

Application

Part III

Tables

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API	Ogrid	Ogrid Name	Well Type	Status	Well Name	District	ULSTR	Total Depth	Pool ID
30-025-24517	14744	MEWBOURNE OIL CO	G	A	STATE 35 #001	1	K-35-23S-34E	13865	[70440] ANTELOPE RIDGE, MORROW (GAS)
30-025-24955	4323	CHEVRON U S A INC	G	H	STATE FQ GAS COM #001	1	N-26-23S-34E	13910	[70360] ANTELOPE RIDGE, ATOKA (GAS); [70440] ANTELOPE RIDGE, MORROW (GAS)
30-025-25269	228937	MATADOR PRODUCTION COMPANY	O	A	STATE R COM #001H	1	N-25-23S-34E	8846	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-25441	214263	PRE-ONGARD WELL OPERATOR	G	P	PRE-ONGARD WELL #001	1	C-35-23S-34E	13650	[70440] ANTELOPE RIDGE, MORROW (GAS)
30-025-37774	162683	CIMAREX ENERGY CO. OF COLORADO	G	A	STATE 1 #002	1	2-02-24S-34E	13900	[70360] ANTELOPE RIDGE, ATOKA (GAS); [70440] ANTELOPE RIDGE, MORROW (GAS)
30-025-40981	14744	MEWBOURNE OIL CO	O	A	MAD DOG 35 BO STATE COM #001H	1	B-35-23S-34E	11350	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-40982	14744	MEWBOURNE OIL CO	O	A	MAD DOG 35 CN STATE COM #001H	1	C-35-23S-34E	11364	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-41123	14744	MEWBOURNE OIL CO	O	A	MAD DOG 26 MD STATE COM #001H	1	M-26-23S-34E	11363	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-41124	14744	MEWBOURNE OIL CO	O	A	MAD DOG 26 B3NC STATE COM #001H	1	N-26-23S-34E	11399	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-41982	14744	MEWBOURNE OIL CO	O	A	MAD DOG 26 B3OB STATE #001H	1	O-26-23S-34E	11546	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-41983	14744	MEWBOURNE OIL CO	O	C	MAD DOG 26 B3PA STATE #001C	1	P-26-23S-34E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-41984	14744	MEWBOURNE OIL CO	O	A	MAD DOG 35 B3AP STATE COM #001H	1	A-35-23S-34E	11537	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-41985	14744	MEWBOURNE OIL CO	O	A	MAD DOG 35 B3DM STATE COM #001H	1	D-35-23S-34E	11329	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-42436	14744	MEWBOURNE OIL CO	O	A	TORO 36 B3DM STATE #001H	1	D-36-23S-34E	11572	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-42446	14744	MEWBOURNE OIL CO	O	A	TORO 36 B3BO STATE #001H	1	B-36-23S-34E	11685	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-43518	372165	CENTENNIAL RESOURCE PRODUCTION, LLC	O	C	EXCITEBIKE 12 #001C	1	D-12-23S-34E	0	[2205] ANTELOPE RIDGE, BONE SPRING, NORTH
30-025-43590	14744	MEWBOURNE OIL CO	O	A	MAD DOG 26 B3PA STATE #001H	1	P-26-23S-34E	11532	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-43885	14744	MEWBOURNE OIL CO	O	A	TORO 36 B3CN STATE #001H	1	C-36-23S-34E	11658	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-43929	14744	MEWBOURNE OIL CO	O	A	TORO 36 B3AP STATE #001H	1	A-36-23S-34E	11698	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-44725	229137	COG OPERATING LLC	O	A	MORTARBOARD FEDERAL COM #013H	1	3-01-24S-34E	11860	[96434] RED HILLS, BONE SPRING, NORTH
30-025-44865	228937	MATADOR PRODUCTION COMPANY	O	N	JEFF HART STATE COM #134H	1	P-25-23S-34E	0	[2200] ANTELOPE RIDGE, BONE SPRING
30-025-45758	228937	MATADOR PRODUCTION COMPANY	O	N	JEFF HART STATE COM #114H	1	P-25-23S-34E	0	[960] AIRSTRIP, BONE SPRING; [2200] ANTELOPE RIDGE, BONE SPRING
30-025-45759	228937	MATADOR PRODUCTION COMPANY	O	N	JEFF HART STATE COM #124H	1	P-25-23S-34E	0	[2200] ANTELOPE RIDGE, BONE SPRING

Township	Range	Section	Unit Letter	Lease Number	Lessee (O & G Minerals)	Leasor (O & G Minerals)	Surface Owner	UPC
23S	34E	25	D	VB10240003	MRC PERMIAN COMPANY	State (NM)	State of New Mexico	4203137265265
23S	34E	25	E	VB10240003	MRC PERMIAN COMPANY	State (NM)	State of New Mexico	4203137265265
23S	34E	25	F	VB10240003	MRC PERMIAN COMPANY	State (NM)	State of New Mexico	4203137265265
23S	34E	25	G	VB10240003	MRC PERMIAN COMPANY	State (NM)	State of New Mexico	4203137265265
23S	34E	25	I	V078800003	MRC PERMIAN COMPANY	State (NM)	State of New Mexico	4203137265265
23S	34E	25	J	V078800003	MRC PERMIAN COMPANY	State (NM)	State of New Mexico	4203137265265
23S	34E	25	K	V078800003	MRC PERMIAN COMPANY	State (NM)	State of New Mexico	4203137265265
23S	34E	25	L	V078800003	MRC PERMIAN COMPANY	State (NM)	State of New Mexico	4203137265265
23S	34E	25	M	V078800003	MRC PERMIAN COMPANY	State (NM)	State of New Mexico	4203137265265
23S	34E	25	N	V078800003	MRC PERMIAN COMPANY	State (NM)	State of New Mexico	4203137265265
23S	34E	25	O	V078800003	MRC PERMIAN COMPANY	State (NM)	State of New Mexico	4203137265265
23S	34E	25	P	V078800003	MRC PERMIAN COMPANY	State (NM)	State of New Mexico	4203137265265
23S	34E	26	A	K052830004	CHEVRON U S A INC	State (NM)	State of New Mexico	4202137266266
23S	34E	26	F	K052830004	CHEVRON U S A INC	State (NM)	State of New Mexico	4202137266266
23S	34E	26	G	K052830004	CHEVRON U S A INC	State (NM)	State of New Mexico	4202137266266
23S	34E	26	H	K052830004	CHEVRON U S A INC	State (NM)	State of New Mexico	4202137266266
23S	34E	26	I	K052830004	CHEVRON U S A INC	State (NM)	State of New Mexico	4202137266266
23S	34E	26	J	K052830004	CHEVRON U S A INC	State (NM)	State of New Mexico	4202137266266
23S	34E	26	K	L050140002	NORTEX CORPORATION	State (NM)	State of New Mexico	4202137266266
23S	34E	26	L	L050140002	NORTEX CORPORATION	State (NM)	State of New Mexico	4202137266266
23S	34E	26	M	L050140002	NORTEX CORPORATION	State (NM)	State of New Mexico	4202137266266
23S	34E	26	N	L050140002	NORTEX CORPORATION	State (NM)	State of New Mexico	4202137266266
23S	34E	26	O	K052830004	CHEVRON U S A INC	State (NM)	State of New Mexico	4202137266266
23S	34E	26	P	K052830004	CHEVRON U S A INC	State (NM)	State of New Mexico	4202137266266
23S	34E	35	A	V082530001	MEWBOURNE OIL CO	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4202138266266
23S	34E	35	B	V082530001	MEWBOURNE OIL CO	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4202138266266
23S	34E	35	C	V082530001	MEWBOURNE OIL CO	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4202138266266
23S	34E	35	D	V082530001	MEWBOURNE OIL CO	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4202138266266
23S	34E	35	E	V082530001	MEWBOURNE OIL CO	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4202138266266
23S	34E	35	F	V082530001	MEWBOURNE OIL CO	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4202138266266
23S	34E	35	G	V082530001	MEWBOURNE OIL CO	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4202138266266
23S	34E	35	H	V082530001	MEWBOURNE OIL CO	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4202138266266
23S	34E	35	I	V082750000	FEATHERSTONE DEVELOPMENT CORPORATION	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4202138266266
23S	34E	35	J	V082750000	FEATHERSTONE DEVELOPMENT CORPORATION	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4202138266266
23S	34E	35	K	V082750000	FEATHERSTONE DEVELOPMENT CORPORATION	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4202138266266
23S	34E	35	L	V082750000	FEATHERSTONE DEVELOPMENT CORPORATION	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4202138266266
23S	34E	35	M	V082750000	FEATHERSTONE DEVELOPMENT CORPORATION	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4202138266266
23S	34E	35	N	V082750000	FEATHERSTONE DEVELOPMENT CORPORATION	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4202138266266
23S	34E	35	O	V082750000	FEATHERSTONE DEVELOPMENT CORPORATION	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4202138266266
23S	34E	35	P	V082750000	FEATHERSTONE DEVELOPMENT CORPORATION	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4202138266266

Township	Range	Section	Unit Letter	Lease Number	Leasee (O & G Minerals)	Leassor (O & G Minerals)	Surface Owner	UPC
23S	34E	36	A	VB18480001	MEWBOURNE OIL COMPANY	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4203138265266
23S	34E	36	B	VB18480001	MEWBOURNE OIL COMPANY	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4203138265266
23S	34E	36	C	VB18320001	MEWBOURNE OIL COMPANY	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4203138265266
23S	34E	36	D	VB18320001	MEWBOURNE OIL COMPANY	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4203138265266
23S	34E	36	E	VB18320001	MEWBOURNE OIL COMPANY	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4203138265266
23S	34E	36	F	VB18320001	MEWBOURNE OIL COMPANY	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4203138265266
23S	34E	36	G	VB18480001	MEWBOURNE OIL COMPANY	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4203138265266
23S	34E	36	H	VB18480001	MEWBOURNE OIL COMPANY	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4203138265266
23S	34E	36	I	VB18480001	MEWBOURNE OIL COMPANY	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4203138265266
23S	34E	36	J	VB18480001	MEWBOURNE OIL COMPANY	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4203138265266
23S	34E	36	K	VB18320001	MEWBOURNE OIL COMPANY	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4203138265266
23S	34E	36	L	VB18320001	MEWBOURNE OIL COMPANY	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4203138265266
23S	34E	36	M	VB18320001	MEWBOURNE OIL COMPANY	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4203138265266
23S	34E	36	N	VB18320001	MEWBOURNE OIL COMPANY	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4203138265266
23S	34E	36	O	VB18480001	MEWBOURNE OIL COMPANY	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4203138265266
23S	34E	36	P	VB18480001	MEWBOURNE OIL COMPANY	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4203138265266
23S	35E	30	M	NMNM 111971	DEVON ENERGY PROD CO LP	BLM (U.S.)	Bureau of Land Management	4204137266332
23S	35E	31	D	VA24780000	DEVON ENERGY PRODUCTION COMPANY, LP	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4206137114659
23S	35E	31	E	VA24780000	DEVON ENERGY PRODUCTION COMPANY, LP	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4206137114659
23S	35E	31	L	VA24880000	DEVON ENERGY PRODUCTION COMPANY, LP	State (NM)	LIMESTONE BASIN PROP RANCH LLC	4206137114659
24S	34E	01	B	NMNM 077090	AQUINNAH RESOURCES LLC	BLM (U.S.)	Bureau of Land Management	4203139398265
24S	34E	01	C	NMNM 077090	AQUINNAH RESOURCES LLC	BLM (U.S.)	QUAIL RANCH LLC	4203139134200
24S	34E	01	D	NMNM 113417	THE ALLAR CO	BLM (U.S.)	QUAIL RANCH LLC	4203139134200
24S	34E	02	A	L070400002	BOB L JOHNSON	State (NM)	State of New Mexico	4202139266266
24S	34E	02	B	L070400002	BOB L JOHNSON	State (NM)	State of New Mexico	4202139266266
24S	34E	02	C	L070400002	BOB L JOHNSON	State (NM)	State of New Mexico	4202139266266

Table 3
Produced Water

wellname	api	latitude	longitude	section	township	range	unit	ftgns	ftgew	county	state	ph	tds_mgL	resistivity_ohm_cm	sodium_mgL	calcium_mgL	iron_mgL	magnesium_mgL	manganese_mgL	chloride_mgL	bicarbonate_mgL	sulfate_mgL	co2_mgL	o2_mgL
RIO BLANCO 4 FEDERAL COM #003	3002536425	32.3309593	-103.4718094	4	23S	34E	J	1650S	1650E	Lea	NM	6.1	179000.8		53519.9	12080.6	38.7	1748.7	2.4	109000	122	0	200	
BELL LAKE UNIT #006	3002508483	32.3282585	-103.507103	6	23S	34E	O	660S	1980E	LEA	NM	7	71078							42200	500	1000		
BELL LAKE UNIT #002	3002508489	32.2701836	-103.5112457	30	23S	34E	N	660S	3300E	LEA	NM		52115							32200	451	529		
RIO BLANCO 4 FEDERAL COM #003	3002536425	32.3309593	-103.4718094	4	23S	34E	J	1650S	1650E	Lea	NM	7	254017.1	0.025	62818	24835.8	47	4233.5	5.48	160463.8	244	425	1000	
MAD DOG 15 FEDERAL COM #001	3002536778	32.299202	-103.4514999	15	23S	34E	P	660S	660E	Lea	NM	6.07	185742	0.034	60151.2	9297	80.6	1501	1.68	113474.4	341.6	560	800	
CABALLO 9 STATE #001	3002534577	32.321888	-103.4814224	9	23S	34E	E	1650N	660W	Lea	NM	7.81	71862.4		24399.6	2685.9	462.1	367.8	2.86	42700	576	0	0	
MAD DOG 15 FEDERAL COM #001	3002536778	32.299202	-103.4514999	15	23S	34E	P	660S	660E	Lea	NM	6.9	71718.6		23830.8	2540	0	346.3	0	42400	610	170	100	
RIO BLANCA 4 FEDERAL COM #001	3002534515	32.3354988	-103.4771652	4	23S	34E	F	1980N	1980W	Lea	NM	6.1	43388.1		13982.1	1697	363	243		25721	207	574		
RIO BLANCA 4 FEDERAL COM #001	3002534515	32.3354988	-103.4771652	4	23S	34E	F	1980N	1980W	Lea	NM	6.1	70316.5		25492.9	1361	7	162		41669	228.1	1011	100	
RIO BLANCO 9 STATE #001	3002536302	32.3246078	-103.4733582	9	23S	34E	B	660N	2129E	Lea	NM	5.6	65810.3		15070.8	6754	28	2137		41261	165.9	277		
MAD DOG 15 FEDERAL COM #001	3002536778	32.299202	-103.4514999	15	23S	34E	P	660S	660E	Lea	NM	6.2	71521.1		25245.7	1754	5	255		42308	207.4	1176	75	
RIO BLANCA 4 FEDERAL COM #001	3002534515	32.3354988	-103.4771652	4	23S	34E	F	1980N	1980W	Lea	NM	5.7	84267.8		28936.1	2670	64	383		50154	153.7	1230		
RIO BLANCO 9 STATE #001	3002536302	32.3246078	-103.4733582	9	23S	34E	B	660N	2129E	Lea	NM	5.9	83217.6		28207.2	2817	1	493		49511	290.4	1188		
MAD DOG 15 FEDERAL COM #001	3002536778	32.299202	-103.4514999	15	23S	34E	P	660S	660E	Lea	NM	5.8	81393.3		27656.1	2657	9.5	497		48230	331.8	1340		
RIO BLANCA 4 FEDERAL COM #001	3002534515	32.3354988	-103.4771652	4	23S	34E	F	1980N	1980W	Lea	NM	5.9	76404.4		25237.5	2495	1087	329		45259	290.4	1093		
RIO BLANCO 9 STATE #001	3002536302	32.3246078	-103.4733582	9	23S	34E	B	660N	2129E	Lea	NM	5.9	74771.3		25099.8	2724	5	454		44417	311.1	1123		
MAD DOG 15 FEDERAL COM #001	3002536778	32.299202	-103.4514999	15	23S	34E	P	660S	660E	Lea	NM	5.8	72187.8		24914.3	2151	7.5	345		42673	331.8	1198		
RIO BLANCA 4 FEDERAL COM #001	3002534515	32.3354988	-103.4771652	4	23S	34E	F	1980N	1980W	Lea	NM	6.1	74296		25272.2	2538	47	343		44022	456.3	1031	60	
RIO BLANCO 9 STATE #001	3002536302	32.3246078	-103.4733582	9	23S	34E	B	660N	2129E	Lea	NM	6	74579		25426.9	2472	33	363		44159	414.8	1112	50	
MAD DOG 15 FEDERAL COM #001	3002536778	32.299202	-103.4514999	15	23S	34E	P	660S	660E	Lea	NM	6.1	73515.4		25199.7	2394	22	320		43444	456.3	1134	25	
MAD DOG 15 FEDERAL COM #001	3002536778	32.299202	-103.4514999	15	23S	34E	P	660S	660E	Lea	NM	6.6	73741.5		24583.3	2814	5	363	0.2	42853	732	1724		
ANTELOPE RIDGE UNIT #003	3002521082	32.2593155	-103.4610748	34	23S	34E	K	1980S	1650W	LEA	NM	6.9	80187							47900	476	900		
CABALLO 9 STATE #001	3002534577	32.321888	-103.4814224	9	23S	34E	E	1650N	660W	Lea	NM	6.9	70554		22500.6	2476.8	0	337.7	0	42521	732	1299	200	
RIO BLANCO 9 STATE #001	3002536302	32.3246078	-103.4733582	9	23S	34E	B	660N	2129E	Lea	NM	6.2	192154		54068.3	13499.7	59.3	1983	2.7	119614	122	943	200	
BELL LAKE UNIT #009	3002520261	32.3028488	-103.5110779	18	23S	34E	K	1980S	1980W	LEA	NM		204652							130000	512	260		
MAD DOG 15 FEDERAL COM #001	3002536778	32.299202	-103.4514999	15	23S	34E	P	660S	660E	Lea	NM	7	77292.8		25964.7	2876	1	378	0.08	45890	244	1186	100	
MAD DOG 15 FEDERAL COM #001	3002536778	32.299202	-103.4514999	15	23S	34E	P	660S	660E	Lea	NM	8.4	69356		24262.3	1833	4.5	298	0.2	40711	366	1404	20	
CABALLO 9 STATE #001	3002534577	32.321888	-103.4814224	9	23S	34E	E	1650N	660W	Lea	NM	7	122402.2		38021	6823	11	1120	1	73600	622.2	1213	300	
ANTELOPE RIDGE UNIT #002	3002520444	32.2520561	-103.4717407	4	24S	34E	B	660N	1650E	LEA	NM	6.7	51475							31000	317	340		
FALCON FEDERAL #001	3002532190	32.244812	-103.4173355	1	24S	34E	I	1980S	660E	LEA	NM	7	60992		33879	2560		240		56000	392	1800		2
RED BULL 31 STATE #002	3002537069	32.2565651	-103.4023438	31	23S	35E	P	983S	1298E	Lea	NM	6.9	258268.6	0.025	73826.2	19030	31.6	4042	3.31	159864	73.2	490	300	
SWEETNESS 30 STATE FED COM #001H	3002541864	32.278347	-103.4042511	30	23S	35E	G	1650N	1887E	Lea	NM	8.5	67516.1	0.095	23558.7	2923.2	0.1	401	0.03	39091.2	732	740	200	
NORTH CUSTER MOUNTAI #001	3002521601	32.2810211	-103.3746414	28	23S	35E	C	660N	1980W	LEA	NM		39074							23980	488	465		
SWEETNESS 30 STATE FED COM #001H	3002541864	32.278347	-103.4042511	30	23S	35E	G	1650N	1887E	Lea	NM	5.5			57782	18114	29	2755	3.3	130601	122	920	300	
RED BULL 31 STATE #001	3002536798	32.2574463	-103.4067612	31	23S	35E	N	1300S	2610W	Lea	NM	5.69	280094		78620	21967	62	4035		173149	87	385		
RED BULL 31 STATE #002	3002537069	32.2565651	-103.4023438	31	23S	35E	P	983S	1298E	Lea	NM	5.52	271366.2		85907.7	14750	39	2346	4	166106	24	778	280	
KELLER 4 STATE #001	3002536643	32.3318176	-103.3762283	4	23S	35E	K	1980S	1475W	Lea	NM	6.9	182379.5		68450.6	846	54	104	1	100659	292.8	10609		
SWEETNESS 30 STATE FED COM #001H	3002541864	32.278347	-103.4042511	30	23S	35E	G	1650N	1887E	Lea	NM	5.5			53792	19065	78	2983	4.34	126850	122	690	220	
RED BULL 29 FEDERAL #001H	3002540628	32.2818451	-103.3969345	29	23S	35E	D	375N	375W	Lea	NM	6.3			71207	35626	28	5417	6.2	190774	61	90	120	
SWEETNESS 30 STATE FED COM #001H	3002541864	32.278347	-103.4042511	30	23S	35E	G	1650N	1887E	Lea	NM	6			75025	29081	22	4416	4.9	178278	37	380	520	
SWEETNESS 30 STATE FED COM #001H	3002541864	32.278347	-103.4042511	30	23S	35E	G	1650N	1887E	Lea	NM	5.8			65779	26380	23	5455	5.6	164000	49	269	880	

Table 4 - Chemistry of Produced Water from Formations

wellname	api	section	township	range	unit	county	state	field	formation	depth	samplesource	sampledate	ph	specificgravity	specificgravity_temp_F	tds_mgL	resistivity_ohm_cm	resistivity_ohm_cm_temp_F	conductivity	conductivity_temp_F	sodium_mgL	calcium_mgL	magnesium_mgL	chloride_mgL	bicarbonate_mgL	sulfate_mgL
MCKITTRICK FED #1	3001500135	25	22S	25E	G	EDDY	NM		DEVONIAN		DST					16200							8762	290	1175	
MCKITTRICK FED #1	3001500135	25	22S	25E	G	EDDY	NM		DEVONIAN		DST					17510							9389	664	982	
CARNERO PEAK UT #001	3001510053	31	22S	25E	A	EDDY	NM		DEVONIAN		DST					14601							7236	515	1487	
CARNERO PEAK UT #001	3001510053	31	22S	25E	A	EDDY	NM		DEVONIAN		DST					15780							8126	336	1467	
CARNERO PEAK UT #001	3001510053	31	22S	25E	A	EDDY	NM		DEVONIAN		DST					15580							7853	487	1488	
BANDANA POINT UT #001	3001500044	13	23S	23E	O	EDDY	NM	BANDANA POINT	DEVONIAN		DST					15500							8020	500	1190	
TORTOISE ASB COM #001	3001510490	29	23S	24E	G	EDDY	NM		DEVONIAN		DST					17861							7760	490	3100	
TORTOISE ASB COM #001	3001510490	29	23S	24E	G	EDDY	NM		DEVONIAN		DST					15601							7780	476	1600	
REMUDA BASIN UNIT #001	3001503691	24	23S	29E	J	EDDY	NM	REMUDA	DEVONIAN		SWAB					64582							37500	610	1700	
REMUDA BASIN UNIT #001	3001503691	24	23S	29E	J	EDDY	NM	REMUDA	DEVONIAN		SWAB					56922							29000	1740	4980	
BELL LAKE UNIT #006	3002508483	6	23S	34E	O	LEA	NM	BELL LAKE NORTH	DEVONIAN		HEATER TREATER		7			71078							42200	500	1000	
ANTELOPE RIDGE UNIT #003	3002521082	34	23S	34E	K	LEA	NM	ANTELOPE RIDGE	DEVONIAN		UNKNOWN	14/11/1967 0:00	6,9			80187							47900	476	900	
ANTELOPE RIDGE UNIT #003	3002521082	34	23S	34E	K	LEA	NM	ANTELOPE RIDGE	DEVONIAN		UNKNOWN	14/11/1967 0:00	6,9			80187							47900	476	900	
CLINE FEDERAL #001	3002510717	14	23S	37E	K	LEA	NM	CLINE	DEVONIAN		PRODUCTION TEST					118979							71280	462	2593	
E C HILL B FEDERAL #001	3002510945	34	23S	37E	A	LEA	NM	TEAGUE	DEVONIAN		UNKNOWN					112959							67390	288	2765	
E C HILL D FEDERAL #001	3002510947	34	23S	37E	H	LEA	NM	TEAGUE	DEVONIAN		UNKNOWN					35639										
E C HILL D FEDERAL #004	3002510950	34	23S	37E	A	LEA	NM	TEAGUE	DEVONIAN		UNKNOWN					236252							147000	129	781	
HUAPACHE #003	3001500020	22	24S	22E	F	EDDY	NM		DEVONIAN		DST					3110							48	246	2020	
JURNEGAN POINT #001	3001510280	5	24S	25E	M	EDDY	NM	WILDCAT	DEVONIAN		DST	14/12/1964 0:00	7			229706							136964	198	2511	
JURNEGAN POINT #001	3001510280	5	24S	25E	M	EDDY	NM	WILDCAT	DEVONIAN		DST	14/12/1964 0:00	7			203100							121100	175	2220	
WHITE CITY PENN GAS COM UNIT 1 #001	3001500408	29	24S	26E	A	EDDY	NM		DEVONIAN		DST	01/03/1960 0:00	7	1,012	60		0,36	75	25596	64	6072	1002	132	10120	653	1336
STATE B COM #001	3002509716	36	24S	36E	C	LEA	NM	CUSTER	DEVONIAN		UNKNOWN					176234							107400	128	1004	
ELLIOTT H FEDERAL #001	3002512272	31	24S	38E	H	LEA	NM	DOLLARHIDE	DEVONIAN		WELLHEAD					58687										
ELLIOTT H FEDERAL #001	3002512272	31	24S	38E	H	LEA	NM	DOLLARHIDE	DEVONIAN		WELLHEAD					57018										
WEST DOLLARHIDE DEVONIAN UNIT #104	3002512297	32	24S	38E	I	LEA	NM	DOLLARHIDE	DEVONIAN		WELLHEAD					50858							30200	183	980	
WESTATES FEDERAL #004	3002511389	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		DST	17/06/1961 0:00	6			80880							46200	340	3050	
WESTATES FEDERAL #004	3002511389	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		DST					84900							48600	840	2650	
WESTATES FEDERAL #004	3002511389	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		DST					72200							41000	370	2960	
WESTATES FEDERAL #004	3002511389	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		DST					80900							46200	340	3050	
WESTATES FEDERAL #004	3002511389	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		DST					77600							44000	550	3240	
WESTATES FEDERAL #004	3002511389	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		DST					135000							77000	650	5810	
WESTATES FEDERAL #004	3002511389	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		DST					114000							65000	280	5110	
WESTATES FEDERAL #004	3002511389	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		DST					135000							77000	500	5320	
WESTATES FEDERAL #008	3002511393	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		UNKNOWN					91058							51020	376	4783	
WESTATES FEDERAL #008	3002511393	1	25S	37E	E	LEA	NM	JUSTIS NORTH	FUSSELMAN		UNKNOWN					86847							50450	363	2544	
STATE NJ A #001	3002511398	2	25S	37E	A	LEA	NM	JUSTIS NORTH	DEVONIAN		DST					105350							59300	660	4950	
NEW MEXICO BM STATE #002	3002511407	2	25S	37E	I	LEA	NM	JUSTIS NORTH	MONTOYA		UNKNOWN					77770							45500	1800	2400	
HALE STATE #003	3002512581	2	25S	37E	H	LEA	NM	JUSTIS NORTH	MONTOYA		WELLHEAD					64916							37000	813	2500	
SOUTH JUSTIS UNIT #016F	3002511556	13	25S	37E	F	LEA	NM	JUSTIS	FUSSELMAN		UNKNOWN					57675							34030	595	1211	
LEARCY MCBUFFINGTON #008	3002511569	13	25S	37E	N	LEA	NM	203MNTY, 259FSLM	FUSSELMAN	7052		02/01/1900 0:00	7,6	1,037	78	67909			81429	67		2603	684	38887	742	2489
LEARCY MCBUFFINGTON #008	3002511569	13	25S	37E	N	LEA	NM	JUSTIS	MONTOYA		UNKNOWN					67898							38880	742	2489	
A B COATES C FEDERAL #014	3002511736	24	25S	37E	G	LEA	NM	JUSTIS	MONTOYA		UNKNOWN					39261							22840	871	1030	
SOUTH JUSTIS UNIT #023C	3002511760	25	25S	37E	C	LEA	NM	JUSTIS	FUSSELMAN		SEPARATOR					63817							35870	360	3442	
CARLSON A #002	3002511764	25	25S	37E	I	LEA	NM	JUSTIS	FUSSELMAN		DST					208280							124000	510	3400	
STATE Y #009	3002511777	25	25S	37E	A	LEA	NM	JUSTIS	FUSSELMAN		DST	17/03/1961 0:00	7,3			219570							129000	960	4630	
STATE Y #009	3002511777	25	25S	37E	A	LEA	NM	JUSTIS	FUSSELMAN		DST	18/03/1961 0:00	6,8			163430							96000	290	3780	
CARLSON B 25 #004	3002511784	25	25S	37E	P	LEA	NM	JUSTIS	FUSSELMAN		SEPARATOR					184030							112900	68	1806	
COPPER #001	3002511818	28	25S	37E	J	LEA	NM	CROSBY	DEVONIAN		UNKNOWN					27506							15270	1089	1079	
ARNOTT RAMSAY NCT-B #003	3002511863	32	25S	37E	A	LEA	NM	CROSBY	DEVONIAN	8797		02/01/1900 0:00		1,142	70							17244	5345	100382	476	
ARNOTT RAMSAY NCT-B #003	3002511863	32	25S	37E	A	LEA	NM	CROSBY	DEVONIAN		UNKNOWN					158761										
WEST DOLLARHIDE DEVONIAN UNIT #110	3002512386	5	25S	38E	B	LEA	NM	DOLLARHIDE	DEVONIAN		UNKNOWN					56776										
FARNSWORTH FEDERAL #006	3002511950	4	26S	37E	A	LEA	NM	CROSBY	DEVONIAN		UNKNOWN					31931							20450	302	591	

OSE Well Logs – NO WATER SUPPLY WELLS

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Since 1996
Artesia ▲ Carlsbad ▲ Durango ▲ Midland

August 6, 2019

Hobbs News Sun
201 N. Thorp
P.O. Box 850
Hobbs, N.M. 88240

LEGAL NOTICE

AWR Disposal LLC, 3300 N. A Street, Ste. 220, Midland, TX 79705 filed Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the LTD SWD #1 will be located 1,281 feet from the North line and 233 feet from the West line, Section 36, Township 23 South, Range 34 East, Lea County, New Mexico. Produced water from area production will be commercially disposed into the Devonian, Fusselman and Montoya Formations at a depth of 15,085 feet to 17,082 feet at a maximum surface pressure of 3,000 psi and an average injection rate of 30,000 barrels per day. The proposed SWD well is located approximately 31.5 miles southwest of Eunice, New Mexico.

Interested parties wishing to object to the proposed application must file with the New Mexico Oil Conservation Division, 1220 S. St. Francis Dr., Santa Fe, NM 87505 (505) 476-3460 within 15 days of the date of this notice.

Additional information can be obtained by contacting Mr. Randall Hicks, agent for Accelerated Water Resources, LP, at 505-238-9515.

Sincerely,
R.T. Hicks Consultants



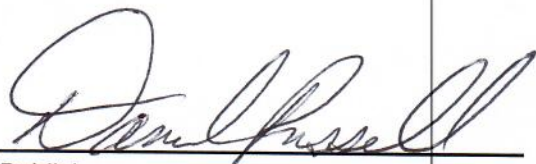
Randall Hicks
Principal

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

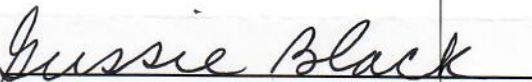
I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

Beginning with the issue dated
August 06, 2019
and ending with the issue dated
August 06, 2019.



Publisher

Sworn and subscribed to before me this
6th day of August 2019.



Business Manager

My commission expires
January 29, 2023

(Seal)



OFFICIAL SEAL
GUSSIE BLACK
Notary Public
State of New Mexico

My Commission Expires 1-29-23

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 AUGUST 6, 2019

AWR Disposal LLC, 3300 N. A Street, Ste. 220, Midland, TX 79705 filed Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the LTD SWD #1 will be located 1,281 feet from the North line and 233 feet from the West line, Section 36, Township 23 South, Range 34 East, Lea County, New Mexico. Produced water from area production will be commercially disposed into the Devonian, Fusselman and Montoya Formations at a depth of 15,085 feet to 17,082 feet at a maximum surface pressure of 3,000 psi and an average injection rate of 30,000 barrels per day. The proposed SWD well is located approximately 31.5 miles southwest of Eunice, New Mexico.

Interested parties wishing to object to the proposed application must file with the New Mexico Oil Conservation Division, 1220 S. St. Francis Dr., Santa Fe, NM 87505 (505) 476-3460 within 15 days of the date of this notice.

Additional information can be obtained by contacting Mr. Randall Hicks, agent for Accelerated Water Resources, LP, at 505-238-9515.

Sincerely,
R.T. Hicks Consultants
Randall Hicks
Principal
#34529

67115764

00231752

RANDALL HICKS
R.T. HICKS CONSULTANTS, LTD
901 RIO GRANDE BLVD NM
SUITE F-142
ALBUQUERQUE, NM 87104

R. T. HICKS CONSULTANTS, LTD.

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August 6, 2019

NOTIFICATION TO INTERESTED PARTIES

Via U.S. Certified Mail – Return Receipt Requested

To Whom It May Concern:

AWR Disposal LLC, Midland, Texas, has made application to the New Mexico Oil Conservation Division to drill and complete, for salt water disposal, the LTD SWD #1. The proposed commercial operation will be for produced water disposal from area operators. As indicated in the notice below, the well is located in Section 36 Township 23 South, Range 34 East, Lea County, New Mexico. The published notice states that the interval will be from 15,085 feet to 17,112 feet into the Silurian, Fusselman and Montoya Formations.

LEGAL NOTICE

AWR Disposal LLC, 3300 N. A Street, Ste. 220, Midland, TX 79705 filed Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the LTD SWD #1 will be located 1,281 feet from the North line and 233 feet from the West line, Section 36, Township 23 South, Range 34 East, Lea County, New Mexico. Produced water from area production will be commercially disposed into the Silurian, Fusselman and Montoya Formations at a depth of 15,085 feet to 17,112 feet at a maximum surface pressure of 3,000 psi and an average injection rate of 30,000 barrels per day. The proposed SWD well is located approximately 32 miles southwest of Eunice, New Mexico.

Interested parties wishing to object to the proposed application must file with the New Mexico Oil Conservation Division, 1220 S. St. Francis Dr., Santa Fe, NM 87505 (505) 476-3460 within 15 days of the date of this notice.

You have been identified as a party who may be interested as an offset lessee or operator. **IF YOU WOULD LIKE AN ELECTRONIC COPY OF THE ENTIRE PERMIT PACKAGE, PLEASE SEND YOUR REQUEST TO david@rthicksconsult.com** (request a read receipt to avoid your email becoming stuck in spam).

Thank you for your attention in this matter.

Sincerely,
R.T. Hicks Consultants



Randall Hicks
Principal

OPERATORS, LEASEHOLDERS AND SURFACE OWNERS WITHIN 1 MILE -RADIUS

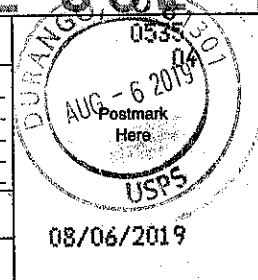
Aquinnah Resources, LLC LTD SWD #1 400 West Illinois Avenue # 1120 Midland, TX 79701	BOB L JOHNSON LTD SWD #1 2651 N HARWOOD ST 120 DALLAS, TX 75201	BOLD ENERGY, L.P. LTD SWD #1 600 N. MARIENFELD SUITE 1000 MIDLAND, TX 79701
Bureau of Land Management LTD SWD #1 620 E. Greene Street Carlsbad, NM 88220-6292	CENTENNIAL RESOURCE PRODUCTION, LLC LTD SWD #1 1001 17th Street, Suite 1800 Denver, CO 80202	CHESAPEAKE OPERATING, INC. LTD SWD #1 P. O. BOX 18496 OKLAHOMA CITY, OK 731540496
CHEVRON U S A INC LTD SWD #1 6301 DEAUVILLE BLVD MIDLAND, TX 79706	CIMAREX ENERGY CO. LTD SWD #1 600 N. Marienfeld Street Suite 600 Midland, TX 79701	COG OPERATING LLC LTD SWD #1 600 W Illinois Ave Midland, TX 79701
DEVON ENERGY PRODUCTION COMPANY, LP LTD SWD #1 333 West Sheridan Ave. Oklahoma City, OK 73102	FEATHERSTONE DEVELOPMENT CORPORATION LTD SWD #1 PO BOX 429 ROSWELL, NM 88202	J C WILLIAMSON LTD SWD #1 PO BOX 16 MIDLAND, TX 79702
LIMESTONE BASIN PROP RANCH LLC LTD SWD #1 18 DESTA DRIVE MIDLAND, TX 79705	MATADOR PRODUCTION COMPANY LTD SWD #1 One Lincoln Centre 5400 LBJ Freeway, Ste 1500 Dallas, TX 75240	MEWBOURNE OIL CO LTD SWD #1 P.O. BOX 7698 TYLER, TX 75711
MRC PERMIAN COMPANY LTD SWD #1 5400 LBJ FREEWAY SUITE 1500 DALLAS, TX 75240	New Mexico State Land Office LTD SWD #1 310 Old Santa Fe Trail Santa Fe, NM 87501	NORTEX CORPORATION LTD SWD #1 1415 LOUISIANASTE 3100 HOUSTON, TX 77002
OXY USA INC LTD SWD #1 PO BOX 4294 HOUSTON, TX 77210	PENROC OIL CORP LTD SWD #1 PO BOX 2769 HOBBS, NM 88241	QUAIL RANCH LLC LTD SWD #1 PO BOX 2795 RUIDOSO, NM 88355
REGENERATION ENERGY, CORPORATION LTD SWD #1 P. O. BOX 210 ARTESIA, NM 88210	THE ALLAR CO. LTD SWD #1 P. O. BOX 1567 GRAHAM, TX 76450	

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☐ Certified Mail Restricted Delivery \$0.00
☐ Adult Signature Required \$0.00
☐ Adult Signature Restricted Delivery \$0.00
Postage \$0.55
Total Postage and Fees \$4.85



Sent To Quinnah Resources LLC
Street and Apt. No., or PO Box No. LTD SWD #1
400 N Illinois Ave #1120
City, State, ZIP+4[®] Midland, TX 79701

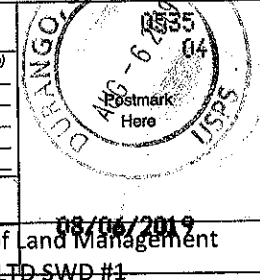
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Postage \$0.55
Total Postage and Fees \$4.85



Bureau of Land Management
LTD SWD #1
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620 E. Greene Street
Street and Apt. No., or PO Box No. Carlsbad, NM 88220-6292
City, State, ZIP+4[®]

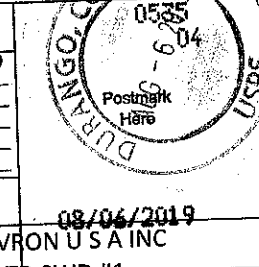
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☐ Adult Signature Required \$0.00
☐ Adult Signature Restricted Delivery \$0.00
Postage \$0.55
Total Postage and Fees \$4.85



08/06/2019
CHEVRON U S A INC
LTD SWD #1
Sent To
6301 DEAUVILLE BLVD
Street and Apt. No., or PO Box No. MIDLAND, TX 79706
City, State, ZIP+4[®]

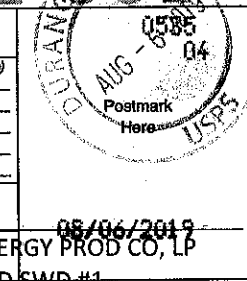
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☐ Adult Signature Required \$0.00
☐ Adult Signature Restricted Delivery \$0.00
Postage \$0.55
Total Postage and Fees \$4.85



08/06/2019
DEVON ENERGY PROD CO, LP
LTD SWD #1
Sent To
333 West Sheridan Ave
Street and Apt. No., or PO Box No. Oklahoma City, OK 73102
City, State, ZIP+4[®]

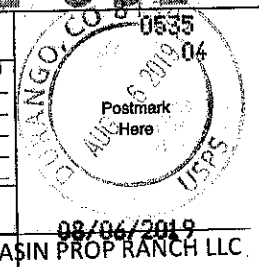
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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☐ Return Receipt (electronic) \$0.00
☐ Certified Mail Restricted Delivery \$0.00
☐ Adult Signature Required \$0.00
☐ Adult Signature Restricted Delivery \$0.00
Postage \$0.55
Total Postage and Fees \$4.85



08/06/2019
LIMESTONE BASIN PROP RANCH LLC
LTD SWD #1
Sent To
18 DESTA DRIVE
Street and Apt. No., or PO Box No. MIDLAND, TX 79705
City, State, ZIP+4[®]

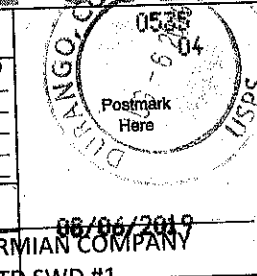
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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DALLAS, TX 75240

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☐ Return Receipt (electronic) \$0.00
☐ Certified Mail Restricted Delivery \$0.00
☐ Adult Signature Required \$0.00
☐ Adult Signature Restricted Delivery \$0.00
Postage \$0.55
Total Postage and Fees \$4.85



08/06/2019
MRC PERMIAN COMPANY
LTD SWD #1
Sent To
5400 LBJ FREEWAY
Street and Apt. No., or PO Box No. SUITE 1500
City, State, ZIP+4[®] DALLAS, TX 75240

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

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August 8, 2019

Mr. Phillip Goetze, P.G.
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

RE: AWR Disposal LLC LTD SWD #1
UL M, Section 36 T23S R34E, Lea County

Dear Mr. Goetze:

On behalf of AWR Disposal LLC, R.T. Hicks Consultants is providing data and an opinion regarding the probability that injection of wastewater in the above referenced well at the proposed rates will cause seismic events of sufficient magnitude to create damage. It is our understanding that OCD is interested in such an opinion as part of the SWD approval process. We elected to provide this opinion as a separate submission as the C-108 does not specifically require such an opinion.

We relied upon the following data to develop our opinion

- State of stress in the Permian Basin, Texas and New Mexico: Implications for induced seismicity, Jens-Erik Lund Snee and Mark D. Zoback, The Leading Edge, February 2018¹
- Plate 5, which is reproduced from the Snee and Zoback publication, which uses the following references
 - Crone, A. J., and R. L. Wheeler, 2000, Data for Quaternary faults, liquefaction features, and possible tectonic features in the Central and Eastern United States, east of the Rocky Mountain front; U.S. Geological Survey Open-File Report.
 - Ewing, T. E., R. T. Budnik, J. T. Ames, and D. M. Ridner, 1990, Tectonic map of Texas: Bureau of Economic Geology, University of Texas at Austin.
 - Green, G. N., and G. E. Jones, 1997, a digital geologic map of New Mexico in ARC/INFO format: U.S. Geological Survey Open-File Report.
 - Ruppel, S. C., R. H. Jones, C. L. Breton, and J. A. Kane, 2005, Preparation of maps depicting geothermal gradient and Precambrian structure in the Permian Basin: USGS Order no. 04CRSA0834 and Requisition no. 04CRPR01474.
 - NMOCD database of oil and gas wells
- Plate 5, which shows the distribution of active and new SWD wells in the area of the proposed AWR Disposal SWD well
- Stratigraphic and lithologic information from two deep wells in the Delaware Basin
- Data on the thickness and lithology of the Simpson Group from the Texas Bureau of Economic Geology²

¹ https://scits.stanford.edu/sites/default/files/3702_tss_lundsnee_v2.pdf

² http://www.beg.utexas.edu/resprog/permianbasin/PBGSP_members/writ_synth/Simpson.pdf

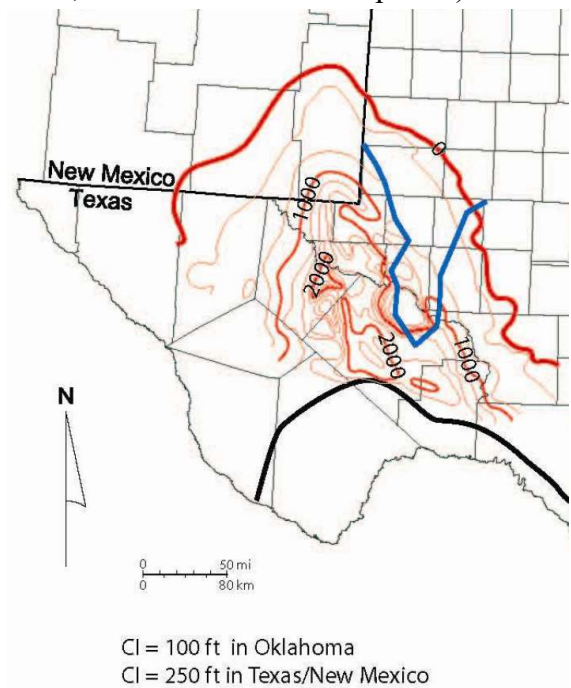
Plate 5 reproduces Figure 3 of the 2018 publication of Snee and Zoback and shows

1. Fault traces based upon the references provided above for which Dr. Snee and Dr. Zoback provide a value of the fault slip potential (FSP)
2. Areas of documented seismic activity, and a magnitude 2.0-2.9 earthquake that occurred between 1970-2004 about 10 miles south of the proposed LTD SWD #1. A slightly larger magnitude and more recent seismic event is reported about 25 miles west of the LTD SWD #1 well location.
3. Although Plate 5 does not show faults that may be identified in confidential seismic data owned by oil and gas operators, the closest mapped basement fault that was re-activated during Woodford time is about 2 miles to the west) exhibits a low FSP (less than 5%) based upon the modeling and analysis of Snee and Zoback referenced above
4. Other mapped faults in southern Lea County shown on Plate 5 also show a low FSP, except for part of southwest-northeast trending fault about 32 miles north-northwest of the LTD SWD #1 well that has a FSP of about 25 – 33% in the central portion of this fault trace.

Plate 6 reproduces the major elements of Plate 5 in the inset map and also shows that within a 6 mile radius around the proposed LTD SWD #1, the OCD database shows about 3 active and 2 new Devonian SWDs, which translates into an average density of about one SWD for every 22 square miles.

Figure 4 from the referenced Bureau of Economic Geology (The Middle-Upper Ordovician Simpson Group of the Permian Basin: Deposition, Diagenesis, And Reservoir Development) is attached to this letter and the portion of that figure for the Delaware Basin is shown to the right. In southern Lea County the mapped thickness appears to be 500-1500 feet thick (note one contour line appears to be missing on the map). This unit, which is clay-rich carbonate interbedded with shale and sandstone, provides an excellent permeability/pressure barrier between the injection zone and the basement faults that were re-activated during Woodford time.

Data from the Amoco Federal CW Com 1 (3002528119) show that the thickness of the Simpson in the Antelope Ridge area of Lea County (Section 3 24S 34E) is about 450 feet thick with. This is consistent with Figure 4 of the BEG paper (probably because this well was used to produce the isopach map).



We contend that the data permit conclusion that unmapped faults (which may be located by confidential seismic data that AWR Disposal does not possess) near the LTD SWD #1 would be dominantly north-south normal faults, as is common in Lea County. The data on Plate 6 permit a

August 6, 2019

Page 3

conclusion that faults near the LTD SWD #1 are also most likely to exhibit a low FSP, like the mapped faults shown on Plate 5.

Given the density of Devonian SWDs (planned/new and active) near the proposed LTD SWD #1 well and the high likelihood that any unmapped faults in the area would exhibit a low FSP, the probability that injection into the LTD SWD #1 would cause an increase in pore pressure to trigger a seismic event of sufficient magnitude to cause damage is very low.

The users of this letter should recognize the uncertainties of using seismic maps of the Permian Basin to determine probability that injection of wastewater into a single SWD well could cause seismic events of sufficient magnitude to cause damage. However, on a regional basis injection by numerous wells into the Devonian/Fusselman/Montoya interval will raise the hydrostatic pressure. If pressure increases sufficiently, fluid could migrate from the injection zone along fault planes, up and down. Downward fluid migration will be intercepted first by the sandstone units of the Simpson Group. After fluid pressure increases in these sandstones, fluid would migrate downward into the Ellenberger Formation, which lies beneath the Simpson Group. This downward migration will next enter the permeable units of the Ellenberger and, over time, increase the fluid pressure. After fluid pressure in the Ellenberger is sufficiently large to cause downward migration along fault planes or other conduits, the migrating fluid will, in some areas, enter a thinner horizon of granite wash. Downward migrating fluids from the injection zone could then enter basement fault planes if the pressure in the granite wash horizon is sufficient, and reduce the frictional resistance (lubricate the faults). Reduction in the frictional force in faults due to fluid invasion can and has caused seismic events. In my opinion, the probability that injection into the LTD SWD will measurably contribute to the events described above and will cause a seismic event resulting in damage is so low as to be nil.

Sincerely,
R.T. Hicks Consultants

A handwritten signature in black ink, appearing to read "Randall T. Hicks". The signature is stylized with a large, looped "R" and a cursive "H".

Randall T. Hicks
Principal

Copy: AWR Disposal LLC

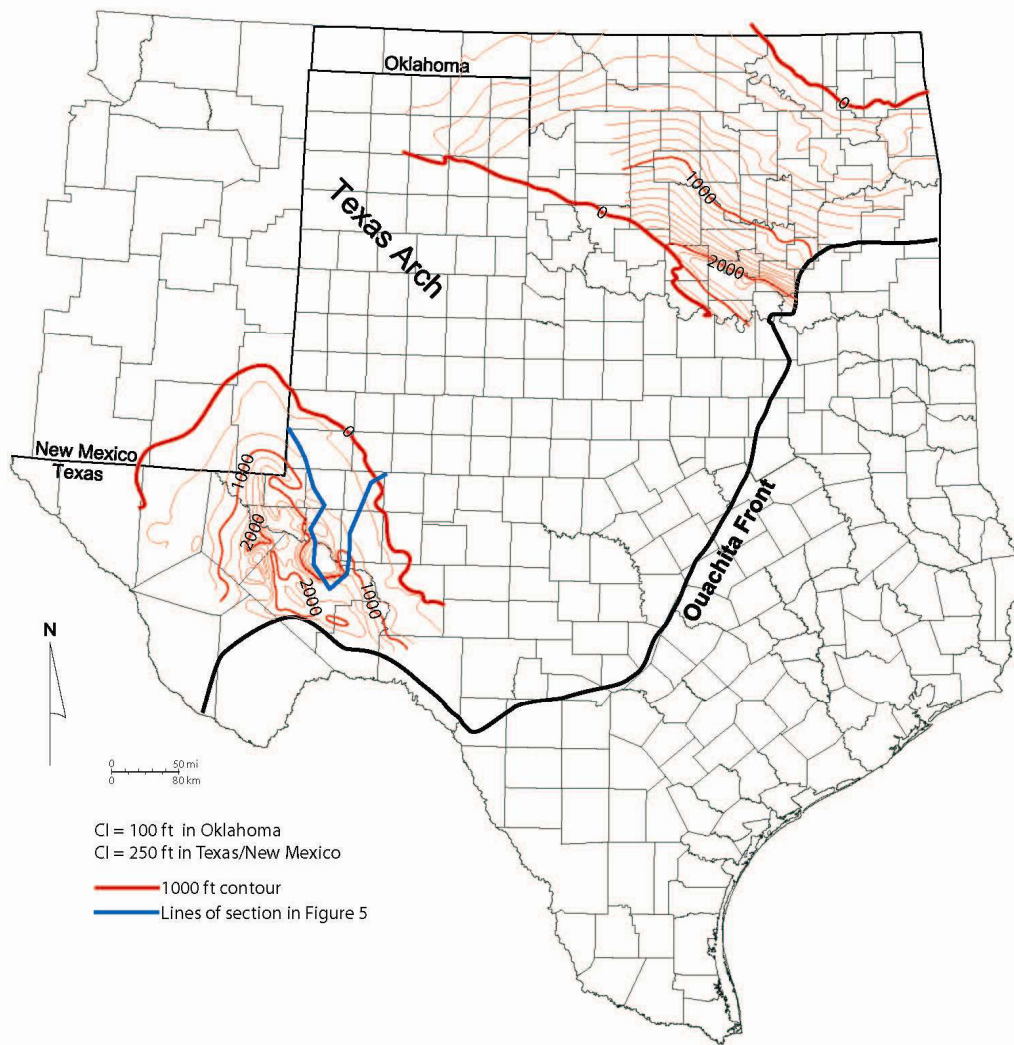
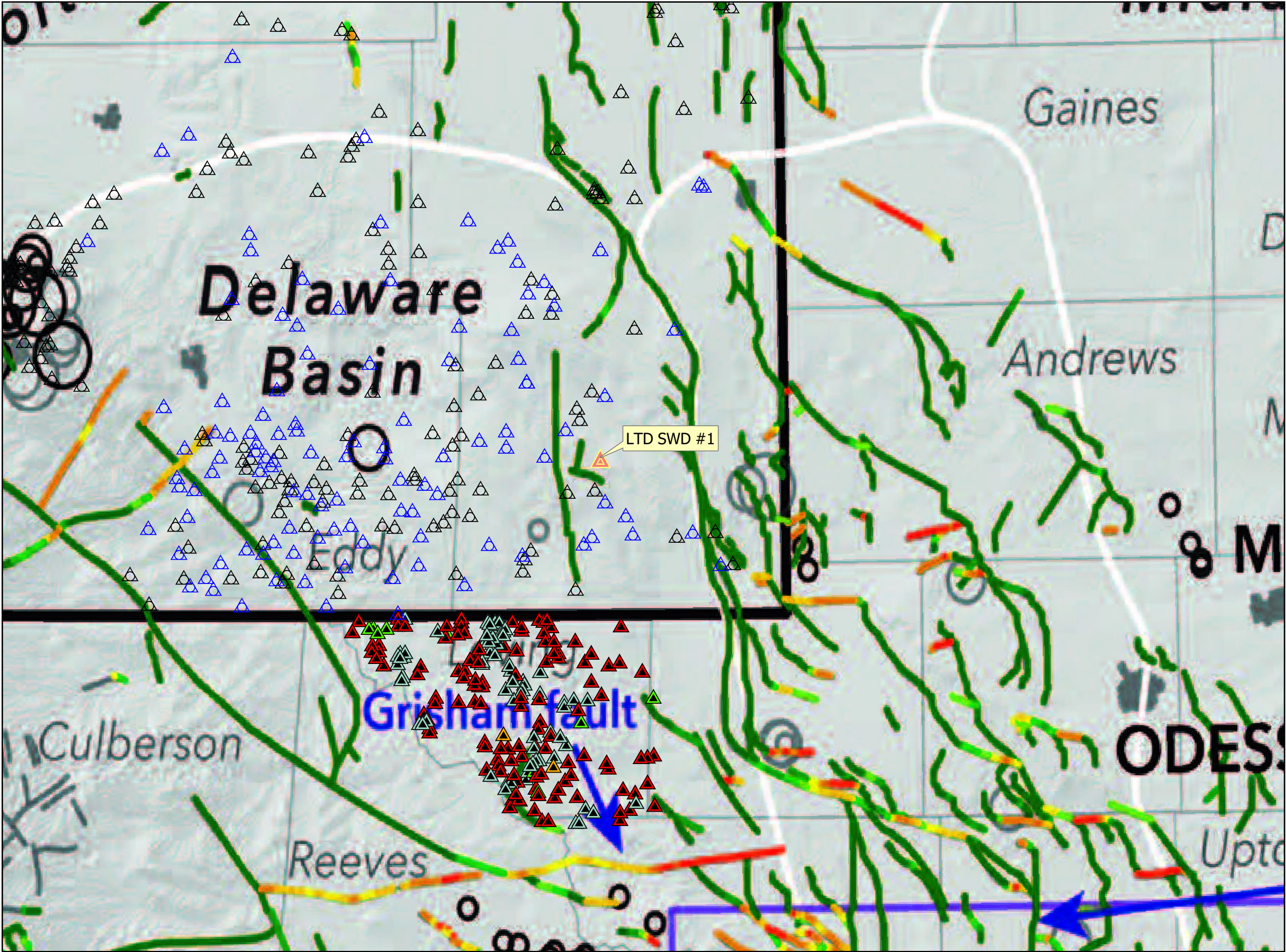


Figure 4. Thickness map of Simpson Group modified from Texas Water Development Board (1972), Frenzel and others (1988), and Northcutt and Johnson (1997). Thousand-foot contour lines and locations of figure 5 cross sections shown in heavy red and blue lines, respectively. Note that contour interval is 100 ft for Oklahoma and 250 ft for Texas and New Mexico.



Seismic and Fault Slip Potential-
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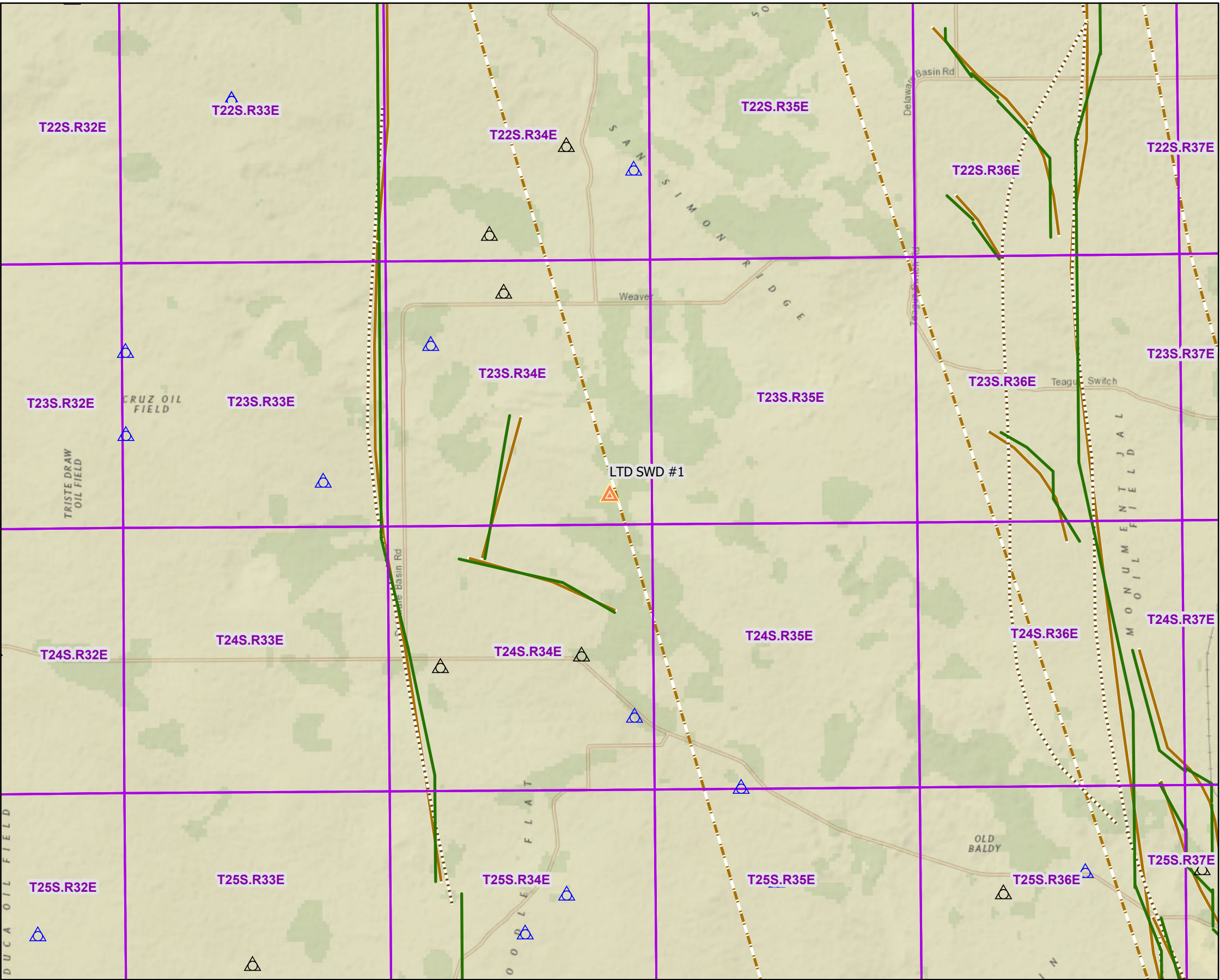
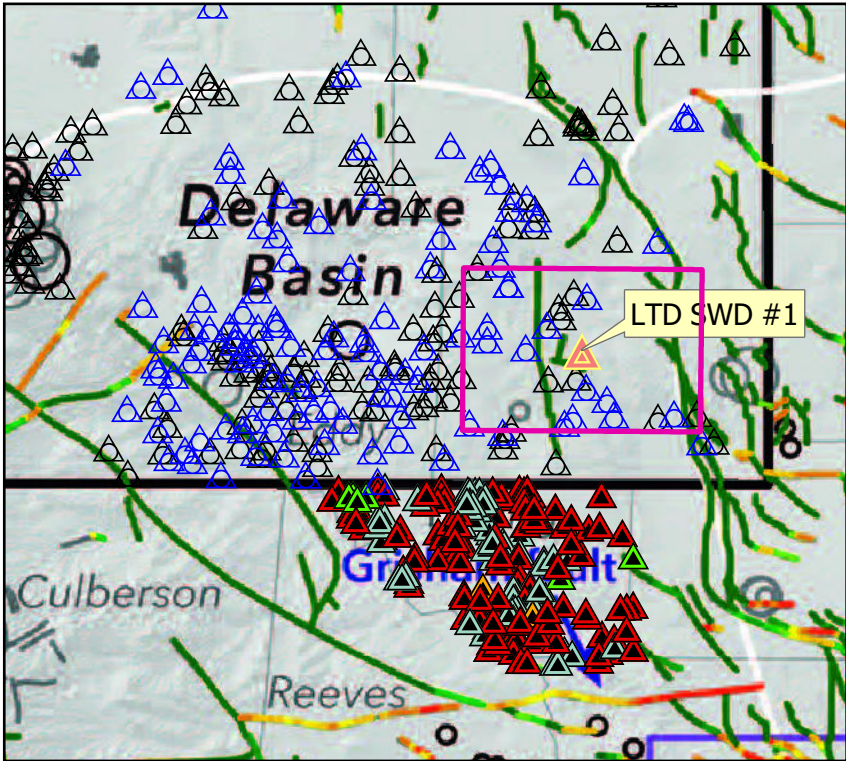
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Seismicity and Fault Slip Potential

AWR Disposal, LLC
LTD SWD #1

Plate 5

August 2019



 SWD

Oil and Gas (NMOCD)

 Salt Water Injection, Active

 Salt Water Injection, New

Faults

 Fault - Basement

 Fault - Precambrian

 Fault - Woodford

Fault Slip Potential (%)

 <5

Township Range Section

 Township Range

Seismic and Fault Slip Potential-
Ewing et al. (1990), Green and Jones (1997), Ruppel
et al. (2005), and the USGS Quaternary Faults and
Folds Database (Crone and Wheeler, 2000).

