

Report Date: 4/8/2019

Bedrock Aquifer Evaluation Determination Tool

Denver Basin Aquifer - Specific Location Determination Tool

Applicant: PDC - 123-13432 L.F.
Ranch 13-4

Receipt No:

Evaluated By:

Location: NW 1/4 of NW 1/4 of Sec. 13, T.3N, R.64W. (990 NSL, 990 WSL)

Basin Designation: Location is within the UNKNOWN Designated Ground Water Basin.

Ground Surface Elevation: 4732 Feet **Number of Acres:** 160

Warning! The depth intervals estimated in this area may vary from actual conditions due to lack of data and/or structural complexity.

Aquifer	Elevation (ft)		Net Sand	DEPTH (ft)		ANNUAL APRPROP. (A-F)	STATUS
	Bot	Top		Bot	Top		
Upper Dawson	--	--	--	--	--	--	--
Lower Dawson	--	--	--	--	--	--	--
Denver	--	--	--	--	--	--	--
Upper Arapahoe	--	--	--	--	--	--	--
Lower Arapahoe	--	--	--	--	--	--	--
Laramie-Fox Hills	4247	4582	168.3	485	150	40.40	NT

NOTE: 'E' indicates a location is at an aquifer boundary and the values may be more approximate.

Plug and Abandon Surface Casing Check

Operator	PDC					
API or Doc #	123-13432	L.F. Ranch 13-4		OG GR	WW GR	Elev Diff
SB5 Base of Fox Hills	485	L-FH				
Deepest Water Well Within One Mile / number of wells		/				
Deepest Water Well Within Two Miles / number of wells	602	/	8	4732	4700	32
Sussex / Shannon Production within one mile	Y	/	N			
Operator Existing Surface Casing Depth	341					
Production Casing to be pulled	1700					
Required aquifer protection depth in this well	602	32	50	684		

Water Wells Selected From Map
Filter Results by Depth

602 ft
8 wells 2 mi

WELL DESCRIPTION	LOCATION	WELL INFORMATION		
		Depth	Top Perf	Bottom Perf Aquifer
Receipt=9059911, Permit=7896--- L & F RANCH	NWSW 1 3.0 N -64.0 W	0	0	0 ALL UNNAMED AQUIFERS
Receipt=9065297, Permit=72814--- L F RANCH CO	SESW 13 3.0 N -64.0 W	0	0	0 ALL UNNAMED AQUIFERS
Receipt=9060556, Permit=11048--- 2 E RANCHES INC	SESW 15 3.0 N -64.0 W	0	0	0 ALL UNNAMED AQUIFERS
Receipt=C620379, Permit=379-WCB-- L-F RANCH	NWSE 2 3.0 N -64.0 W	42	0	0 ALL UNNAMED AQUIFERS
Receipt=0244840, Permit=103681--A-- L-F RANCH CO	SESW 2 3.0 N -64.0 W	602	0	0 ALL UNNAMED AQUIFERS
Receipt=9060555, Permit=11047--- 2 E RANCHES INC	SESW 23 3.0 N -64.0 W	0	0	0 ALL UNNAMED AQUIFERS
Receipt=0025527, Permit=103682--- L F RANCH	NESW 24 3.0 N -64.0 W	60	7	60 ALL UNNAMED AQUIFERS
Receipt=0264826, Permit=--- ADOLPH COORS COMPANY	NWNW 25 3.0 N -64.0 W	0	0	0 LARAMIE FOX HILLS

Oil and Gas Wells Selected

Filter Results by Formation

WELL DESCRIPTION	LOCATION ID	LOCATION	WELL INFORMATION						
05-123-16228, KARCH BLUE DD 18-12 NOBLE ENERGY INC	328626	NWSW 18 3N -63W (6) 40.223839, -104.488298	Sidetrack	Formation	Top	Bottom	TD	Status	
				0 CODL	6801	6813	6990	AB	
05-123-15489, DUNCAN D 11-10 NOBLE ENERGY INC	328059	NWSE 11 3N -64W (6) 40.237330, -104.515220	Sidetrack	Formation	Top	Bottom	TD	Status	
				0 NB-CD	6632	6852	7575	SI	
05-123-15797, DUNCAN D 11-15 NOBLE ENERGY INC	328281	SWSE 11 3N -64W (6) 40.234120, -104.516110	Sidetrack	Formation	Top	Bottom	TD	Status	
				0 NB-CD	6654	6878	6965	SI	
				0 NBCSX	4360	6878	6965	SI	
				0 SUSX	4360	4392	6965	SI	
05-123-15986, DUNCAN D 11-8 NOBLE ENERGY INC	328436	SENE 11 3N -64W (6) 40.241630, -104.511810	Sidetrack	Formation	Top	Bottom	TD	Status	
				0 NB-CD	6604	6828	6975	SI	
				0 NBCSX	4256	6828	6975	SI	
				0 SUSX	4256	4300	6975	SI	
05-123-17481, DUNCAN D 11-14 NOBLE ENERGY INC	329529	SESW 11 3N -64W (6) 40.234000, -104.521230	Sidetrack	Formation	Top	Bottom	TD	Status	
				0 NB-CD	6660	6887	7119	SI	
				0 NBCSX	4325	6887	7119	SI	
				0 SUSX	4325	4359	7119	SI	
05-123-17546, DUNCAN D 11-9 FREEDOM ENERGY INC	408896	NESE 11 3N -64W (6) 40.238407, -104.511482	Sidetrack	Formation	Top	Bottom	TD	Status	
								AL	
05-123-17547, DUNCAN D 11-16 FREEDOM ENERGY INC	409860	SESE 11 3N -64W (6) 40.234648, -104.511462	Sidetrack	Formation	Top	Bottom	TD	Status	
								AL	
05-123-23010, GUTTERSEN 16-11 KERR MCGEE OIL & GAS ONSHORE LP	409860	SESE 11 3N -64W (6) 40.234668, -104.511592	Sidetrack	Formation	Top	Bottom	TD	Status	
								AL	
05-123-26350, GUTTERSEN 44-11 PDC ENERGY INC	310398	SESE 11 3N -64W (6) 40.234360, -104.511280	Sidetrack	Formation	Top	Bottom	TD	Status	
				0 NB-CD	6616	6868	7039	SI	
05-123-26351, GUTTERSEN 43-11 PDC ENERGY INC	310399	NESE 11 3N -64W (6) 40.238000, -104.511330	Sidetrack	Formation	Top	Bottom	TD	Status	
				0 NB-CD	6612	6830	6996	SI	
05-123-11197, L F RANCH 2-12 PDC ENERGY INC	319402	SWSW 12 3N -64W (6) 40.235310, -104.505420	Sidetrack	Formation	Top	Bottom	TD	Status	
				0 J-CDL	6800	7325	7410	CM	
				0 CODL	6800	6814	7410	AB	
				0 JSND	7271	7325	7410	AB	
05-123-17104, KARCH BLUE D 12-11 NOBLE ENERGY INC	329283	NESW 12 3N -64W (6) 40.238170, -104.501561	Sidetrack	Formation	Top	Bottom	TD	Status	
				0 CODL	6821	6834	7005	PR	
05-123-17105, KARCH BLUE D 12-12 NOBLE ENERGY INC	329284	NWSW 12 3N -64W (6) 40.238130, -104.506310	Sidetrack	Formation	Top	Bottom	TD	Status	
				0 NB-CD	6570	6843	7010	PR	
				0 CODL	6831	6843	7010	CM	
05-123-17106, KARCH BLUE D 12-14 NOBLE ENERGY INC	329285	SESW 12 3N -64W (6) 40.234375, -104.501920	Sidetrack	Formation	Top	Bottom	TD	Status	
				0 NB-CD	6578	6836	6995	PR	
				0 NBRR	6578	6630	6995	CM	
				0 CODL	6822	6835	6995	PR	
05-123-17227, SPIKE STATE D 12-5 NOBLE ENERGY INC	329356	SWNW 12 3N -64W (6) 40.241690, -104.506580	Sidetrack	Formation	Top	Bottom	TD	Status	
				0 NB-CD	6600	6835	7003	PR	
				0 NBRR	6600	6616	7003	CM	
				0 CODL	6823	6835	7003	CM	
05-123-17228, SPIKE STATE D 12-6 NOBLE ENERGY INC	329357	SENW 12 3N -64W (6) 40.241670, -104.501850	Sidetrack	Formation	Top	Bottom	TD	Status	
				0 CODL	6823	6835	6995	AB	
05-123-22198, GUTTERERSEN STATE D 12-7JI NOBLE ENERGY INC	332364	SWNE 12 3N -64W (6) 40.242040, -104.497740	Sidetrack	Formation	Top	Bottom	TD	Status	
				0 NB-CD	6558	6842	7466	SI	
				0 NBRR	6558	6626	7466	CM	
				0 CODL	6830	6842	7466	CM	
				0 JSND	7289	7350	7466	SI	
05-123-22791, GUTTERSEN STATE D 12-19 NOBLE ENERGY INC	305314	NENW 12 3N -64W (6) 40.243640, -104.504130	Sidetrack	Formation	Top	Bottom	TD	Status	
				0 JNBCD	6548	7368	7450	PR	
				0 NB-CD	6548	6832	7450	SI	
				0 NBRR	6548	6614	7450	CM	
				0 CODL	6822	6832	7450	CM	

NOBLE ENERGY INC	40.219720, -104.506650		0 NB-CD	6612	6850	6950	PR
			0 NBCSX	4318	6846	6950	PR
			0 SUSX	4284	4328	6950	AB
			0 NBRR	6612	6619	6950	CM
			0 CODL	6836	6850	6950	CM
05-123-16507, DALBEY D 13-11	328846 NESW 13 3N -64W (6)	Sidetrack	Formation	Top	Bottom	TD	Status
NOBLE ENERGY INC	40.223490, -104.501420		0 NB-CD	6598	6833	6968	SI
			0 CODL	6833	7819	6968	CM
05-123-26276, GUTTERSEN 32-13	310343 SWNE 13 3N -64W (6)	Sidetrack	Formation	Top	Bottom	TD	Status
PDC ENERGY INC	40.227360, -104.496810		0 NB-CD	6577	6800	7714	PR
			0 DKTA	7472	7494	7714	AB
			0 LKTA	7558	7568	7714	AB
05-123-26278, Gutteresen 13C	310345 SENE 13 3N -64W (6)	Sidetrack	Formation	Top	Bottom	TD	Status
PDC ENERGY INC	40.228920, -104.494920		0 NB-CD	6529	6806	7719	PR
			0 NBRR	6529	6590	7719	CM
			0 CODL	6798	6806	7719	CM
			0 DKTA	7476	7505	7719	AB
05-123-26279, GUTTERSEN 31-13	310346 NWNE 13 3N -64W (6)	Sidetrack	Formation	Top	Bottom	TD	Status
PDC ENERGY INC	40.230720, -104.497190		0 NB-CD	6531	6808	7740	PR
			0 NBRR	6531	6589	7740	CM
			0 CODL	6800	6808	7740	CM
05-123-26303, GUTTERSEN 42-13	310359 SENE 13 3N -64W (6)	Sidetrack	Formation	Top	Bottom	TD	Status
PDC ENERGY INC	40.227000, -104.492390		0 NB-CD	6654	6784	7744	PR
			0 DKTA	7494	7502	7744	AB
05-123-26304, GUTTERSEN 41-13	310360 NENE 13 3N -64W (6)	Sidetrack	Formation	Top	Bottom	TD	Status
PDC ENERGY INC	40.230700, -104.492530		0 NB-CD	6602	6828	7626	PR
05-123-26312, GUTTERSEN 12-13	310367 SWNW 13 3N -64W (6)	Sidetrack	Formation	Top	Bottom	TD	Status
PDC ENERGY INC	40.227060, -104.506690		0 NB-CD	6611	6837	7018	SI
05-123-26313, GUTTERSEN 22-13	310368 SENW 13 3N -64W (6)	Sidetrack	Formation	Top	Bottom	TD	Status
PDC ENERGY INC	40.227060, -104.501920		0 NB-CD	6580	6808	7017	SI
05-123-26314, GUTTERSEN 21-13	310369 NENW 13 3N -64W (6)	Sidetrack	Formation	Top	Bottom	TD	Status
PDC ENERGY INC	40.230690, -104.502060		0 NB-CD	6594	6815	7018	SI
05-123-26353, GUTTERSEN 13D	310400 SWSE 13 3N -64W (6)	Sidetrack	Formation	Top	Bottom	TD	Status
PDC ENERGY INC	40.221780, -104.494720		0 NB-CD	6574	6810	7659	SI
			0 NBRR	6574	6588	7659	CM
			0 CODL	6800	6810	7659	CM
05-123-26354, GUTTERSEN 44-13	310401 SESE 13 3N -64W (6)	Sidetrack	Formation	Top	Bottom	TD	Status
PDC ENERGY INC	40.219860, -104.492610		0 NBRR	6650	6664	7674	PR
05-123-26355, GUTTERSEN 43-13	310402 NESE 13 3N -64W (6)	Sidetrack	Formation	Top	Bottom	TD	Status
PDC ENERGY INC	40.223500, -104.492560		0 NB-CD	6555	6798	7720	PR
			0 DKTA	7496	7510	7720	AB
05-123-26356, GUTTERSEN 34-13	310403 SWSE 13 3N -64W (6)	Sidetrack	Formation	Top	Bottom	TD	Status
PDC ENERGY INC	40.219810, -104.497310		0 NB-CD	6588	6814	7021	PR
05-123-28017, GUTTERSEN 13T	302252 SWSE 13 3N -64W (6)	Sidetrack	Formation	Top	Bottom	TD	Status
PDC ENERGY INC	40.218420, -104.494920		0 NB-CD	6596	6824	7001	PR
05-123-28018, GUTTERSEN 13S	302253 SENE 13 3N -64W (6)	Sidetrack	Formation	Top	Bottom	TD	Status
PDC ENERGY INC	40.225440, -104.494920		0 NB-CD	6573	6802	6969	PR
05-123-28019, GUTTERSEN 13N	302254 SENW 13 3N -64W (6)	Sidetrack	Formation	Top	Bottom	TD	Status
PDC ENERGY INC	40.228830, -104.500110		0 NB-CD	6584	6803	6969	PR
05-123-15644, DALBEY D 14-6	328172 SENW 14 3N -64W (6)	Sidetrack	Formation	Top	Bottom	TD	Status
NOBLE ENERGY INC	40.227410, -104.520930		0 NB-CD	6684	6911	7040	PR
			0 NBCSX	4340	6906	7040	PR
			0 SUSX	4340	4355	7040	AB
			0 NBRR	6684	6690	7040	CM
			0 CODL	6898	6911	7040	CM
05-123-15646, DALBEY D 14-7	328174 SWNE 14 3N -64W (6)	Sidetrack	Formation	Top	Bottom	TD	Status
NOBLE ENERGY INC	40.227030, -104.516440		0 NB-CD	6652	6883	6983	PR
			0 NBCSX	4320	6883	6983	PR
			0 SUSX	4320	4352	6983	PR

05-123-15702, DALBEY D 14-2 NOBLE ENERGY INC	328211 NWNE 14 3N -64W (6) 40.229880, -104.514890	Sidetrack	Formation	Top	Bottom	TD	Status
			0 JNC SX	4294	7350	7647	SI
			0 NB-CD	6648	6872	7647	SI
			0 SUSX	4343	7294	7647	SI
			0 JSND	7326	7350	7647	SI
05-123-15776, DALBEY D 14-9 FREEDOM ENERGY INC	408725 NESE 14 3N -64W (6) 40.223298, -104.511342	Sidetrack	Formation	Top	Bottom	TD	Status
							AL
05-123-16015, SPIKE STATE GWS D 14-10 NOBLE ENERGY INC	328458 NWSE 14 3N -64W (6) 40.223140, -104.515840	Sidetrack	Formation	Top	Bottom	TD	Status
			0 NB-CD	6674	6910	7070	SI
			0 SX-CD	4346	6910	7070	PR
			0 SUSX	4346	4366	7070	AB
			0 NBRR	6674	6690	7070	CM
			0 CODL	6900	6910	7070	CM
05-123-16032, SPIKE STATE GWS D 14-11 NOBLE ENERGY INC	328474 NESW 14 3N -64W (6) 40.223970, -104.520170	Sidetrack	Formation	Top	Bottom	TD	Status
			0 SX-CD	4356	6938	7132	PR
			0 SUSX	4356	4400	7132	AB
			0 CODL	6927	6938	7132	PR
05-123-16035, SPIKE STATE GWS D 14-15 NOBLE ENERGY INC	328477 SWSE 14 3N -64W (6) 40.219760, -104.515640	Sidetrack	Formation	Top	Bottom	TD	Status
			0 SX-CD	4348	6928	7080	CM
			0 SUSX	4348	4391	7080	SI
			0 CODL	6917	6928	7080	SI
05-123-16036, SPIKE D 14-16 GERRITY OIL & GAS CORP	408751 SESE 14 3N -64W (6) 40.219688, -104.511302	Sidetrack	Formation	Top	Bottom	TD	Status
							AL
05-123-16208, DALBEY D 14-8 NOBLE ENERGY INC	328611 SENE 14 3N -64W (6) 40.227093, -104.511708	Sidetrack	Formation	Top	Bottom	TD	Status
			0 NB-CD	6625	6857	7006	SI
			0 NBCSX	4316	6857	7006	SI
			0 SUSX	4316	4341	7006	SI
05-123-16248, DALBEY D 14-1 NOBLE ENERGY INC	328641 NENE 14 3N -64W (6) 40.230700, -104.511380	Sidetrack	Formation	Top	Bottom	TD	Status
			0 NB-CD	6640	6871	7023	SI
			0 NBCSX	4344	6871	7023	SI
			0 SUSX	4344	4390	7023	SI
05-123-17482, DALBEY D 14-3 NOBLE ENERGY INC	329530 NENW 14 3N -64W (6) 40.230420, -104.520210	Sidetrack	Formation	Top	Bottom	TD	Status
			0 NB-CD	6660	6888	7041	SI
05-123-25088, SPIKE D 14-9 NOBLE ENERGY INC	306665 NESE 14 3N -64W (6) 40.223879, -104.510795	Sidetrack	Formation	Top	Bottom	TD	Status
			0 NB-CD	6668	6869	7490	SI
			0 NBRR	6668	6684	7490	CM
			0 CODL	6856	6869	7490	CM
05-123-25091, SPIKE D 14-16 NOBLE ENERGY INC	306666 SESE 14 3N -64W (6) 40.219399, -104.510863	Sidetrack	Formation	Top	Bottom	TD	Status
			0 NB-CD	6664	6902	7503	SI
			0 NBRR	6664	6680	7503	CM
			0 CODL	6889	6902	7503	CM
05-123-28199, GUTTERSEN STATE D 14-23 NOBLE ENERGY INC	302353 SESE 14 3N -64W (6) 40.221495, -104.513568	Sidetrack	Formation	Top	Bottom	TD	Status
			0 JNBCD	6762	7406	7505	CM
			0 NB-CD	6762	6908	7505	PR
			0 NBRR	6762	6774	7505	CM
			0 CODL	6896	6908	7505	CM
			0 JSND	7356	7406	7505	PR
05-123-30200, GUTTERSEN STATE D 14-24 NOBLE ENERGY INC	410147 SESW 14 3N -64W (6) 40.221610, -104.518664	Sidetrack	Formation	Top	Bottom	TD	Status
			0 NB-CD	6708	6947	7094	PR
			0 NBRR	6708	6804	7094	CM
			0 CODL	6933	6947	7094	CM
05-123-20019, GUTTERSEN 23-41 PDC ENERGY INC	331007 NENE 23 3N -64W (6) 40.216190, -104.511330	Sidetrack	Formation	Top	Bottom	TD	Status
			0 NB-CD	6644	6878	7122	SI
			0 NBRR	6644	6660	7122	CM
			0 CODL	6868	6878	7122	CM
05-123-26446, GUTTERSEN 11-24 PDC ENERGY INC	310469 NWNW 24 3N -64W (6) 40.216250, -104.506530	Sidetrack	Formation	Top	Bottom	TD	Status
			0 NB-CD	6621	6848	7013	SI
05-123-26457, GUTTERSEN 21-24 PDC ENERGY INC	310479 NENW 24 3N -64W (6) 40.216190, -104.501940	Sidetrack	Formation	Top	Bottom	TD	Status
			0 NB-CD	6588	6814	7720	SI

05-123-31806, Guttersen 24J	417990 NWNW 24 3N -64W (6)	Sidetrack	Formation	Top	Bottom	TD	Status
PDC ENERGY INC	40.217810, -104.503830		0 NB-CD	6601	6830	7006	SI