRODUCTION COMPANY, LP	8497	32.2385521000	-103.958129900	8/4/2003	[96473] PIERCE CROSSING, BONE SPRING, EAST
32821	H B 2 STATE #004	O	T	DEVON ENERGY PRODUCTION COMPANY, LP	8401	32.2418251000	-103.958046000	7/27/2003	[11520] CEDAR CANYON, BONE SPRING
32943	H B 2 STATE #005	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8400	32.2449036000	-103.957420300	8/13/2003	[11520] CEDAR CANYON, BONE SPRING
32944	H B 2 STATE #006	O	T	DEVON ENERGY PRODUCTION COMPANY, LP	8400	32.2485542000	-103.957443200	9/20/2003	[11520] CEDAR CANYON, BONE SPRING
33099	H B 2 STATE #007	O	C	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.2521915649	-103.961729082	-	[11520] CEDAR CANYON, BONE SPRING
33218	H B 2 STATE #008C	O	C	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.2444775228	-103.961516879	-	[11520] CEDAR CANYON, BONE SPRING
33836	H B 10 FEDERAL #005	O	P	DEVON ENERGY PRODUCTION COMPANY, LP	8100	32.2372475000	-103.969543500	3/6/2005	[11520] CEDAR CANYON, BONE SPRING; [11540] CEDAR CANYON, DELAWARE
33844	GOODNIGHT 35 FEDERAL #002	G	C	LATIGO PETROLEUM, INC.	0	32.2552153403	-103.961750990	-	[74480] CEDAR CANYON, MORROW (GAS)
34063	H B 10 FEDERAL #004	O	P	DEVON ENERGY PRODUCTION COMPANY, LP	8250	32.2384720000	-103.965278600	9/11/2005	[11520] CEDAR CANYON, BONE SPRING
35053	CYPRESS 34 FEDERAL #001	O	A	OXY USA INC	8015	32.2552795000	-103.966033900	8/20/2006	[11520] CEDAR CANYON, BONE SPRING
35108	KNOLL AOK FEDERAL #002H	O	A	EOG RESOURCES INC	7914	32.2531052000	-103.965431200	4/25/2008	[11520] CEDAR CANYON, BONE SPRING
35109	KNOLL AOK FEDERAL #003C	O	C	EOG Y RESOURCES, INC.	9250	32.2476629494	-103.965405524	-	[11520] CEDAR CANYON, BONE SPRING
35907	KNOLL AOK FEDERAL #003H	O	A	EOG RESOURCES INC	7971	32.2476616000	-103.965400700	2/9/2009	[11520] CEDAR CANYON, BONE SPRING; [96053] WC, BONE SPRING
36373	GOODNIGHT 35 FEDERAL #002H	O	A	OXY USA INC	8023	32.2545013000	-103.962303200	5/11/2009	[11520] CEDAR CANYON, BONE SPRING
37900	H B 11 FEDERAL #008H	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8810	32.2385559000	-103.951973000	12/7/2010	[96473] PIERCE CROSSING, BONE SPRING, EAST
38297	H B 2 STATE #008	G	A	DEVON ENERGY PRODUCTION COMPANY, LP	14250	32.2508545000	-103.948974600	1/6/2011	[74480] CEDAR CANYON, MORROW (GAS)
38993	HB 3 FEDERAL #004H	O	A	TAP ROCK OPERATING, LLC	7893	32.2403679000	-103.964866600	8/7/2011	[11520] CEDAR CANYON, BONE SPRING
39037	H B 2 STATE #007H	O	C	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.2400055000	-103.962432900	-	[11520] CEDAR CANYON, BONE SPRING
39076	HB3 FEDERAL #003H	O	A	TAP ROCK OPERATING, LLC	7947	32.2454262000	-103.964897200	7/4/2011	[11520] CEDAR CANYON, BONE SPRING
39219	CYPRESS 34 FEDERAL #007H	O	A	OXY USA INC	6752	32.2672272000	-103.974433900	9/7/2011	[97148] NASH DRAW, DELAWARE, SW
39353	KNOLL AOK FEDERAL #004	O	C	EOG Y RESOURCES, INC.	0	32.2528110000	-103.965439000	-	[97148] NASH DRAW; DELAWARE, SW; [11520] CEDAR CANYON; BONE SPRING
39430	CYPRESS 34 FEDERAL #008H	O	A	OXY USA INC	8910	32.2670212000	-103.970405600	3/12/2013	[11520] CEDAR CANYON, BONE SPRING; [97148] NASH DRAW, DELAWARE, SW
41765	CYPRESS 3 FEDERAL SWD #001	S	C	OXY USA INC	0	32.2418900000	-103.975524900	-	[96100] SWD, DELAWARE
42088	CYPRESS 34 FEDERAL #009H	O	A	OXY USA INC	8999	32.2547836000	-103.967353800	3/30/2014	[11520] CEDAR CANYON, BONE SPRING
42920	CYPRESS 34 FEDERAL #011H	O	A	OXY USA INC	8877	32.2681899290	-103.974678050	1/30/2015	[11520] CEDAR CANYON, BONE SPRING
43169	NEW POTATO 11 FEDERAL COM #001H	O	A	DEVON ENERGY PRODUCTION COMPANY, LP	8903	32.2330696009	-103.948721445	6/23/2015	[11520] CEDAR CANYON, BONE SPRING
43735	NEW POTATO 11 2 FEDERAL COM #00SH	O	N	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.2343066000	-103.960182900	-	[96473] PIERCE CROSSING, BONE SPRING, EAST
43736	NEW POTATO 11 2 FEDERAL COM #006H	O	N	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.2329519000	-103.957047300	-	[96473] PIERCE CROSSING, BONE SPRING, EAST
43737	NEW POTATO 11 14 FEDERAL COM #002H	O	N	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.2329517000	-103.957209000	-	[96473] PIERCE CROSSING, BONE SPRING, EAST
43849	CYPRESS 34 FEDERAL #012H	G	A	OXY USA INC	10256	32.2549368500	-103.969305500	10/29/2016	[11520] CEDAR CANYON, BONE SPRING; [98214] WC-015 G-07 S242903; UPPER WOLFCAMP; [98220] PURPLE SAGE, WOLFCAMP (GAS)
44300	KNOLL AOK FEDERAL #004H	O	N	EOG RESOURCES INC	0	32.2527778000	-103.965277800	-	[11520] CEDAR CANYON, BONE SPRING
44397	CYPRESS 34 FEDERAL #015H	G	A	TAP ROCK OPERATING, LLC	10323	32.2535003000	-103.966916000	11/28/2017	[98220] PURPLE SAGE, WOLFCAMP (GAS)
44471	TATER TOT STATE 2 VDW #001	M	N	DEVON ENERGY PRODUCTION COMPANY, LP	0	32.2407134000	-103.959444400	-	[98210] STRATAGRAPHIC
45261	CYPRESS 34 23529E3434 #234H	G	N	TAP ROCK OPERATING, LLC	0	32.2534203000	-103.967063400	-	[98220] PURPLE SAGE, WOLFCAMP (GAS)
45262	CYPRESS 34 23529E3434 #236H	G	N	TAP ROCK OPERATING, LLC	0	32.2534183000	-103.967225100	-	[98220] PURPLE SAGE, WOLFCAMP (GAS)
45263	CYPRESS 34 23529E3434 #244H	G	N	TAP ROCK OPERATING, LLC	0	32.2535008000	-103.967013000	-	[98220] PURPLE SAGE, WOLFCAMP (GAS)



Siege 165 State SWD No. 1
1 Mile Offset Lessees
Solaris Water Midstream
Eddy County, NM

PCS: NAD 1983 SPCS NM-E FIPS 3001 (US Ft.)
Drawn by: SJL Date: 8/16/2019 Approved by: CBW

LONGQUIST & CO. LLC

**PETROLEUM
ENGINEERS**
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- +** Siege 165 State SWD No. 1
1 1 Mile Radius
QQ Section (NM-PLSS 2nd Div.)
Section (NM-PLSS 1st Div.)
Township/Range (NM-PLSS)
Surface Owner (STATE OF NEW MEXICO)
NM - BLM (O&G Leases)
NM - SLO (O&G Leases)
Laterals
API (30-015-...) SHL Status - Type (Count)
Horizontal Surface Location (24)
Active - Oil (5)
Active - Gas (2)
Permitted - Miscellaneous (1)
Approved TA - Oil (5)
Approved TA - Gas (1)
Plugged (Site Released) - Oil (6)
Plugged (Site Released) - Gas (1)
Canceled Location (11)
API (30-015-...) BHL Status - Type (Count)
Active - Oil (11)
Active - Gas (2)
Permitted - Oil (4)
Permitted - Gas (3)
Plugged (Site Released) - Oil (1)
Plugged (Site Released) - Gas (1)
Canceled Location (2)
Lessees
-COG OPERATING LLC; -MBR RESOURCES INC; -
DEVON ENERGY PROD CO LP
-DEVON ENERGY PROD CO LP
-DEVON ENERGY PRODUCTION CO
-ECHO PROD INC
-EOG A RESOURCES INC; -EOG M RESOURCES
INC; -EOG Y RESOURCES INC; -OXY Y-1 COMPANY
-VISION ENERGY INC
-XTO HOLDINGS LLC
-BLM MINERALS (NONLEASED)
*Well Data Source: NM-OCG, DrillingInfo (2019)





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Hobbs, New Mexico 88241
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W.O. Number: 34685

Drawn By: J GOAD

Date: 7-3-2019

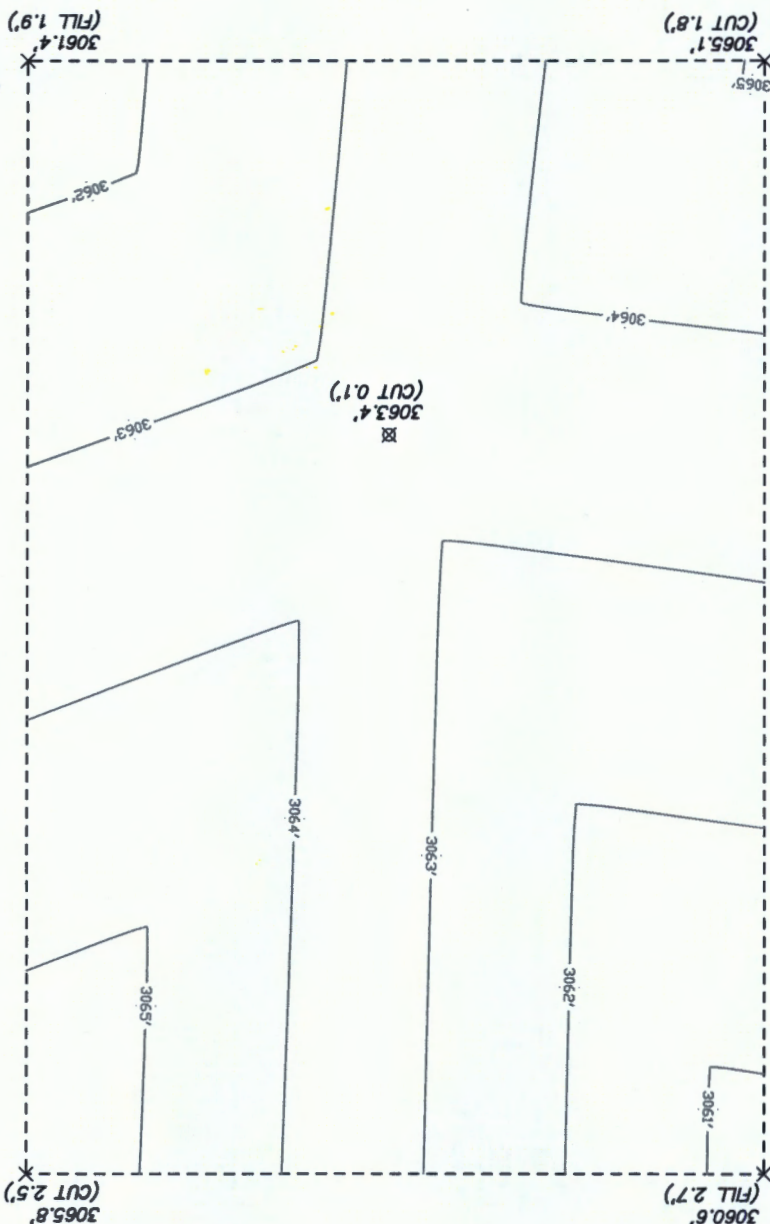
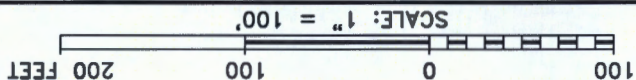
Survey Date: 7-1-2019

Sheet 1 of 1 Sheets

THE SIEGE 165 STATE SWD 1 LOCATED 1875' FROM
THE SOUTH LINE AND 200' FROM THE WEST LINE OF
SECTION 2, TOWNSHIP 24 SOUTH, RANGE 29 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.

REF: SIEGE 165 STATE SWD 1 / CUT & FILL

SOLARIS WATER MIDDLEBROOK



SECTION 2 TOWNSHIP 24 SOUTH, RANGE 29 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.

LONQUIST & CO. LLC

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DETERMINATION AND NOTICE OF AFFECTED PARTIES – NEW MEXICO

If an operator or mineral lessee has legal acreage or leases within one mile of the proposed salt water disposal well, their contact information is collected for notification purposes. Legal acreage of offset operators is gathered from the New Mexico Oil Conservation District's Permitting website. Minerals leased from the federal government are determined by referencing the Bureau of Land Management's Land and Mineral System Reports database. Minerals leased from the state government are determined by referencing the New Mexico State Land Office's Data Access database. Contact information for the affected parties is then extracted from the reports that were filed with the appropriate regulatory agency. Should any private minerals that are not public information fall within the one-mile radius, a title search was performed to discover the current lessee of those minerals or identifying the mineral owner of the acreage.

Notices were sent for the Siege 165 State SWD No. 1 application by mailing them a copy of Form C-108 on 8/19/2019. The individual tracking numbers are attached in the following pages of this application. Receipt of each application will be monitored and presented to the Oil Conservation Division upon request.



Tyler Moehlman
Petroleum Engineer

Project: Solaris Water Midstream, LLC
 Siege 165 State SWD No. 1

Injection Analysis of Siege 165 State SWD No. 1

Introduction

The Siege 165 State SWD No. 1 Well ("Siege 165"), is a saltwater disposal well proposed by Solaris Water Midstream, LLC ("Solaris"), a midstream company actively involved in the disposal of produced water in the Permian Basin. The surface hole location of the Siege 165 is in Section 2 of Township 24 South, Range 29 East, in Eddy County, New Mexico. This location was initially permitted approximately 1,300 feet south of its current location. The new Siege location is being proposed at the request to satisfy an offset oil and gas operator's operations. The proposed injection volume for this well is an average of 30,000 barrels of water per day ("BWPD") with a maximum permitted volume of 40,000 BWPD. The Siege 165 will inject at a depth of approximately 15,208 to 16,361 feet. The purpose of this report is to display through two separate reservoir injection models that the Siege 165 is located and designed to inject over multiple years with a low likelihood of reaching the well's Maximum Surface Injection Pressure ("MASIP") over the lifespan of the well.

Wellbore and Reservoir Parameters

Wellbore Parameters	
Hole Diameter	6.5"
Tubing Grade	HCL-80 BTC HCL-80 LTC
Tubing Size	5-1/2" 5"
Tubing ID	4.778" 4.276"
Tubing Depth	0' – 9,961' 9,961' – 15,158'

Table 1: Injection Model Wellbore Parameters

Reservoir Parameters	
Injection Top	15,208'
Injection Base	16,361'
Native Reservoir Pressure Gradient	0.45 psi/ft
Fluid Viscosity	0.231 cP
Fluid Specific Gravity	1.099
Reservoir Volume Factor	1 RB/BBL
Total Compressibility	6.00E-6
Cutoff Porosity	4.25%
Maximum Surface Injection Pressure	3,041.6 psi
Permeability	Model 1: Variable Model 2: 15 mD

Table 2: Injection Model Reservoir Parameters

The Siege 165 tubing is proposed to be 5-1/2" HCL-80, 20 lb/ft, BTC tubing for approximately 9,961' until the tubing sized is reduced to 5", HCL-80, 18 lb/ft, LTC tubing from 9,961' – 15,158'. The open hole injection interval will be drilled with a 6-1/2" bit for approximately 1,150', to the base of the Fusselman formation.

To create an accurate depiction of the Devonian and Fusselman surface and reservoir pressure behavior over time, parameters such as viscosity, specific gravity, and porosity were derived from offset log and water analysis data for the proposed Siege 165. Produced water sample data was provided by the New Mexico Institute of Mining and Technology's Petroleum Recovery Research Center. Assuming the majority of the produced water from the Siege 165 will come from Bone Spring and Wolfcamp wells, produced water samples from those respective formations were pulled from the same Township 24 South and Range 29 East as the Siege 165. An average Total Dissolved Solids (TDS) value of 133,870 mg/L was calculated from 26 samples of the formations produced water. Using the average TDS, the Cargill™ Salt Users Guide was referenced to find a calculated Specific Gravity (SG) of 1.099. The same average TDS of Bone Spring and Wolfcamp formations was used to calculate viscosity. The salinity, calculated using the silver nitrate titration method (Salinity (ppt) = 1.80655 x Chlorinity (ppt)), resulted in a value of 2.057 x 10E-4. A dynamic viscosity of 0.231 centipoise (cP) was calculated from the salinity values of the produced water samples at a reservoir temperature of 248 degrees Fahrenheit.

An offset log approximately 1.7 miles southwest from the Siege 165, the Cedar Canyon No. 1 (Cedar Canyon), API: 30-015-20607, was used as the type log to identify reservoir temperature and derive cutoff porosity and net height values for reservoir injection modeling. Using a Density Porosity value on a

dolomite scale, a cutoff porosity of 4.25% was chosen. To accurately reflect a net height value that removes from the gross injection interval porosity values greater than 4.25%, the Siegel 165 injection interval is multiplied by the percentage of the type log that falls below the 4.25% cutoff porosity. Approximately 81% of the Devonian and Fusselman formation from the type log contained a porosity of up to 4.25%. The 81% of gross interval was applied to the Siegel 165 injection zone to provide a net height for modeling. In addition to the 81% of the injection column from a cutoff porosity of 4.25%, an additional 5% of the injection formation was added to account for the secondary porosity capabilities of the Devonian formation. This 5% is modeled to incorporate the faulted and fractured nature of the column that is likely to exist in the Devonian interval. As studies would suggest, the majority of the Devonian formation receives its ability to effectively dispose of injected fluid from secondary, rather than primary, porosity. The secondary porosity is due to the fractured network that has the capabilities to transport injected fluids into the formation, a 5% addition to the cutoff porosity is a conservative estimate to be used for injection modeling.

Injection Modeling Over Time

the Injectivity Calculation Model, displayed the individual projected injection pressures and optimal injection rates over time, while the second model, the Injection Well Simulator V1.3, factored reservoir pressure increases over time as a result of offset Devonian SWD's from the proposed well. Both models are proprietary models developed internally by Lonquist & Co., LLC.

Model 1: Injectivity Calculation Model

The first model displayed reservoir models at various permeabilities ranging from 5 to 52.5 mD. This model displays injection rates ranging from 18,000 – 40,000 BPD of injection rate. The attached results display projected surface injection pressure in 2.5 mD permeability increments. The purpose of the varying scenarios is to display that the MASIP is not likely to be reached over a 20-year period amongst a wide range of permeability values. This injection model displays results for continuous injection over time with no interruption in operations. Two tables are displayed with each case, Surface Pressure versus Injection Rate (BPD) and Optimal Injection Rate to Satisfy Target Surface Pressure. Values highlighted in green on Table 1 display the projected surface pressure over a 20-year continuous injection period of the respective rate indicated on the left side of the table. Table 2 provides projected Injection Rates that would result satisfy surface injection pressures over the course of the 20-year constant injection period. The various Injection Pressures displayed on the table are 20%, 40%, 60%, and 80% of the MASIP as well

as the MASIP value itself. The last row of the table is a surface pressure 5% above the MASIP, this row suggests an injection rate to not exceed in order to have a surface pressure under the MASIP of the well.

Permeability values as low as 7.5 mD will likely allow for the Siege 165 to stay under the average permitted injection rate over a 20-year period of constant injection. If the reservoir permeability is as low as 5 mD, an injection rate of 27,205 BPD would reach the MASIP after 20-years of constant injection. The various tables with increased permeability values are displayed in this report to show the reduced likelihood of the Siege 165 reaching its MASIP as modeled permeability values increase.

Model 2: Injection Well Simulator V1.3

The second injection model performed on the Siege 165 takes into account offsetting Devonian disposal wells injecting into the same permitted formation. There are two (2) Devonian disposal wells offset from the proposed Siege 165. The first well, Cypress SWD No. 1 (API: 30-015-43867), is an active saltwater disposal well operated by NGL Water Solutions Permian, LLC. The Cypress SWD is approximately 1.39 miles northwest of the proposed Siege 165. The Cypress SWD was permitted for an average rate of 16,000 BPD and a maximum injection rate of 20,000 BPD. The second offsetting Devonian disposal well was is the Cedar Canyon SWD No. 1 (Cedar Canyon). This well is approximately 1.52 miles east of the proposed Siege 165. The Cedar Canyon well had a public notice run December 6, 2018 proposing a maximum rate of 30,000 BPD.

This injection model calculated the surface and reservoir pressure of all three (3) wells over a 20-year period of continuous injection. To ensure accuracy between both models, Model 2 was run initially independent of the Cedar Canyon and Cypress wells to ensure similar surface pressures at the end of a continuous 20-year injection period. A quality check was performed on both Models to ensure that the models are in congruence with each other, running Model 2 with a 15 mD permeability yielded a surface injection pressure of 1,902 psi. Referencing Model 1's results, the 15 mD permeability is 1,901, thus verifying the accuracy of these models in congruence with each other. Therefore, adding two other wells to the injection simulation would give a fairly accurate pressure increase due to reservoir communication of offsetting Devonian disposals.

The Injection Well Simulator V1.3 for offsetting Devonian disposal wells from the Siege 165 will likely have an additional 495 psi increase on the final surface pressure at the end of a 20-year constant injection rate of the proposed Siege 165. This model assumed that the offsetting Cedar Canyon and Cypress wells will be injected at their maximum rates of 30,000 and 20,000 BPD respectively and the Siege

165 will inject at an average of 30,000 BPD throughout a constant 20-year injection period. In total, the model accounted for the injection of 584 million barrels to be injected in the three wells in the study. The calculated formation and surface pressures were found by running the reservoir simulation model identifying the location of the Cedar Canyon and Cypress wells in reference to the Siege as well as factoring in the maximum permitted injection rates of both wells. The final surface injection pressure ran on the Injection Well Simulator V1.3 resulted in 2,397 psi, approximately 20% less than the permitted MASIP. This depicts a “worst-case” scenario for the Siege 165, assuming each offsetting well will constantly inject at their maximum rates for a 20-year period. Based upon the results generated from the injection model, it is believed to be of low probability that even with the maximum permitted operations of two offsetting Devonian disposal wells, there still remains a small likelihood of the Siege 165 reaching its MASIP over a 20-year injection period.

Conclusions and Discussion

Based on the calculated results of two reservoir injection models, the Siege 165 is likely to operate for the next 20-years without a reaching the maximum permitted surface injection rate. Permeabilities as low as 7.5 mD can allow for the average rate to constantly inject throughout a 20-year period without achieving the Siege 165’s MASIP. In addition, adding potential operations of offsetting Devonian disposal wells will have an influence, but still hold a low probability of reaching the well’s maximum surface pressure. Details of the modeling results can be found in the following pages of this report.

While the modeling of injection performance over a 20-year period has wellbore and reservoir parameters that are believed to make an accurate depiction of the Devonian and Fusselman reservoirs for injection analysis, results from actual operations may differ. The differences will be as a result of any of the following items: modeling sensitivity, operational execution, varying injection rate schedule, etc. The purpose of this study was to supply the New Mexico Oil Conservation Division with an injection analysis that displays the projected injection capability of the Siege 165 throughout time individually, as well as factoring in offsetting Devonian disposals either active or permitted. It is believed that the operations of the Siege 165, in addition to potential operations from offsetting Devonian disposal wells, will unlikely reach the maximum surface injection pressure requested in the C-108, Application for Authorization to Inject, and will be able to inject at the average and maximum permitted values over a 20-year period. Further iterative analysis can be performed at the request of the Oil Conservation Division after the submittal of this amended permit package.

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APPENDIX A

MODEL 1: INJECTIVITY CALCULATION MODEL RESULTS

Siege 165 State SWD No. 1

Pressure Build-up with 20 Years of Injection - Case 1

Net H = 999.0 feet

Table 1: Surface Pressure vs. Injection Rate

Surface Pressure versus Injection Rate (BPD)

----- Reservoir Permeability (md) -----

Rate (BPD)	Friction Pressure Loss, psi	Reservoir Permeability (md)			
		<u>5</u>	<u>7.5</u>	<u>10</u>	<u>12.5</u>
18,000	518.8	1612.2	1129.5	884.7	736.3
20,000	640.0	1899.6	1363.3	1091.3	926.4
22,000	773.9	2199.6	1609.7	1310.5	1129.1
24,000	920.5	2512.4	1868.8	1542.4	1344.6
26,000	1,079.8	2837.9	2140.7	1787.1	1572.7
28,000	1,251.8	3176.1	2425.2	2044.4	1813.6
30,000	1,436.5	3526.9	2722.5	2314.5	2067.2
32,000	1,633.9	3890.5	3032.4	2597.3	2333.4
34,000	1,844.0	4266.8	3355.1	2892.7	2612.4
36,000	2,066.9	4655.8	3690.5	3200.9	2904.1
38,000	2,302.4	5057.5	4038.6	3521.8	3208.5
40,000	2,550.6	5472.0	4399.3	3855.4	3525.6

Shaded in green are less than likely exceed MASIP of ~3041.6 psi

Table 2: Optimal Injection Rate to Satisfy Surface Pressure

Injection Rate (BPD) versus Surface Pressure

20 years Continuous Injection

----- Reservoir Permeability (md) -----

Injection Pressure (psig)	Reservoir Permeability (md)			
	<u>5</u>	<u>7.5</u>	<u>10</u>	<u>12.5</u>
152	<5000	<5000	<5000	<5000
456	<5000	<5000	<5000	<5000
1825	19,481	23,661	26,294	28,090
2433	23,494	28,054	30,840	32,716
3042	27,205	32,057	34,966	36,903
3194	28,100	32,999	35,953	37,903

MASIP = 3042 psi

Values shaded in red are injection rates that will likely overcome MASIP

Siege 165 State SWD No. 1

Pressure Build-up with 20 Years of Injection - Case 2

Net H = 999.0 feet

Table 1: Surface Pressure vs. Injection Rate

Surface Pressure versus Injection Rate (BPD)

20 Years Continuous Injection

----- Reservoir Permeability (md) -----

Rate (BPD)	Friction Pressure Loss, psi				
		<u>15</u>	<u>17.5</u>	<u>20</u>	<u>22.5</u>
18,000	518.8	636.6	564.9	510.8	468.6
20,000	640.0	815.6	735.9	675.8	628.9
22,000	773.9	1007.2	919.6	853.5	801.8
24,000	920.5	1211.6	1116.0	1043.9	987.5
26,000	1,079.8	1428.7	1325.1	1247.0	1186.0
28,000	1,251.8	1658.5	1546.9	1462.8	1397.1
30,000	1,436.5	1901.0	1781.5	1691.3	1620.9
32,000	1,633.9	2156.2	2028.7	1932.5	1857.4
34,000	1,844.0	2424.1	2288.6	2186.5	2106.6
36,000	2,066.9	2704.7	2561.3	2453.1	2368.6
38,000	2,302.4	2998.0	2846.6	2732.4	2643.2
40,000	2,550.6	3304.0	3144.7	3024.5	2930.5

Shaded in green are less than likely exceed MASIP of ~3041.6 psi

Table 2: Optimal Injection Rate to Satisfy Target Surface Pressure

Injection Rate (BPD) versus Surface Pressure

20 Years Continuous Injection

----- Reservoir Permeability (md) -----

Injection Pressure (psig)				
	<u>15</u>	<u>17.5</u>	<u>20</u>	<u>22.5</u>
152	<5000	<5000	<5000	<5000
456	<5000	<5000	<5000	<5000
1825	29,373	30,352	31,108	31,726
2433	34,066	35,061	35,851	36,471
3042	38,285	39,308	> 40,000	> 40,000
3194	39,279	> 40,000	> 40,000	> 40,000

MASIP = 3042 psi

Values shaded in red are injection rates that will likely overcome MASIP

Siege 165 State SWD No. 1

Pressure Build-up with 20 Years of Injection - Case 3

Net H = 999.0 feet

Table 1: Surface Pressure vs. Injection Rate

Surface Pressure versus Injection Rate (BPD)

20 Years Continuous Injection

----- Reservoir Permeability (md) -----

Rate (BPD)	Friction Pressure Loss, psi	<u>25</u>	<u>27.5</u>	<u>30</u>	<u>32.5</u>
18,000	518.8	434.6	406.7	383.4	363.6
20,000	640.0	591.1	560.1	534.2	512.2
22,000	773.9	760.3	726.3	697.7	673.5
24,000	920.5	942.3	905.1	874.0	847.6
26,000	1,079.8	1136.9	1096.6	1062.9	1034.3
28,000	1,251.8	1344.2	1300.8	1264.6	1233.8
30,000	1,436.5	1564.3	1517.8	1478.9	1445.9
32,000	1,633.9	1797.0	1747.4	1706.0	1670.8
34,000	1,844.0	2042.5	1989.8	1945.7	1908.3
36,000	2,066.9	2300.6	2244.9	2198.2	2158.6
38,000	2,302.4	2571.5	2512.6	2463.4	2421.6
40,000	2,550.6	2855.1	2793.1	2741.3	2697.3

Shaded in green are less than likely exceed MASIP of ~3041.6 psi.

Table 2: Optimal Injection Rate to Satisfy Target Surface Pressure

Injection Rate (BPD) versus Surface Pressure

20 Years Continuous Injection

----- Reservoir Permeability (md) -----

Injection Pressure (psig)	<u>25</u>	<u>27.5</u>	<u>30</u>	<u>32.5</u>
152	<5000	<5000	<5000	<5000
456	18,276	18,646	18,966	19,247
1825	32,228	32,640	32,993	33,298
2433	36,979	37,407	37,773	38,085
3042	>40,000	>40,000	>40,000	>40,000
3194	>40,000	>40,000	>40,000	>40,000

MASIP = 3042 psi

Values shaded in red are injection rates that will likely overcome MASIP

Siege 165 State SWD No. 1

Pressure Build-up with 20 Years of Injection - Case 4

Net H = 999.0 feet

Table 1: Surface Pressure vs. Injection Rate

Surface Pressure versus Injection Rate (BPD)

20 Years Continuous Injection

----- Reservoir Permeability (md) -----

Rate (BPD)	Friction Pressure Loss, psi		Reservoir Permeability (md)			
			<u>35</u>	<u>37.5</u>	<u>40</u>	<u>42.5</u>
18,000	518.8		346.6	331.8	318.8	307.3
20,000	640.0		493.3	476.9	462.5	449.7
22,000	773.9		652.7	634.7	618.8	604.8
24,000	920.5		824.9	805.2	787.9	772.6
26,000	1,079.8		1009.7	988.4	969.6	953.1
28,000	1,251.8		1207.3	1184.3	1164.1	1146.2
30,000	1,436.5		1417.6	1392.9	1371.3	1352.2
32,000	1,633.9		1640.5	1614.2	1591.2	1570.8
34,000	1,844.0		1876.2	1848.3	1823.7	1802.1
36,000	2,066.9		2124.6	2095.0	2069.0	2046.1
38,000	2,302.4		2385.7	2354.4	2327.0	2302.8
40,000	2,550.6		2659.4	2626.6	2597.7	2572.2

Shaded in green are less than likely exceed MASIP of ~3041.6 psi

Table 2: Optimal Injection Rate to Satisfy Target Surface Pressure

Injection Rate (BPD) versus Surface Pressure

20 Years Continuous Injection

----- Reservoir Permeability (md) -----

Injection Pressure (psig)	Reservoir Permeability (md)			
	<u>35</u>	<u>37.5</u>	<u>40</u>	<u>42.5</u>
152	<5000	<5000	<5000	<5000
456	19,495	19,716	19,914	20,084
1825	33,565	33,801	34,010	34,188
2433	38,348	38,579	38,785	38,968
3042	> 40,000	> 40,000	> 40,000	> 40,000
3194	> 40,000	> 40,000	> 40,000	> 40,000

MASIP = 3042 psi

Values shaded in red are injection rates that will likely overcome MASIP

Siege 165 State SWD No. 1

Pressure Build-up with 20 Years of Injection - Case 4

Net H = 999.0 feet

Table 1: Surface Pressure vs. Injection Rate						
Surface Pressure versus Injection Rate (BPD)						
20 Years Continuous Injection						
----- Reservoir Permeability (md) -----						
Rate (BPD)	Friction Pressure Loss, psi	<u>45</u>	<u>47.5</u>	<u>50</u>	<u>52.5</u>	
18,000	518.8	297.1	287.9	279.7	272.2	
20,000	640.0	438.3	428.2	419.0	410.6	
22,000	773.9	592.3	581.1	571.0	561.8	
24,000	920.5	758.9	746.7	735.7	725.7	
26,000	1,079.8	938.3	925.0	913.1	902.3	
28,000	1,251.8	1130.3	1116.1	1103.2	1091.6	
30,000	1,436.5	1335.1	1319.8	1306.1	1293.6	
32,000	1,633.9	1552.6	1536.3	1521.6	1508.3	
34,000	1,844.0	1782.8	1765.4	1749.8	1735.7	
36,000	2,066.9	2025.6	2007.3	1990.8	1975.8	
38,000	2,302.4	2281.2	2261.9	2244.4	2228.6	
40,000	2,550.6	2549.5	2529.2	2510.8	2494.1	

Shaded in green are less than likely exceed MASIP of ~3041.6 psi

Table 2: Optimal Injection Rate to Satisfy Target Surface Pressure					
Injection Rate (BPD) versus Surface Pressure					
20 Years Continuous Injection					
----- Reservoir Permeability (md) -----					
Injection Pressure (psig)	<u>45</u>	<u>47.5</u>	<u>50</u>	<u>52.5</u>	
152	<5000	<5000	<5000	<5000	
456	20,233	20,367	20,490	20,603	
1825	34,347	34,492	34,624	34,744	
2433	39,133	39,283	39,418	39,542	
3042	> 40,000	> 40,000	> 40,000	> 40,000	
3194	> 40,000	> 40,000	> 40,000	> 40,000	

MASIP = 3042 psi

Values shaded in red are injection rates that will likely overcome MASIP

APPENDIX B

MODEL 2: INJECTION WELL SIMULATOR V1.3 RESULTS

Well Count	3
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Siege 165 State SWD No. 1			
t1	0.00	hrs	Start Time
x1	0	ft	X Coordinate
y1	0	ft	Y Coordinate
q1	30,000	bb/D	Rate
rw1	0.271	ft	Radius of drilled hole
s1	10.125	ft	Skin
id1	4.601	in	Tubing ID
e1	4.3469E-05		Relative Roughness
Pf	946	psi	Friction Pressure Loss
k	0.0002	in	Absolute Roughness

Cedar Canyon SWD No. 1			
t2	0.00	hrs	
x2	7,900	ft	
y2	1,300	ft	
q2	30,000	bb/D	
rw2	0.276	ft	
s1	0.000		
id2	6.026	in	
e2	3.319E-05		
Pf	245	psi	
k	0.0002	in	

Cypress SWD No. 1			
t3	0.00	hrs	
x3	-5,250	ft	
y3	5,000	ft	
q3	20,000	bb/D	
rw3	0.245	ft	
s3	0.000		
id3	5.752	in	
e3	3.4772E-05		
Pf	143	psi	
k	0.0002	in	

PGr	0.45	psi/ft	Pressure Gradient
h	999	ft	Interval Thickness
B	1.00	RB/stb	Formation Volume Factor
k	15	mD	Permeability
Phi	0.043		Porosity
ct	6.00E-06	psi^-1	Total Compressibility
mu	0.231	cP	Fluid Viscosity

Time Slice	
t	20.00 yrs
Model time length	

Grid Parameters	
dx	15,840 ft
dy	15,840 ft
353 cells	
353 cells	

Wellbore Properties	
PGinj	0.200 psi/ft
TPerf	15,208 ft
BPerf	16,361 ft
EOT	15,158 ft
Fluid SG	1.099

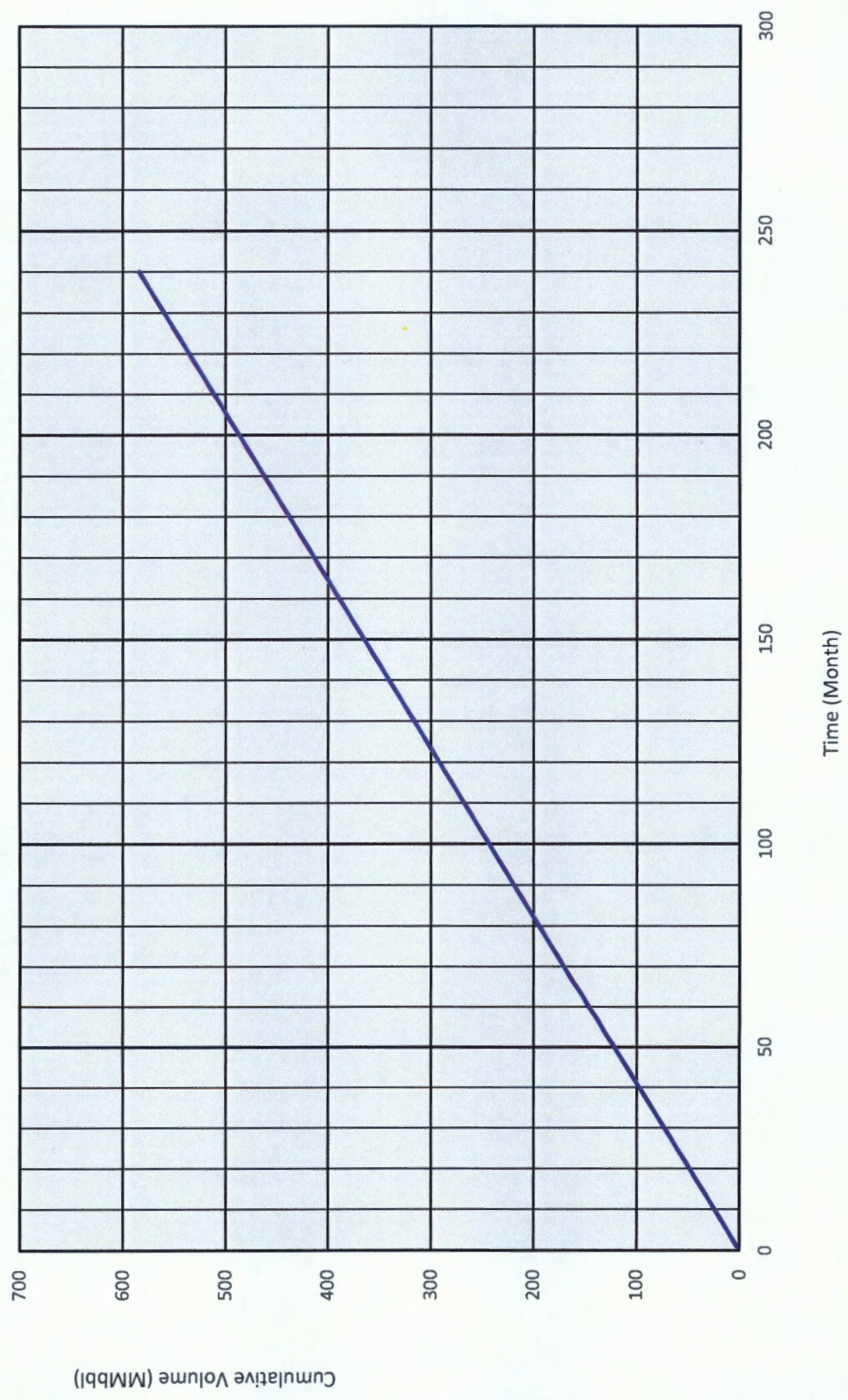
Calculated Inputs	
MPerf	15,785 ft
MPinj	3,042 psi
Rho	68.5 lb/gal
Head	7,513 psi
MPwf_static	10,555 psi
Pr	7,103 psi

Cum Vol for Time Slice		Injection pressure at end of time slice		BH pressure at end of time slice	
Simulation Results					
Well	Qcum (MMbbl)	Pinj (psi)	Pwf (psi)		
1	219.00	2,397	8,965		
2	219.00	1,007	8,275		
3	146.00	681	8,051		
4					
5					
6					
7					
8					
9					
10					
Total	584.00			Total Cum Volume for time slice	

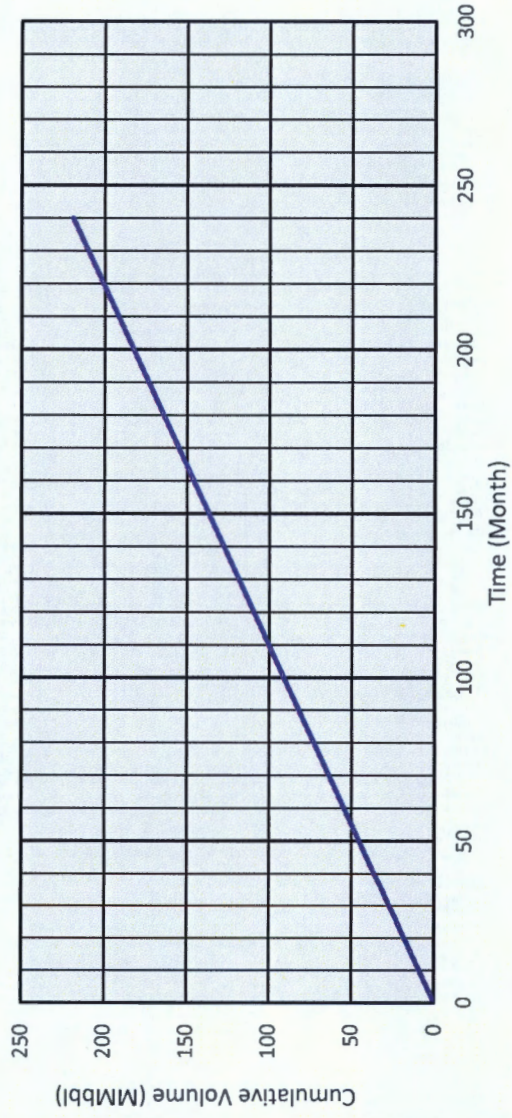
</

State Injection Gradient Limit	
Top of Permitted Injection Interval or Depth to top perf	
Depth to bottom perf	
End of Tubing Depth	
Specific Gravity	
Depth to mid perf	
MASIP	
Density	
Column Weight	
Max Allowed Bottom Hole Pressure (Column weight + Inj Pressure)	
Initial Reservoir Pressure	

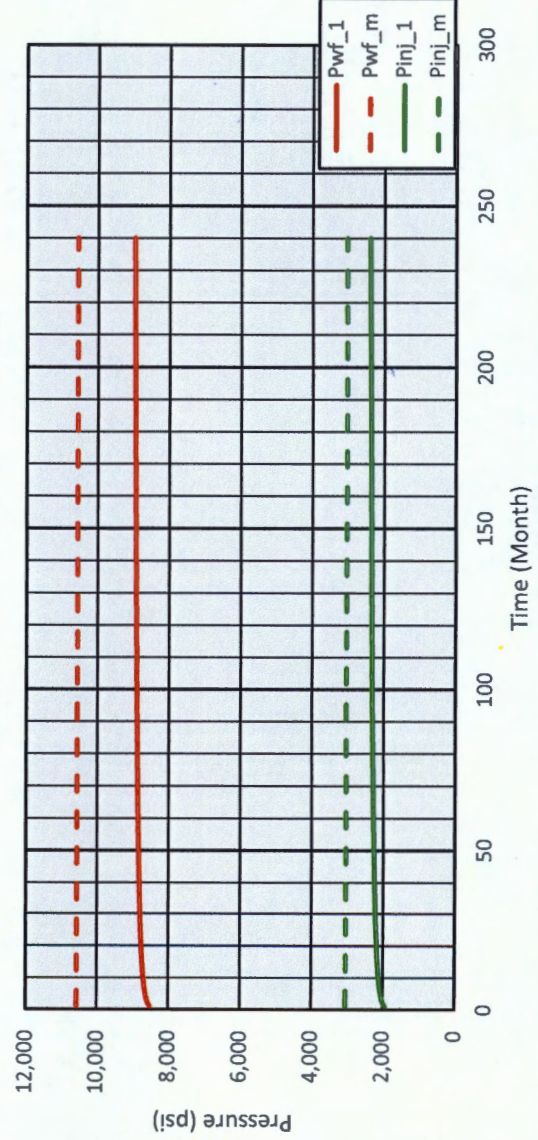
All Wells - Cumulative Injection Volume



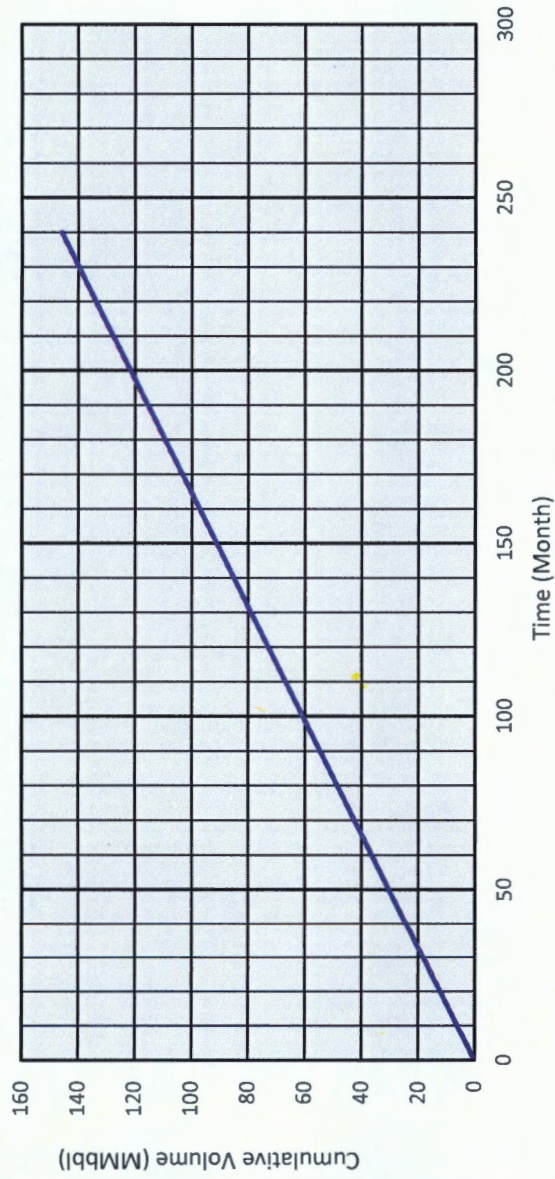
Siege 165- Cumulative Injection Volume



Siege 165- Flowing Pressures



Cypress SWD - Cumulative Injection Volume



Cypress SWD - Flowing Pressures

