

Application

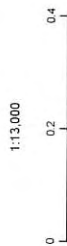
Part IV

Solaris Water Midstream, LLC

Sims 8 SWD #1
1 Mile Aliquot Lease Map

Sec. 8, Township 20S, Range 36E
Lea County, New Mexico

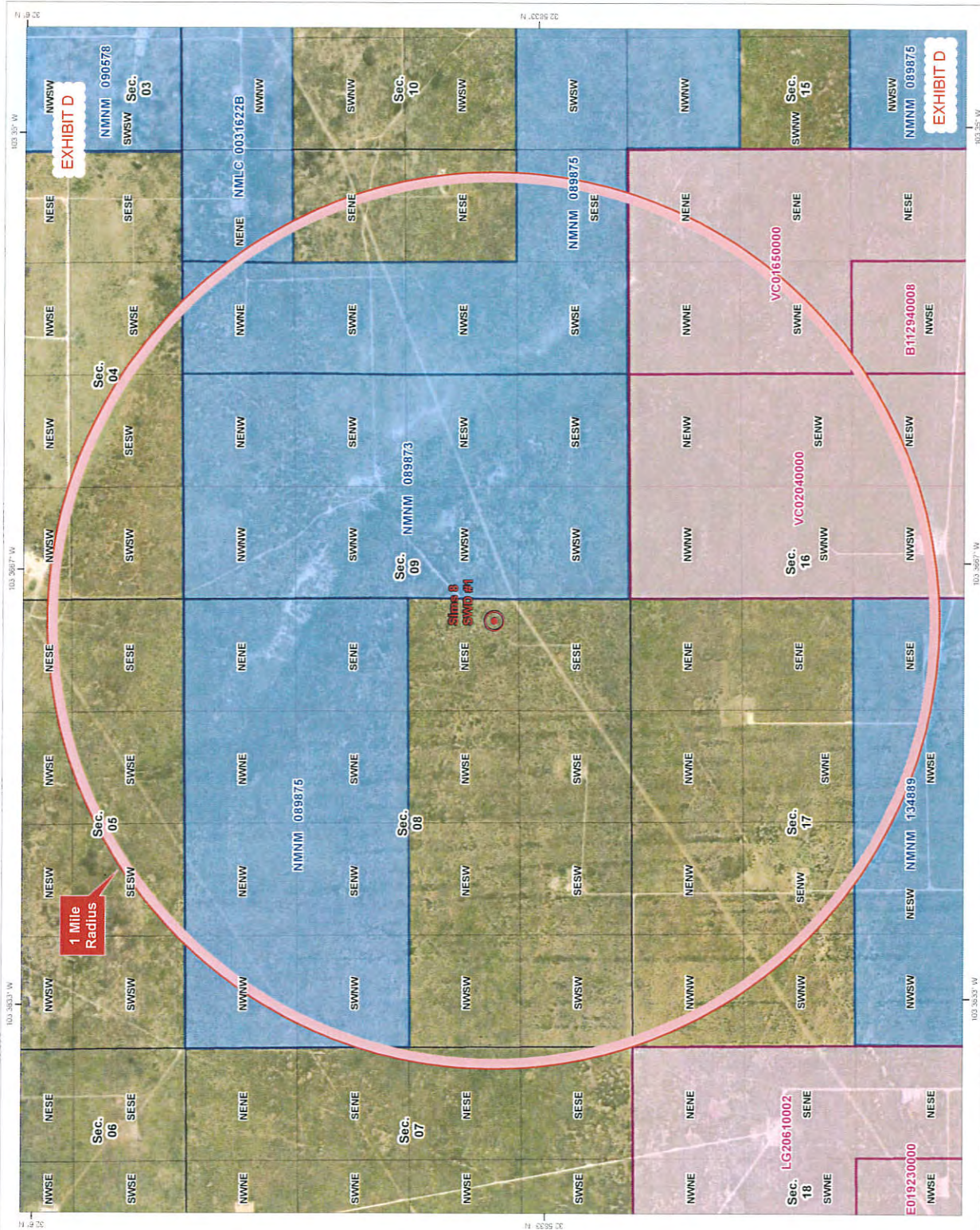
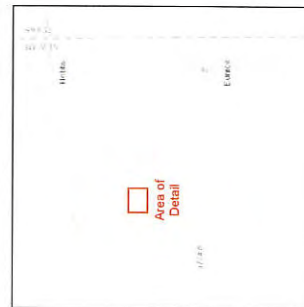
- State Leases
- Federal Leases



NAD 1983 New Mexico State Plane East
FPS 3001 Feet

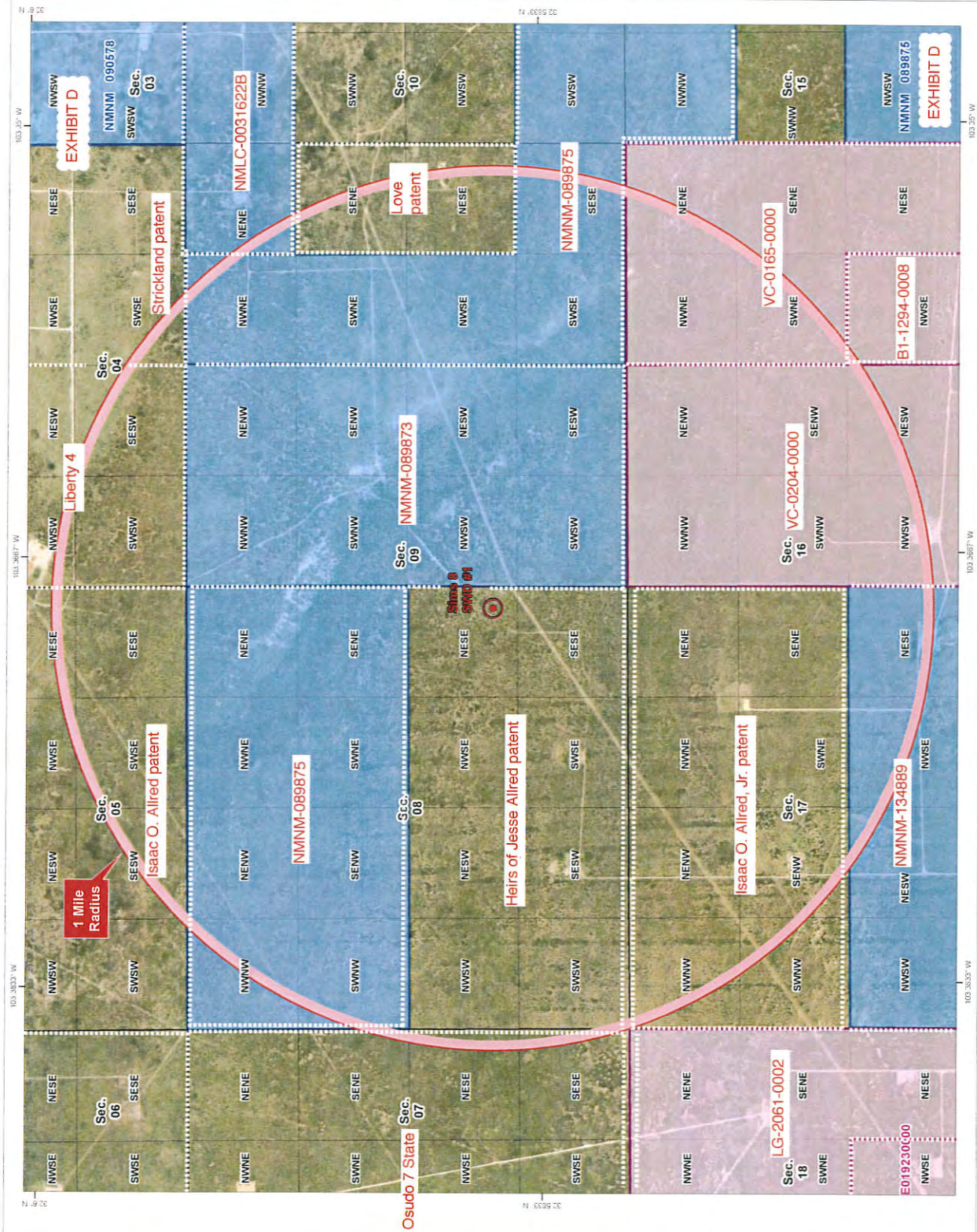


Prepared by Permits West Inc., March 26, 2019
for Solaris Water Midstream, LLC



Sec. 8, Township 20S, Range 36E
Lea County, New Mexico

Prepared by Permits West, Inc., March 26, 2019
for Solaris Water Midstream, LLC



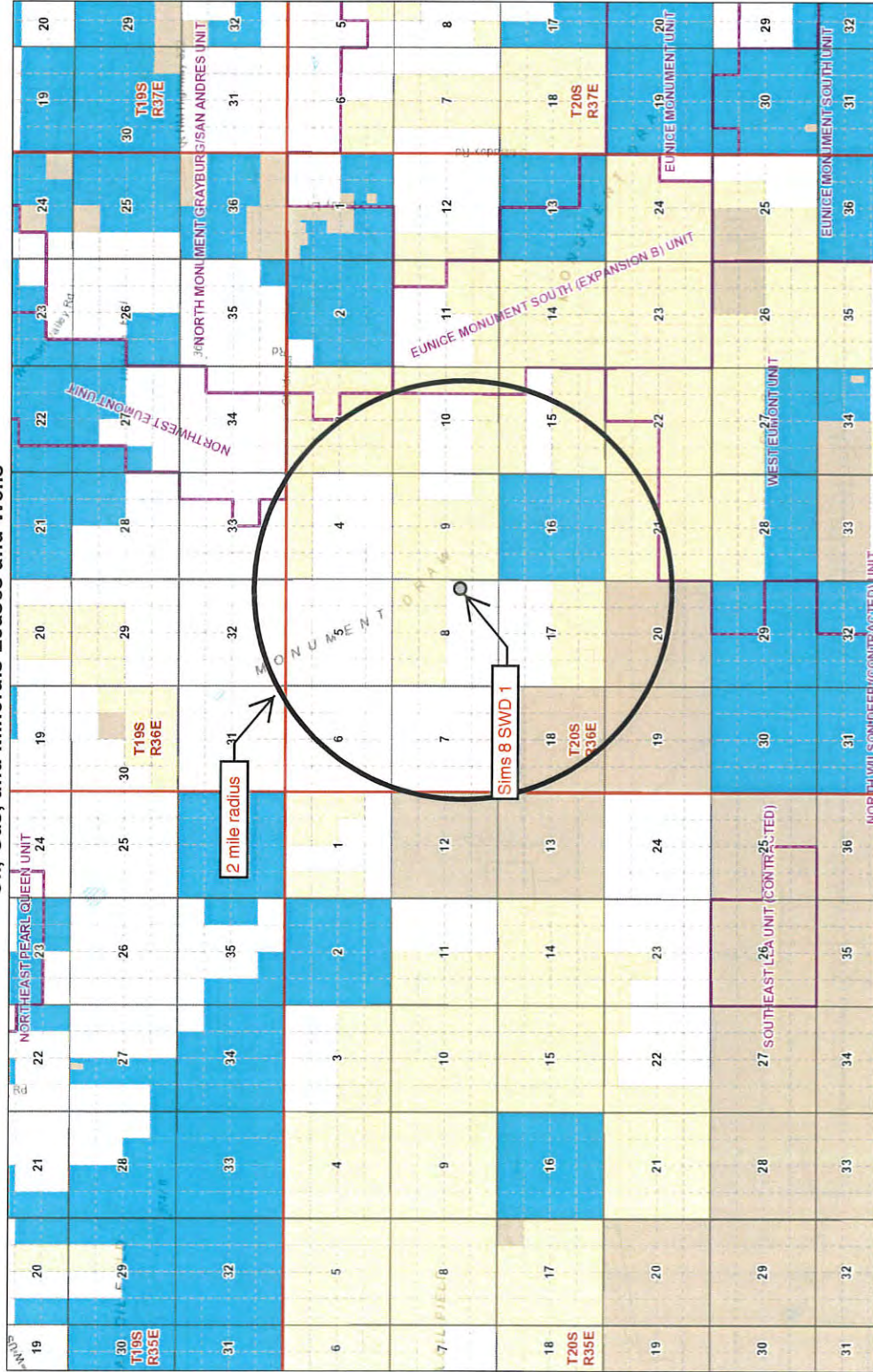
SIMS 8 SWD 1 AREA OF REVIEW LEASES

Aliquot Parts in Area of Review (T. 20 S., R. 36 E.)	Lessor	Lease	BLM or NMSLO Lessee(s) of Record	Operator
SW4 Sec. 4	fee	Liberty 4	N/A	Read & Stevens
SWSE Sec. 4	fee	Strickland patent	N/A	N/A
SE4 & S2SW4 Sec. 5	fee	Isaac O. Allred patent	N/A	N/A
SENE & E2SE4 Sec. 7	fee	Osudo 7 State	N/A	COG
N2 Sec. 8	BLM	NMNM-089875	Sanderson, Nesrsta, & Thompson	N/A
S2 Sec. 8	fee	Heirs of Jesse Allred patent	N/A	N/A
W2 Sec. 9	BLM	NMNM-089873	Apapche, Chevron, & ZPZ	N/A
W2E2 & SESW Sec. 9	BLM	NMNM-089875	Sanderson, Nesrsta, & Thompson	N/A
NENE Sec. 9	BLM	NMLC-0031622B	Sanderson, Nesrsta, & Thompson	N/A
SENE & NESE Sec. 9	fee	Love patent	N/A	N/A
NE4 SEC. 16	NMSLO	VC-0165-0000	Trove	N/A
NW4 & N2SW4 Sec. 16	NMSLO	VC-0204-0000	Trove	N/A
NWSE Sec. 16	NMSLO	B1-1294-0008	Finley	N/A
N2 Sec. 17	fee	Isaac O. Allred, Jr. patent	N/A	N/A
N2SE4 & NESW Sec. 17	BLM	NMNM-134889	R & R	N/A
NENE Sec. 18	NMSLO	LG-2061-0002	COG	COG



EXHIBIT E

Oil, Gas, and Minerals Leases and Wells



Legend

- Townships
- Sections
- Subdivisions
- Unit Agreement Boundaries
- Federal Minerals Ownership
 - All Minerals
 - Coal Only
 - Oil and Gas Only
 - Oil, Gas and Coal Only
 - Other Minerals
- New Mexico State Trust Lands
 - Subsurface Estate
 - Surface Estate
 - Both Estates

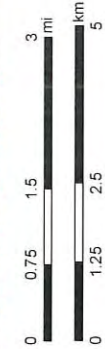
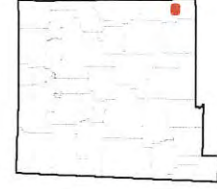


EXHIBIT E

Map Created: 6/12/2019

Disclaimer:
The New Mexico State Land Office assumes no responsibility or liability for, or in connection with the accuracy, reliability or use of the information provided herein with respect to State Land Office data or data from other sources.

Date pertaining to New Mexico State Trust Lands are provisional and subject to revision, and do not constitute an official record of title. Official records may be reviewed at the New Mexico State Land Office in Santa Fe, New Mexico.

Devonian Penetrators Sorted by distance from Sims 8 SWD 1

WELL	SPUD	TVD	FORMATION @ TD	STATUS	HOLE O.D.	CASING O.D.	SET @	CEMENT	TOC	HOW TOC DETERMINED
Rountree 001	8/29/80	11688	Devonian	P&A	17.5	13.375	365	400 sx	Surface	Circ
3002526803					12.25	9.625	5506	3400 sx	Surface	Circ
N-8-20S-36E					8.75	7	10558	705 sx	No report	No report
					6.125	5.5	11566	180 sx	10242	TOL
					4.75	open hole	11688	N/A	N/A	N/A
Monument 17 001	1/6/07	11750	Devonian	P&A	17.5	13.375	430	395 sx	Surface	Circ 38 sx
3002538108					12.25	9.625	5670	1735 sx	Surface	Circ 203 sx
A-17-20S-36E					8.75	open hole	11750	N/A	N/A	N/A

EXHIBIT F

Rountree 1
30-025-26803
N-8-20s-36e
spud 8-29-80
P&A 4-8-05

(not to scale)

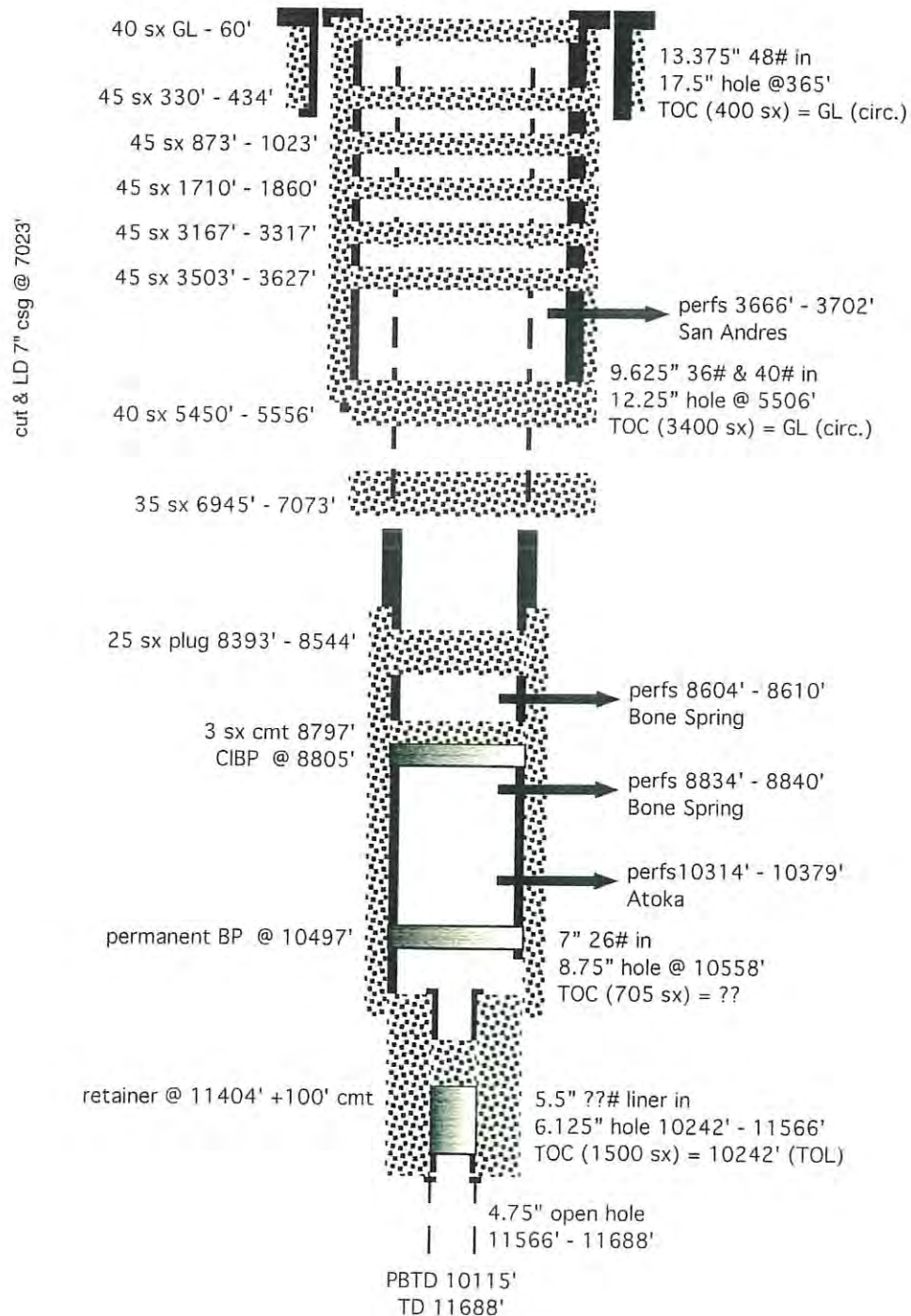
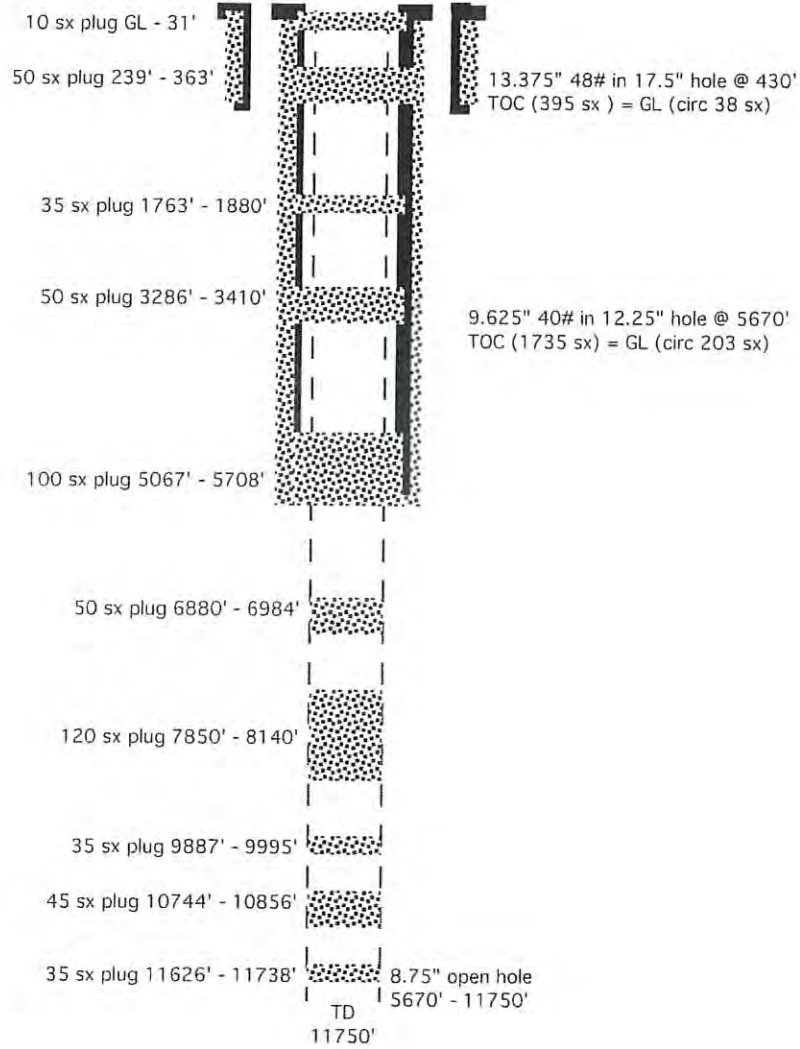


EXHIBIT F

Monument 17 1
30-025-38108
A-17-20s-36e
spud 1-6-07
P&A 3-25-07

(not to scale)



PRODUCED WATER ANALYSES (mg/l) FROM T. 19 - 20 S., R. 35 - 36 E.

API	Section	Township	Range	Formation	TDS	Chloride	Bicarbonate	Sulfate
3002534310	1	19S	36E	ABO	54512	31939	627	2558
3002534778	11	19S	36E	ABO	84095	52487	530	2468
3002534470	12	19S	36E	ABO	56387	35220	689	26
3002534191	12	19S	36E	ABO	57619	33819	597	2738
3002503163	15	19S	35E	ARTESIA	311153	193100	564	747
3002503189	22	19S	35E	ARTESIA	302747	188000	215	1140
3002503212	27	19S	35E	ARTESIA	242504	150400	563	1492
3002503229	28	19S	35E	ARTESIA	240799	149200	352	711
3002503241	29	19S	35E	ARTESIA	242263	152100	71	350
3002503241	29	19S	35E	ARTESIA	241833	151700	71	350
3002503242	29	19S	35E	ARTESIA	242146	151100	53	372
3002503244	29	19S	35E	ARTESIA	238283	148500	106	372
3002503244	29	19S	35E	ARTESIA	238553	148800	106	372
3002503247	29	19S	35E	ARTESIA	250156	154900	65	1432
3002503247	29	19S	35E	ARTESIA	243283	151500	141	940
3002503248	29	19S	35E	ARTESIA	237684	149500	35	257
3002503284	33	19S	35E	ARTESIA	219950	138000	38	418
3002503304	34	19S	35E	ARTESIA	221538	137500	225	971
3002504023	20	19S	36E	ARTESIA	257353	158500	187	1108
3002504099	33	19S	36E	ARTESIA	68631	38110	405	4317
3002504113	34	19S	36E	ARTESIA	19393	8383	2050	2252
3002503315	3	20S	35E	ARTESIA	218754	135000	4	1700
3002503327	4	20S	35E	ARTESIA	149470	94150	164	1246
3002503361	25	20S	35E	ARTESIA	174035	106839	367	2726
3002504130	1	20S	36E	ARTESIA	13609	4934	615	3330
3002504152	1	20S	36E	ARTESIA	14980			
3002504152	1	20S	36E	ARTESIA	33835	17060	812	3691
3002504350	26	20S	36E	ARTESIA	79120	47790	1445	738
3002504350	26	20S	36E	ARTESIA	44140	26230	1461	93
3002504374	32	20S	36E	ARTESIA	177450			

PRODUCED WATER ANALYSES (mg/l) FROM T. 19 - 20 S., R. 35 - 36 E.

API	Section	Township	Range	Formation	TDS	Chloride	Bicarboate	Sulfate
3002503156	6	19S	35E	BONE SPRING	25800	14100	830	1120
3002503156	6	19S	35E	BONE SPRING	53622	30550	1123	2280
3002503156	6	19S	35E	BONE SPRING	195200	118000	220	1030
3002520377	17	20S	35E	BONE SPRING	173141	93660	5174	7916
3002520377	17	20S	35E	DEVONIAN	44825			
3002504063	25	19S	36E	GRAYBURG		4577	463	312
3002504063	25	19S	36E	GRAYBURG		4799	592	352
3002504063	25	19S	36E	GRAYBURG		5326	1065	352
3002504254	13	20S	36E	GRAYBURG		7532	601	1375
3002504254	13	20S	36E	GRAYBURG	17249	9595	1262	205
3002504053	25	19S	36E	GRAYBURG / SAN ANDRES	148449	87540	587	5531
3002504063	25	19S	36E	GRAYBURG / SAN ANDRES	10464	5326	1065	352
3002504063	25	19S	36E	GRAYBURG / SAN ANDRES	8469	4577	463	312
3002504063	25	19S	36E	GRAYBURG / SAN ANDRES	8985	4799	592	352
3002521886	35	19S	36E	GRAYBURG / SAN ANDRES	7092	3499	320	660
3002504129	35	19S	36E	GRAYBURG / SAN ANDRES	17294	9760	921	0
3002512481	36	19S	36E	GRAYBURG / SAN ANDRES	215313	133600	122	430
3002504139	1	20S	36E	GRAYBURG / SAN ANDRES	8344			
3002504151	1	20S	36E	GRAYBURG / SAN ANDRES	18000	8500	1300	2250
3002504151	1	20S	36E	GRAYBURG / SAN ANDRES	11200	6000	630	530

PRODUCED WATER ANALYSES (mg/l) FROM T. 19 - 20 S., R. 35 - 36 E.

API	Section	Township	Range	Formation	TDS	Chloride	Bicarbonate	Sulfate
3002504166	2	20S	36E	GRAYBURG / SAN ANDRES	13866	7265	1604	0
3002504168	2	20S	36E	GRAYBURG / SAN ANDRES	145491	85640	952	5710
3002504165	2	20S	36E	GRAYBURG / SAN ANDRES	10905	2350	1220	3700
3002504165	2	20S	36E	GRAYBURG / SAN ANDRES	40497	20800	1390	3100
3002504165	2	20S	36E	GRAYBURG / SAN ANDRES	71407	29800	810	3500
3002504165	2	20S	36E	GRAYBURG / SAN ANDRES	27045	14500	1370	1020
3002520193	2	20S	36E	GRAYBURG / SAN ANDRES	11847	6090	1756	0
3002504224	11	20S	36E	GRAYBURG / SAN ANDRES	20982	11545	1016	959
3002504224	11	20S	36E	GRAYBURG / SAN ANDRES	20716	11285	1151	922
3002504235	12	20S	36E	GRAYBURG / SAN ANDRES	6973	3636	644	55
3002504254	13	20S	36E	GRAYBURG / SAN ANDRES	17248	9595	1262	205
3002504254	13	20S	36E	GRAYBURG / SAN ANDRES	14808	7532	601	1375
3002504259	13	20S	36E	GRAYBURG / SAN ANDRES	7270	3200	1720	177
3002504259	13	20S	36E	GRAYBURG / SAN ANDRES	9936	4800	1560	125
3002504266	14	20S	36E	GRAYBURG / SAN ANDRES	20082	10711	1342	932

PRODUCED WATER ANALYSES (mg/l) FROM T. 19 - 20 S., R. 35 - 36 E.

API	Section	Township	Range	Formation	TDS	Chloride	Bicarboate	Sulfate
3002504272	14	20S	36E	GRAYBURG / SAN ANDRES	49286	31110	899	1618
3002504272	14	20S	36E	GRAYBURG / SAN ANDRES	15994	7207	1380	1746
3002504299	23	20S	36E	GRAYBURG / SAN ANDRES	18541	9620	1318	996
3002504299	23	20S	36E	GRAYBURG / SAN ANDRES	18512	9948	1036	970
3002504297	23	20S	36E	GRAYBURG / SAN ANDRES	22833	11596	1519	1289
3002504297	23	20S	36E	GRAYBURG / SAN ANDRES	18390	9441	1389	1094
3002504297	23	20S	36E	GRAYBURG / SAN ANDRES	20611	9911	1580	1459
3002503229	28	19S	35E	PENROSE		149248	352	711
3002503241	29	19S	35E	PENROSE				
3002503242	29	19S	35E	PENROSE				
3002503244	29	19S	35E	PENROSE				
3002504350	26	20S	36E	PERMO-PENN.	79191	47803	1448	739
3002503247	29	19S	35E	QUEEN		151575	141	940
3002503247	29	19S	35E	QUEEN		154968	65	1432
3002503248	29	19S	35E	QUEEN		149504	35	257
3002503284	33	19S	35E	QUEEN		138040	38	418
3002503307	35	19S	35E	SAN ANDRES	66415	39600	313	993
3002503307	35	19S	35E	SAN ANDRES	73409	43880	450	865
3002504099	33	19S	36E	SAN ANDRES		38119	405	4317
3002512476	36	19S	36E	SAN ANDRES		16406	611	
3002512476	36	19S	36E	SAN ANDRES		16406	611	
3002512476	36	19S	36E	SAN ANDRES	26344			
3002504326	25	20S	36E	YATES		247872	1091	30984



Water Column/Average Depth to Water

(A CLW#### in the
POD suffix indicates the
POD has been replaced
& no longer serves a
water right file.)

(R=POD has been
replaced,
O=orphaned,
C=the file is
closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub- basin	County	Q 6	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	DepthWell	DepthWater	Water Column
L 10248		L	LE	3	1	09	20S	36E		653376	3606958*	586	65		
L 01522 POD1	1 mile = 1610 m	L	LE	1	1	1 08	20S	36E		651658	3607434*	1750	50	30	20
L 02707		L	LE	2	2	2 09	20S	36E		654677	3607479*	1888	85	38	47
L 10247		L	LE	3	1	05	20S	36E		651739	3608544*	2504	75		
L 10246		L	LE	1	1	3 03	20S	36E		654869	3608291*	2560	60		
L 10250		L	LE	3	4	10	20S	36E		655800	3606192*	2712	60		
L 10249		L	LE	3	2	10	20S	36E		655790	3606997*	2747	60		
L 02420		L	LE	4	1	18	20S	36E		650577	3605304*	2766	80	34	46
L 01312		L	LE	3	3	3 33	19S	36E		653237	3609276*	2838	67	40	27
L 10245		L	LE	3	3	3 33	19S	36E		653237	3609276*	2838	75		

Average Depth to Water: 35 feet

Minimum Depth: 30 feet

Maximum Depth: 40 feet

Record Count: 10

UTMNAD83 Radius Search (in meters):

Easting (X): 653099

Northing (Y): 3606441

Radius: 3220

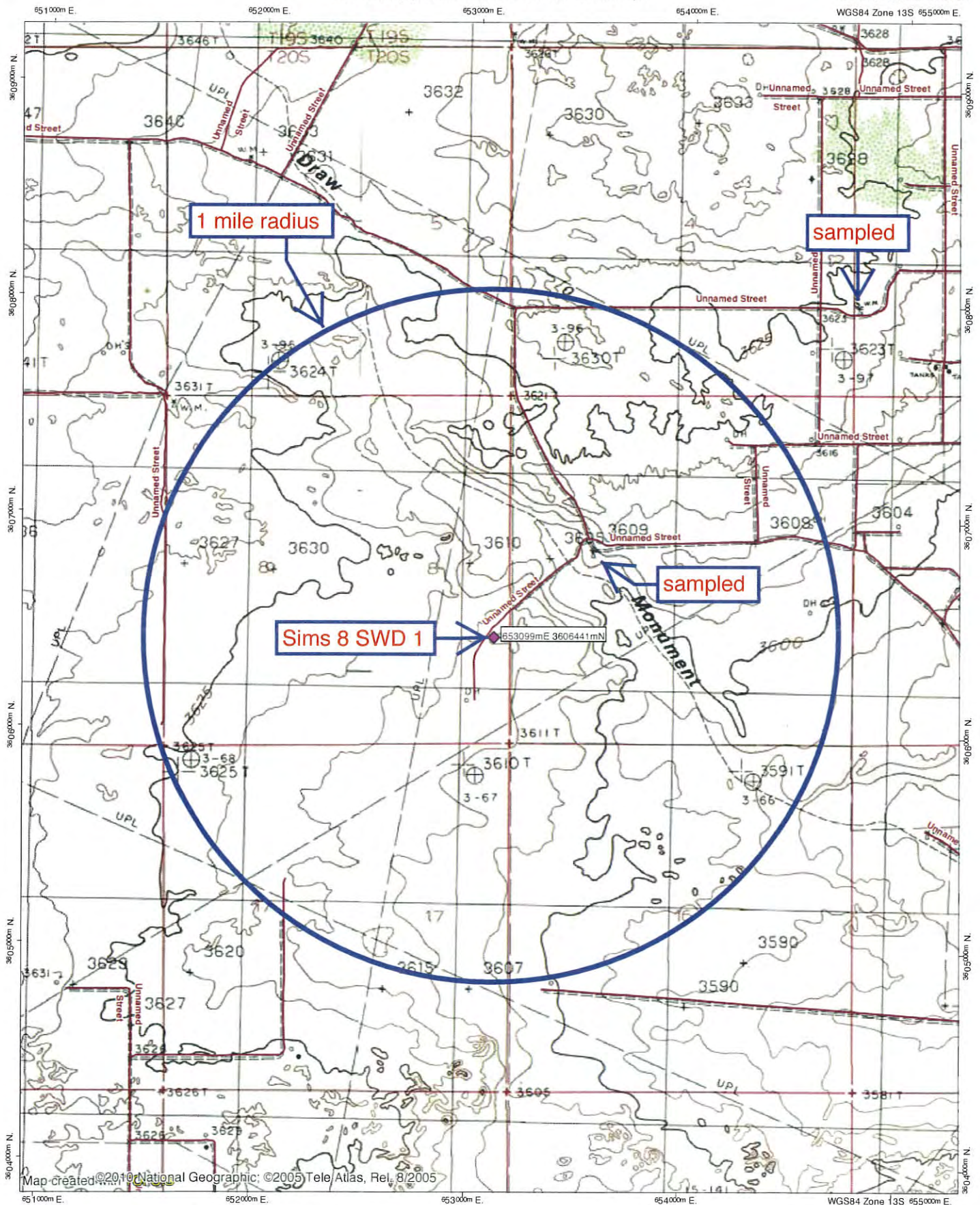
*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

4/21/19 9:01 AM

WATER COLUMN/ AVERAGE DEPTH TO
WATER

TOPOI map printed on 06/09/19 from "Untitled.tpo"



Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Permits West**Client Sample ID:** 558 Section 8 WM**Project:** Solaris Simm 8 SWD**Collection Date:** 4/26/2019 9:14:00 AM**Lab ID:** 1905065-001**Matrix:** AQUEOUS**Received Date:** 5/2/2019 9:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 1664B							Analyst: plr
N-Hexane Extractable Material	ND	10.3		mg/L	1	5/7/2019 11:11:00 AM	44759
EPA METHOD 300.0: ANIONS							Analyst: smb
Chloride	840	50	*	mg/L	100	5/7/2019 12:00:08 PM	R59721
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3400	20.0	*	mg/L	1	5/6/2019 11:48:00 AM	44707

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Permits West

Client Sample ID: 550 Section 5 WM

Project: Solaris Simm 8 SWD

Collection Date: 4/26/2019 1:10:00 PM

Lab ID: 1905065-002

Matrix: AQUEOUS

Received Date: 5/2/2019 9:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 1664B							Analyst: plr
N-Hexane Extractable Material	ND	11.4		mg/L	1	5/7/2019 11:11:00 AM	44759
EPA METHOD 300.0: ANIONS							Analyst: smb
Chloride	160	5.0		mg/L	10	5/7/2019 12:12:59 PM	R59721
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	770	20.0	*	mg/L	1	5/6/2019 11:48:00 AM	44707

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

EXHIBIT H

WO#: 1905065

10-May-19

Client: Permits West
Project: Solaris Simm 8 SWD

Sample ID: MB-44759		SampType: MBLK		TestCode: EPA Method 1664B						
Client ID: PBW		Batch ID: 44759		RunNo: 59719						
Prep Date: 5/7/2019		Analysis Date: 5/7/2019		SeqNo: 2013808		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Hexane Extractable Material	ND	10.0								

Sample ID: LCS-44759		SampType: LCS		TestCode: EPA Method 1664B						
Client ID: LCSW		Batch ID: 44759		RunNo: 59719						
Prep Date: 5/7/2019		Analysis Date: 5/7/2019		SeqNo: 2013809		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Hexane Extractable Material	32.8	10.0	40.00	0	82.0	78	114			
Silica Gel Treated N-Hexane Extrac	ND	10.0	20.00	0	0	64	132			S

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.



WO#: 1905065

10-May-19

Client: Permits West
Project: Solaris Simm 8 SWD

Sample ID: MB	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R59721	RunNo: 59721								
Prep Date:	Analysis Date: 5/7/2019	SeqNo: 2013985		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: LCS	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R59721	RunNo: 59721								
Prep Date:	Analysis Date: 5/7/2019	SeqNo: 2013986		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.3	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.



WO#: 1905065

10-May-19

Client: Permits West
Project: Solaris Simm 8 SWD

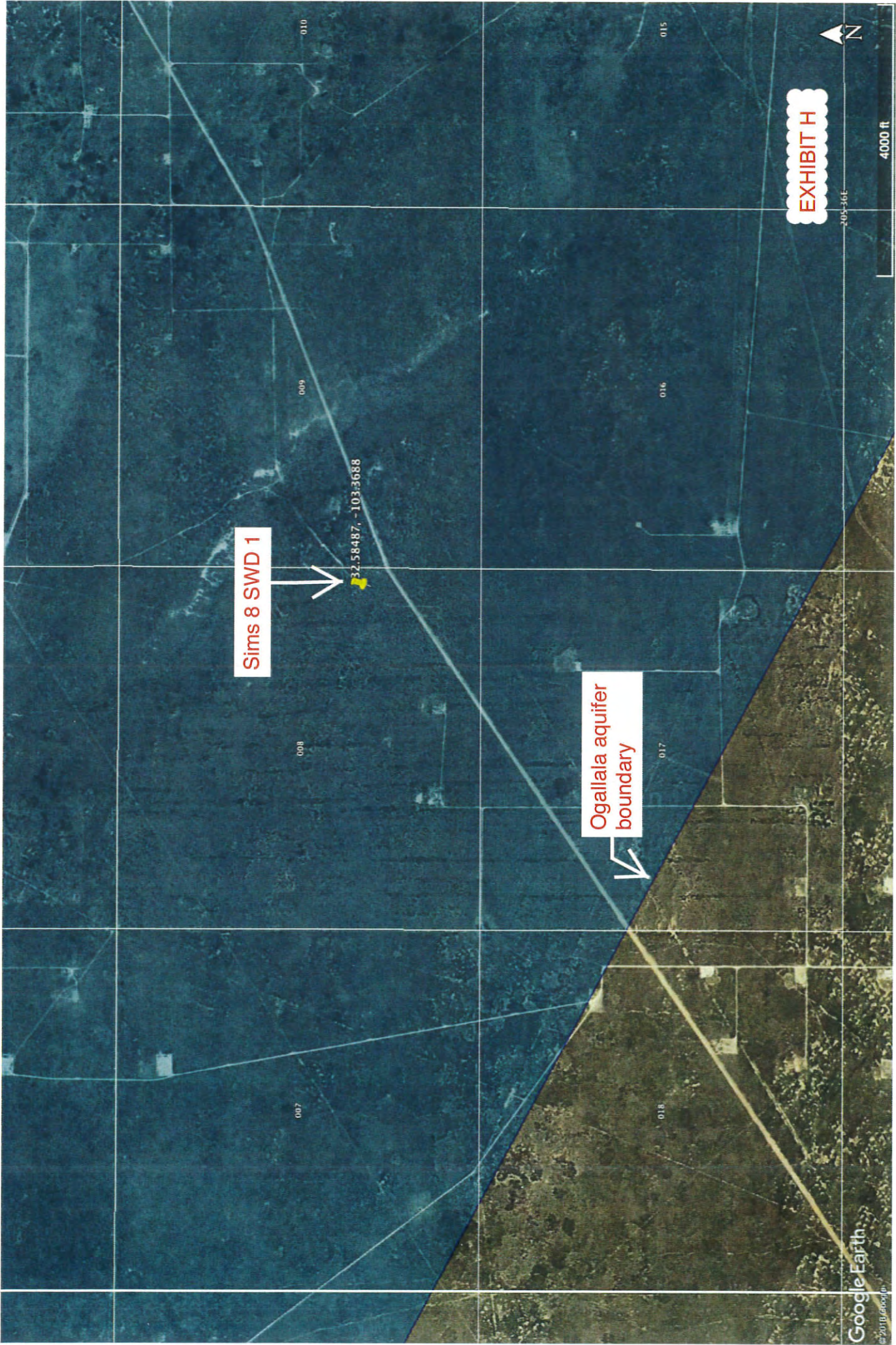
Sample ID: MB-44707	SampType: MBLK	TestCode: SM2540C MOD: Total Dissolved Solids
Client ID: PBW	Batch ID: 44707	RunNo: 59654
Prep Date: 5/3/2019	Analysis Date: 5/6/2019	SeqNo: 2010986 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Dissolved Solids	ND	20.0

Sample ID: LCS-44707	SampType: LCS	TestCode: SM2540C MOD: Total Dissolved Solids
Client ID: LCSW	Batch ID: 44707	RunNo: 59654
Prep Date: 5/3/2019	Analysis Date: 5/6/2019	SeqNo: 2010987 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Dissolved Solids	1010	20.0 1000 0 101 80 120

Sample ID: 1905065-002BDUP	SampType: DUP	TestCode: SM2540C MOD: Total Dissolved Solids
Client ID: 550 Section 5 WM	Batch ID: 44707	RunNo: 59654
Prep Date: 5/3/2019	Analysis Date: 5/6/2019	SeqNo: 2011003 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Dissolved Solids	765	20.0 0.651 10 *

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank.
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative Limit	RL Reporting Limit
S % Recovery outside of range due to dilution or matrix	



Sims 8 SWD 1

32.58487, -103.3688

Ogallala aquifer
boundary

EXHIBIT H

Seismic Risk Assessment
Solaris Water Midstream, LLC
Sims 8 SWD #1
Section 8, Township 20 South, Range 36 East
Lea County, New Mexico

Cory Walk

Cory Walk

B.S., M.S.

Geologist

Permits West Inc.

June 11, 2019

GENERAL INFORMATION

Sims 8 SWD #1 is located in the SE 1/4, section 8, T20S, R36E, about 6 miles southwest of Monument, NM in the Permian Basin. Solaris Water Midstream, LLC proposes the injection zone to be within the Devonian formation through an open hole from 12,005'-13,730' below ground surface. This report assesses any potential concerns relating to induced seismicity along deep penetrating Precambrian faults or the connection between the injection zone and known underground potable water sources.

SEISMIC RISK ASSESSMENT

Historical Seismicity

Searching the USGS earthquake catalog resulted in no (0) earthquakes above a magnitude 2.5 within 6 miles (9.7 km) of the proposed deep disposal site since 1970 (Fig 1). According to this dataset, the nearest historical earthquake occurred in 2001 about 22 miles (~35 km) south and had a magnitude of 3.3.

Basement Faults and Subsurface Conditions

A structure contour map (Fig. 1) of the Precambrian basement shows the Williams #1 is approximately 1.0 mile from the nearest basement-penetrating fault inferred by Ewing (1990). **Basic information about these faults based on GIS data from Ruppel et al. (2009) is listed in Table 1.**

Snee and Zoback (2018) state, " S_{Hmax} rotates significantly across the Northwest Shelf as well, from ~north-south in northwest Eddy County to ~east-southeast-west-northwest in northern Lea and Yoakum counties." Around the Sims 8 SWD #1 site, Snee and Zoback indicate a S_{Hmax} **direction of N060°E and an A_ϕ of 0.65, indicating a normal and strike-slip faulting stress regime.**

Induced seismicity is a growing concern of deep SWD wells. Relatively new software developed by the Stanford Center for Induced and Triggered Seismicity allows for the probabilistic screening of deeply penetrating faults near the proposed injection zone (Walsh et al., 2016; Walsh et al., 2017). This software uses parameters such as stress orientations, fault strike/dip, injection rates, fault friction coefficients, etc. to estimate the potential for fault slip. Using the best available data as input parameters (Table 2), the Fault Slip Potential (FSP) models suggest the fault with the highest risk is fault 14 (Fig 2; Table 1). Fault 14 has a six (0.06) percent chance of slip through the year 2039. **This model also suggests a pore pressure increase of 13.5 psi on fault 14 (Fig. 3; Table 1) due to the proposed SWD well.** A pressure increase of 1600 psi on this fault would result in a 100% probability of fault slip while an increase of 500 psi results in a 50% probability of fault slip.

GROUNDWATER SOURCES

Three principal aquifers are used for potable groundwater in Lea County; these geologic units include the Triassic Santa Rosa formation, Tertiary Ogallala formation, and Quaternary alluvium. Nicholson and Clebsch (1961) state, "Potable ground water is not available below the Permian and Triassic unconformity but, because this boundary is not easily defined, the top of the Rustler anhydrite formation is regarded as the effective lower limit of 'potable' ground water." Around the Sims 8 SWD

#1, the top of a thick anhydrite unit interpreted to represent the Rustler Formation lies at a depth of ~1705 feet bgs.

STRATIGRAPHY

Thick permeability barriers exist above (Woodford shale; 170 ft thick) and below (Simpson Group; 650 ft thick) the targeted Devonian injection zone (Plate 2, Comer et al., 1991; Fig. 8, Frenzel et al., 1988). Well data indicates ~10,300 ft of rock separating the top of the Devonian from the previously stated lower limit of potable water at the top of the Rustler anhydrite formation.

CONCLUDING STATEMENT

Geologic data evaluated around the Sims 8 SWD #1 well show no potential structural or stratigraphic connection between the Devonian injection zone and any subsurface potable water sources. Based on Fault Slip Potential modeling there is a 6% probability (0.06) of inducing seismic activity along nearby deeply penetrating Precambrian faults.

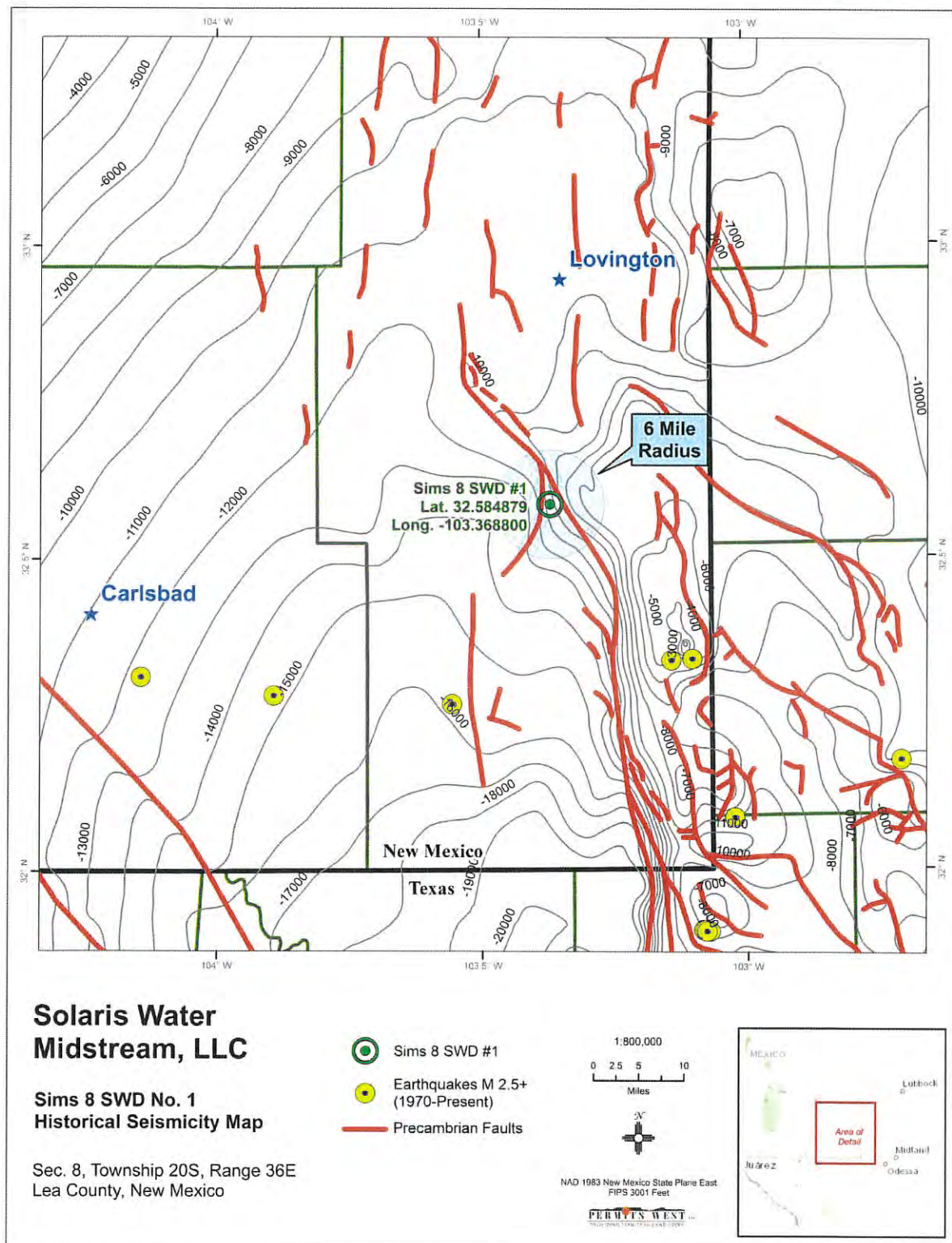


Figure 1. Structural contour map of the Precambrian basement in feet below sea level. Red lines represent the locations of Precambrian basement-penetrating faults (Ewing et al., 1990). The Sims 8 SWD #1 well lies ~1.0 mile East of the closest deeply penetrating fault and 22 miles from the closest historic earthquake.

Table 1: Nearby Basement Fault Information

ID	Distance from Williams #1 (mi)	Strike (°)	Dip (°)	FSP	Pore Pressure change after 20 years (psi)
Fault 7	4.0	137	70	0.00	6
Fault 8	1.3	150	70	0.00	17
Fault 14	2.5	34	70	0.06	13
Fault 15	1.0	359	70	0.00	34

Table 2: Fault Slip Potential model input parameters

Faults	Value	Notes
Friction Coefficient	0.58	Ikari et al. (2011)
Dip Angle (deg)	70	Snee and Zoback (2018)
Stress		
Vertical stress gradient (psi/ft)	1.1	Hurd and Zoback (2012)
Max Horizontal Stress Direction (deg)	60	Snee and Zoback (2018)
Depth for calculations (ft)	13700	Proposed injection zone
Initial Reservoir Pressure Gradient (psi/ft)	0.7	calculated from mud wt (ppg) used in drilling at these depths
A Phi Parameter	0.65	Snee and Zoback (2018)
Reference Friction Coefficient	0.58	Ikari et al. (2011)
Hydrology		
Aquifer thickness (ft)	1500	Proposed injection zone
Porosity (%)	4	
Permeability (mD)	150	
Injection Rate (bbl/day)	40000	Maximum proposed injection rate

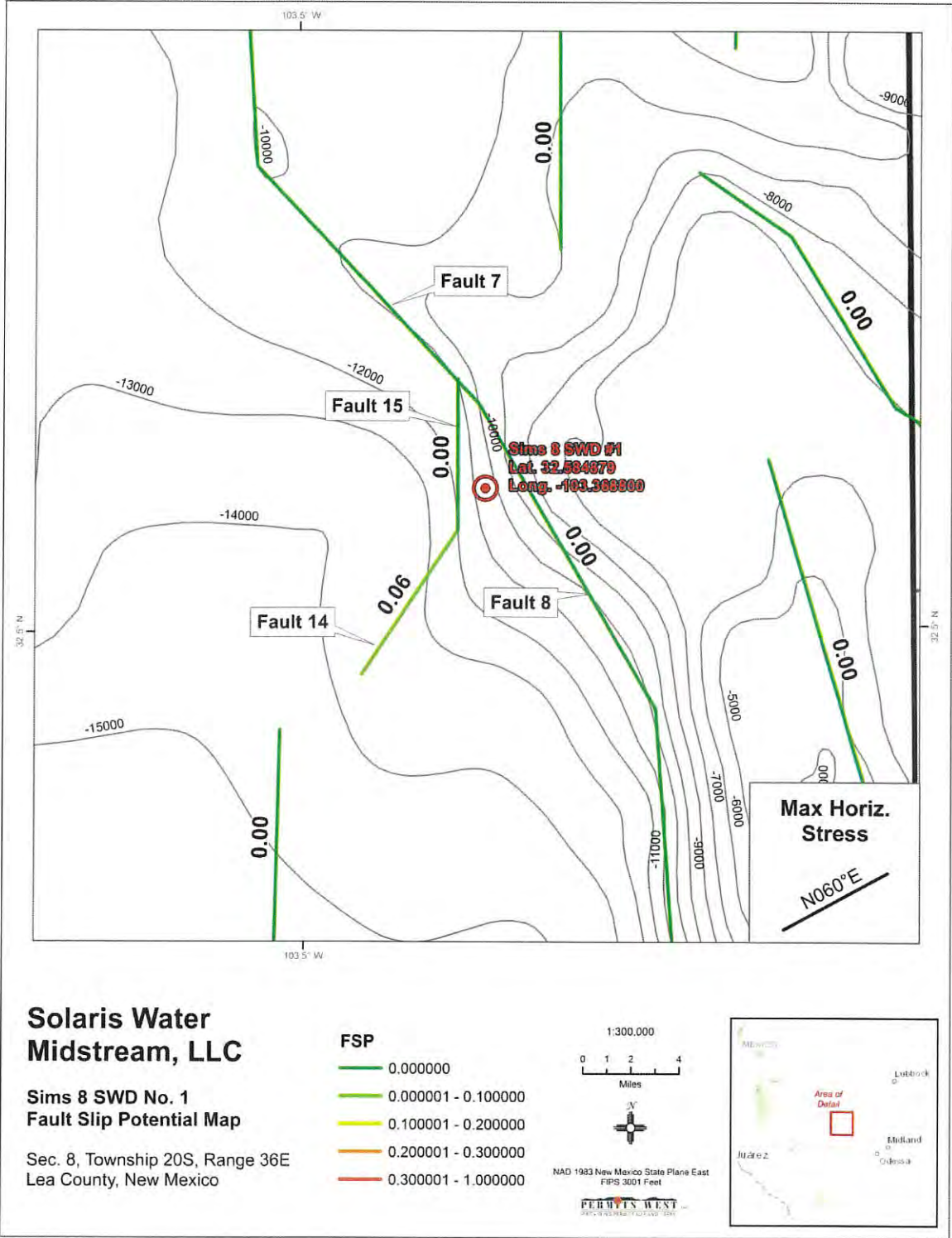


Figure 2. Detail Precambrian fault map of Sims 8 SWD #1 area as mapped by Ewing (1990). Faults are colored based on probability of fault slip as modeled using Fault Slip Potential software (Walsh and Zoback, 2016). Labeled values represent the calculated fault slip potential using the parameters indicated in Table 1. Contours show the top of the Precambrian basement in feet below sea level.

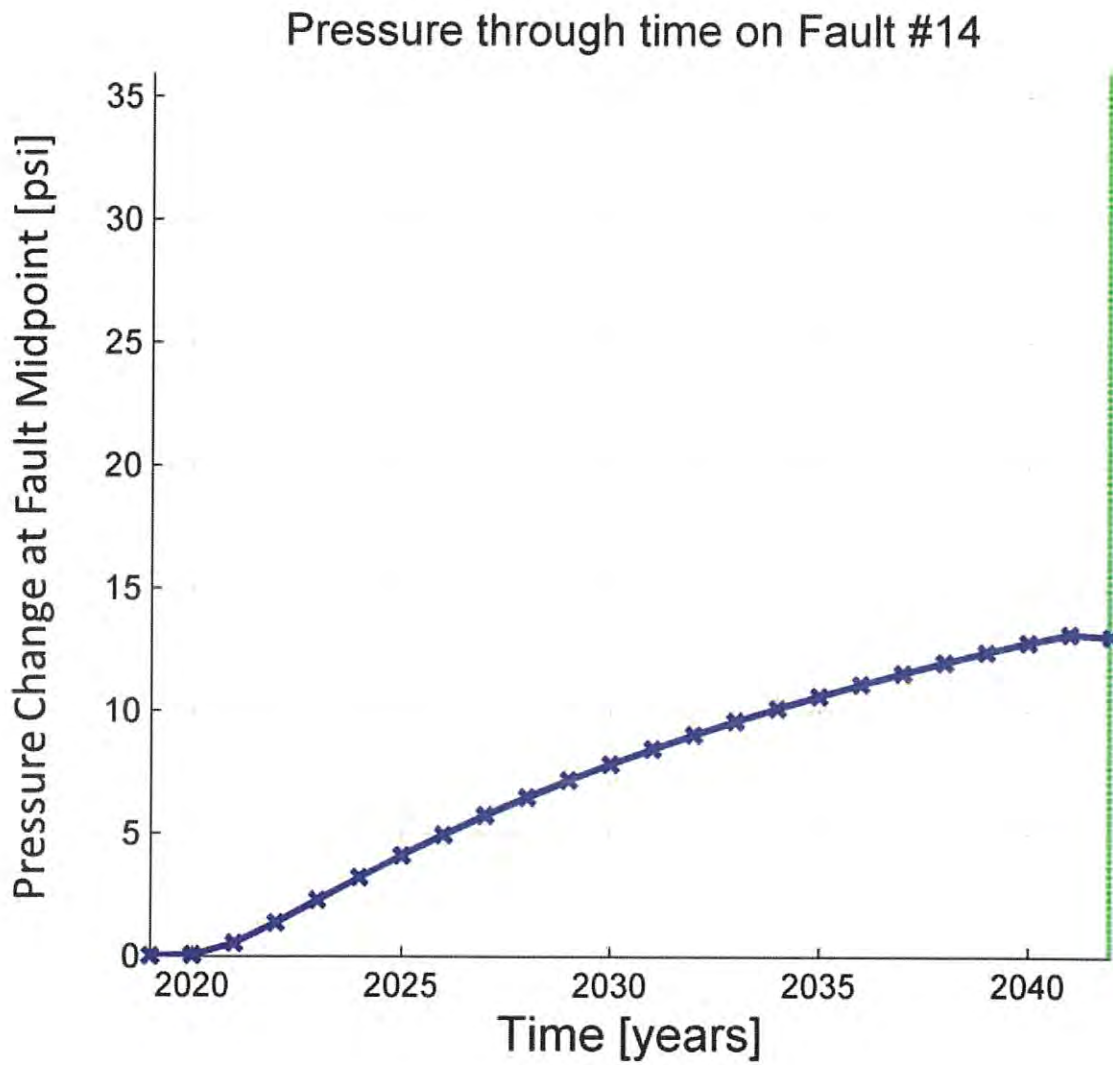


Figure 3. A scatter plot showing the modeled change of pore pressure on fault #14 through time, as a response to the proposed SWD well.

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EXHIBIT I

40 ml

Sims 8 SWD 1

32.58487, -103.3688

100 miles

Quaternary faults

Affidavit of Publication

EXHIBIT J

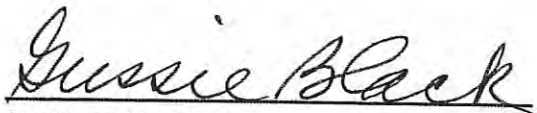
STATE OF NEW MEXICO
COUNTY OF LEA

I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

Beginning with the issue dated
April 18, 2019
and ending with the issue dated
April 18, 2019.


Publisher

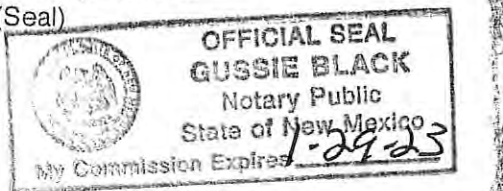
Sworn and subscribed to before me this
18th day of April 2019.


Business Manager

My commission expires

January 29, 2023

(Seal)



This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said

LEGALS

LEGAL NOTICE APRIL 18, 2019

Solaris Water Midstream, LLC is applying to drill the Sims 8 SWD 1 well as a saltwater disposal well. The well is staked at 1600' FSL & 275' FEL, Sec. 8, T. 20 S., R. 36 E., Lea County, NM. This is 6 miles southwest of Monument, NM. It will inject water into the Devonian formation from 12,005' to 13,730'. Maximum disposal pressure = 2401 psi. Maximum disposal rate = 40,000 bwpd. Interested parties must file objections or requests for hearing with the NM Oil Conservation Division, 1220 South Saint Francis Dr., Santa Fe, NM 87505 within 15 days. Additional information can be obtained by contacting: Brian Wood, Permits West, Inc., 37 Verano Loop, Santa Fe, NM 87508. Phone number is (505) 466-8120. #34033

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BRIAN WOOD
PERMITS WEST
37 VERANO LOOP
SANTA FE, NM 87508