

**Table 1**  
**Slug Test Results**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Well ID	b (ft)	hc (ft)	Slug ID	K (ft/day)		Estimated Yield	
				Hvorslev	cm/sec	Q (gpm)	Q (GPD)
H-3	6	19.63	Slug 1 In	1.741	6.14E-04	<b>0.71</b>	<b>1,029</b>
			Slug 2 In	2.048	7.22E-04		
			Slug 3 In	2.162	7.63E-04		
			<b>Average</b>	1.984	7.00E-04		
H-9	6	47.15	Slug 1 In	4.245	1.50E-03	<b>3.96</b>	<b>5,700</b>
			Slug 2 In	5.350	1.89E-03		
			Slug 3 In	4.901	1.73E-03		
			<b>Average</b>	4.832	1.70E-03		
H-18	5	45.71	Slug 1 In	3.492	1.23E-03	<b>2.20</b>	<b>3,174</b>
			Slug 2 In	3.463	1.22E-03		
			Slug 3 In	2.686	9.48E-04		
			<b>Average</b>	3.214	1.13E-03		
H-20	0.5	37.53	Slug 1 In	25.42	8.97E-03	<b>1.40</b>	<b>2,013</b>
			Slug 2 In	23.61	8.33E-03		
			Slug 3 In	24.17	8.53E-03		
			<b>Average</b>	24.40	8.61E-03		
H-27	0.5	46.63	Slug 1 In	0.2295	8.10E-05	<b>0.02</b>	<b>33</b>
MW-1	4	47.66	Slug 1 In	0.6719	2.37E-04	<b>0.47</b>	<b>674</b>
			Slug 1 Out	0.7536	2.66E-04		
			Slug 2 In	0.7300	2.58E-04		
			Slug 2 Out	0.7626	2.69E-04		
			Slug 3 In	0.7170	2.53E-04		
			Slug 3 Out	0.7604	2.68E-04		
			<b>Average</b>	0.7326	2.58E-04		
MW-2	11.5	43.78	Slug 1 In	0.4705	1.66E-04	<b>0.78</b>	<b>1,118</b>
			Slug 1 Out	0.5079	1.79E-04		
			Slug 2 In	0.4243	1.50E-04		
			Slug 2 Out	0.5163	1.82E-04		
			Slug 3 In	0.4275	1.51E-04		
			Slug 3 Out	0.5330	1.88E-04		
			<b>Average</b>	0.4799	1.69E-04		

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Well ID	b (ft)	hc (ft)	Slug ID	K (ft/day)		Estimated Yield	
				Hvorslev	cm/sec	Q (gpm)	Q (GPD)
MW-3	2	33.40	Slug 1 In	4.569	1.61E-03	<b>1.01</b>	<b>1,458</b>
			Slug 1 Out	4.873	1.72E-03		
			Slug 2 In	4.778	1.69E-03		
			Slug 2 Out	5.149	1.82E-03		
			Slug 3 In	4.890	1.73E-03		
			Slug 3 Out	5.114	1.80E-03		
			<b>Average</b>	4.896	1.73E-03		
MW-4	1.45	41.52	Slug 1 In	11.30	3.99E-03	<b>2.17</b>	<b>3,124</b>
			Slug 1 Out	12.67	4.47E-03		
			Slug 2 In	11.24	3.97E-03		
			Slug 2 Out	12.63	4.46E-03		
			Slug 3 In	11.62	4.10E-03		
			Slug 3 Out	12.98	4.58E-03		
			<b>Average</b>	12.07	4.26E-03		
MW-5	3	28.19	Slug 1 In	0.05206	1.84E-05	<b>0.02</b>	<b>27</b>
MW-6	4	32.56	Slug 1 In	0.3778	1.33E-04	<b>0.16</b>	<b>228</b>
			Slug 1 Out	0.3358	1.18E-04		
			Slug 2 In	0.2958	1.04E-04		
			Slug 2 Out	0.3630	1.28E-04		
			<b>Average</b>	0.3431	1.21E-04		
MW-7	2.7	30.93	Slug 1 In	0.01396	4.92E-06	<b>0.01</b>	<b>7</b>
			Slug 1 Out	0.01107	3.91E-06		
			<b>Average</b>	0.01252	4.42E-06		
MW-8	0.2	45.14	Slug 1 In	40.06	1.41E-02	<b>1.19</b>	<b>1,720</b>
			Slug 1 Out	41.69	1.47E-02		
			Slug 2 In	40.49	1.43E-02		
			Slug 2 Out	44.20	1.56E-02		
			Slug 3 In	44.73	1.58E-02		
			Slug 3 Out	42.91	1.51E-02		
			<b>Average</b>	42.35	1.49E-02		
MW-9	2	31.36	Slug 1 In	0.03203	1.13E-05	<b>0.01</b>	<b>14</b>
			Slug 1 Out	0.03798	1.34E-05		
			<b>Average</b>	0.03501	1.23E-05		

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Well ID	b (ft)	hc (ft)	Slug ID	K (ft/day)		Estimated Yield	
				Hvorslev	cm/sec	Q (gpm)	Q (GPD)
MW-9D	1.5	45.59	Slug 1 In	9.432	3.33E-03	<b>1.37</b>	<b>1,972</b>
			Slug 1 Out	3.503	1.24E-03		
			<b>Average</b>	6.468	2.28E-03		
MW-10	4	43.28	Slug 1 In	0.4137	1.46E-04	<b>0.25</b>	<b>365</b>
			Slug 1 Out	0.4208	1.48E-04		
			Slug 2 In	0.4167	1.47E-04		
			Slug 2 Out	0.4297	1.52E-04		
<b>Average</b>	0.4202	1.48E-04					
MW-11	1	26.51	Slug 1 In	0.3062	1.08E-04	<b>0.03</b>	<b>47</b>
			Slug 1 Out	0.3198	1.13E-04		
			<b>Average</b>	0.31300	1.10E-04		
<b>Geometric Mean</b>				<b>1.001</b>	<b>3.53E-04</b>	<b>0.276</b>	<b>398</b>

**Notes:**

Well yield equation for confined aquifer from RECAP Appendix F:

$$Q = \frac{60H_c K b}{9.3 + \log(Kb)}$$

K = hydraulic conductivity (cm/sec)

b = saturated thickness (feet)

h<sub>c</sub> = confining head (feet)

gpm = Gallons per Minute

GPD = Gallons per Day

Slug out data from MW-5 was not included in final analysis due to anomolous data inconsistent with slug in and pre-test water level measurements

**Table 2**  
**Survey Data and Groundwater Elevations**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Well ID	Coordinates				Screened Interval	Screen Length	Top of Casing Elevation	Ground Surface Elevation	Stickup Height	Total Depth	Mid Screen Depth	Mid Screen Elevation	TDS	Density	11/22/2019			5/24/2021			12/21/2021		
	Louisiana State Plane, NAD 1983 (2011), South Zone		UTM Zone 15N												DTW	Water Elevation	EFWH	DTW	Water Elevation	EFWH	DTW	Water Elevation	EFWH
	Latitude	Longitude	Northing	Easting	ft bgs	ft	ft	ft	ft	ft btoc	ft bgs	ft	mg/L	kg/m <sup>3</sup>	ft btoc	ft	ft	ft btoc	ft	ft	ft btoc	ft	ft
H-1	30.08172645	-92.91399603	3327844.48	508288.08	35-40	5	6.32	4.97	1.35	40.71	37.5	-31.89	3310	1,000.564	5.85	0.47	0.55	2.08	4.24	4.33	3.42	2.90	2.98
H-2	30.08528031	-92.91625561	3328238.12	508070.04	30-35	5	5.76	4.19	1.57	35.94	32.5	-27.68	2930	1,000.293	5.91	-0.15	-0.09	3.14	2.62	2.68	5.81	-0.05	0.01
H-3	30.08242504	-92.89942331	3327923.04	509692.37	22-27	5	4.86	3.67	1.19	27.80	24.5	-20.44	572	998.609	5.20	-0.34	-0.33	3.53	1.33	1.34	4.51	0.35	0.36
H-9	30.08494761	-92.91939532	3328201.04	507767.51	50-55	5	5.34	4.07	1.27	55.75	52.5	-47.91	45800	1,030.915	5.61	-0.27	1.29	3.19	2.15	3.79	4.76	0.58	2.17
H-10	30.08576698	-92.91673186	3328292.01	508024.11	35-40	5	4.98	3.84	1.14	40.39	37.5	-32.91	3650	1,000.807	10.82	-5.84	-5.77	6.95	-1.97	-1.89	9.93	-4.95	-4.88
H-12	30.08546488	-92.91928655	3328258.36	507777.95	50-60	10	5.36	4.06	1.30	60.40	55	-50.04	71900	1,049.558	6.91	-1.55	0.94	3.54	1.82	4.49	5.37	-0.01	2.56
H-16	30.08507803	-92.91551913	3328215.76	508141.03	35-40	5	6.21	3.78	2.43	41.90	37.5	-33.19	19900	1,012.415	5.74	0.47	0.95	3.09	3.12	3.64	5.40	0.81	1.29
H-18	30.08210996	-92.91464571	3327886.93	508225.44	45-50	5	6.00	4.58	1.42	51.03	47.5	-42.53	6450	1,002.807	5.05	0.95	1.15	1.84	4.16	4.38	3.35	2.65	2.86
H-20	30.08545118	-92.91294574	3328257.29	508388.98	35-45	10	4.92	3.36	1.56	45.58	40	-35.66	1910	999.564	NM	NM	NM	2.00	2.92	2.97	4.10	0.82	0.87
H-22	30.08391853	-92.91603450	3328087.24	508091.46	34-44	10	6.87	4.80	2.07	45.67	39	-33.80	1720	999.429	NM	NM	NM	3.16	3.71	3.76	5.05	1.82	1.86
H-23	30.08668687	-92.91613160	3328393.99	508081.88	27-37	10	5.51	3.75	1.76	38.55	32	-28.04	1790	999.479	NM	NM	NM	3.32	2.19	2.23	6.33	-0.82	-0.79
H-24	30.08175304	-92.91061588	3327847.68	508613.82	41-46	5	6.98	5.04	1.94	47.85	43.5	-38.37	1490	999.264	NM	NM	NM	4.07	2.91	2.95	5.20	1.78	1.82
H-25	30.08223257	-92.93023721	3327899.50	506722.91	38-48	10	6.55	4.54	2.01	49.85	43	-38.30	2250	999.807	NM	NM	NM	3.80	2.75	2.82	4.34	2.21	2.28
H-26	30.08221207	-92.92838617	3327897.33	506901.29	45-50	5	7.06	4.80	2.26	51.62	47.5	-42.06	1120	999.000	NM	NM	NM	4.28	2.78	2.82	5.08	1.98	2.02
H-27	30.08219361	-92.92626113	3327895.42	507106.08	46-51	5	7.12	5.08	2.04	52.85	48.5	-43.23	1690	999.407	NM	NM	NM	5.34	1.78	1.83	6.25	0.87	0.92
H-32A	30.07834752	-92.89002322	3327472.04	510598.67	20-30*	10	4.40	4.51	-0.11	19.52	15	-10.12	762	998.744	NM	NM	NM	NM	NM	NM	3.36	1.04	1.05
H-32B	30.07835238	-92.89001219	3327472.58	510599.73	40-50	10	4.36	4.41	-0.05	49.34	45	-39.98	1100	998.986	NM	NM	NM	NM	NM	NM	3.33	1.03	1.06
H-33	30.07552955	-92.88997743	3327159.79	510603.38	20-30	10	4.11	4.07	0.04	29.90	25	-20.79	1310	999.136	NM	NM	NM	NM	NM	NM	3.85	0.26	0.28
MW-1	30.08429749	-92.91876550	3328129.04	507828.25	50-60	10	7.11	3.82	3.29	62.06	55	-49.95	1350	999.164	NM	NM	NM	NM	NM	NM	5.68	1.43	1.48
MW-2	30.08441310	-92.92004468	3328141.76	507704.97	48-58	10	7.24	3.96	3.28	60.46	53	-48.22	1120	999.000	NM	NM	NM	NM	NM	NM	5.65	1.59	1.63
MW-3	30.08594469	-92.91998932	3328311.48	507710.19	34-39	5	7.13	3.83	3.30	42.95	36.5	-33.32	2060	999.671	NM	NM	NM	NM	NM	NM	6.01	1.12	1.17
MW-4	30.08627801	-92.91859374	3328348.51	507844.65	42-52	10	7.03	3.90	3.13	54.34	47	-42.31	2860	1,000.243	NM	NM	NM	NM	NM	NM	6.64	0.39	0.48
MW-5	30.08534660	-92.91763170	3328245.37	507937.43	30-35	5	6.82	3.74	3.08	37.90	32.5	-28.58	3360	1,000.600	NM	NM	NM	NM	NM	NM	6.73	0.09	0.16
MW-6	30.08558445	-92.91555557	3328271.87	508137.47	30-40	10	6.77	3.69	3.08	43.04	35	-31.27	5830	1,002.364	NM	NM	NM	NM	NM	NM	3.98	2.79	2.93
MW-7	30.08462060	-92.91468710	3328165.13	508221.24	34-44	10	6.99	3.90	3.09	46.58	39	-34.59	6990	1,003.193	NM	NM	NM	NM	NM	NM	4.79	2.2	2.38
MW-8	30.08148185	-92.91472773	3327817.32	508217.59	45-50	5	7.72	4.47	3.25	53.75	47.5	-43.53	1580	999.329	NM	NM	NM	NM	NM	NM	4.59	3.13	3.18
MW-9	30.08271332	-92.91422567	3327953.82	508265.87	31-36	5	7.31	4.10	3.21	38.98	33.5	-29.17	1710	999.421	NM	NM	NM	NM	NM	NM	4.71	2.6	2.64
MW-9D	30.08271544	-92.91422317	3327954.05	508266.11	40-50	10	7.27	3.99	3.28	50.88	45	-38.61	1860	999.529	NM	NM	NM	NM	NM	NM	4.93	2.34	2.39
MW-10	30.08187972	-92.91585031	3327861.33	508109.37	42-52	10	8.00	4.60	3.40	50.82	47	-37.82	1940	999.586	NM	NM	NM	NM	NM	NM	5.31	2.69	2.75
MW-11	30.08188179	-92.91302225	3327861.76	508381.91	29-34	5	7.96	4.83	3.13	36.70	31.5	-26.24	4420	1,001.357	NM	NM	NM	NM	NM	NM	5.25	2.71	2.80

**Notes:**  
ERM and ICON wells surveyed by M.P. Mayeaux Surveying and Boundary Consulting, L.L.C. on December 15-16, 2021 and January 11, 2022.  
TDS was measured in March 2020 for H-1 through H-18, April 2021 for H-20 through H-27, August 2021 for H-32 through H-34, and December 2021 for MW-1 through MW-11. ERM split results are shown.  
No split sample was provided to ERM for sample H-26; therefore ICON TDS value is shown  
Elevation data are referenced to NAVD '88 datum.  
Depth to water (DTW) measurements are shown as depth below top of casing (btoc).  
Density is calculated using Langevin, et al., 2003.  
NM = Not measured  
ft bgs = feet below ground surface  
EFWH = Equivalent fresh water head (corrected for density based on TDS), based on Post, et al., 2007.  
\* - ICON well H-32A was reportedly screened at 20-30' bgs. However, total depth was measured at 19.52' indicating the well may have been screened at 10-20' bgs.

**Table 3**  
**Oil and Gas Well History**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
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Well Serial	Well Name	Well Num	Total Depth	Spud Date	Status Date	Well Status	Operator History	Notes
<i>Gulf/Chevron Wells in Limited Admission Areas</i>								
25340	Calcasieu Nat'l Bank	001	10534	1/3/1941	8/13/1941	29 - Dry and Plugged	12/30/1940 - Gulf Refining. Co., Gulf Prod. Div. 07/17/1941 - Gulf Refining Co.	12/30/1940 - Name Listed as Calcasieu Nat'l. Bank No. 1 7/22/1941 - Well blew out, caught fire, and burned until 8/13/1941 after bridging over according to Gulf Refining Company letter dated 4/24/1942
26358	VUA; Hayes U1	001	11685	8/15/1941	6/4/1984	30 - Plugged and Abandoned	08/04/1941 - Gulf Refg. Co., Gulf Prod. Div. 02/11/1942 - Gulf Refining Company 02/21/1947 - Gulf Refg. Co., Gulf Prod. Div. 12/31/1956 - Gulf Oil Corporation 4/10/1984 - Great Southern Oil & Gas Co Inc	08/18/1941 - Name Listed as Cal. Nat'l Bank No. 2 02/21/1947 - Name Listed as Hayes Unit #1 No. 2 02/15/1973 - Name Changed to VU A; Hayes U 1 No. 2 4/10/1984 - Name Changed to VU A; Hayes U 1 No. 1 6/4/1984 - Well P&A'd by Great Southern Oil & Gas Co Inc
31298	Cal Natl Bank et al F	001	13856	1/16/1946	1/8/1947	29 - Dry and Plugged	12/28/1945 - Gulf Refg Co. Gulf Prod. Div 11/8/1946 - Gulf Refining Company, Production Division 12/18/1946 - Gulf Refining Company 12/24/1946 - Gulf Refining Company, Production Division	12/28/1945 - Name Listed as Cal. Nat'l Bank et al "F" No. 1 1/8/1947 - Well P&A'd by Gulf Refining Company, Production Division
103174	VUA; Hayes U1	006	10450	7/2/1964	5/12/1980	30 - Plugged and Abandoned	06/11/1964 - Gulf Oil Corporation	06/11/1964 - Name Listed as Hayes Unit 1 No. 6 8/12/1964 - Well completed by Gulf Oil Corporation 5/15/1972 - Well recompleted (dual completion) by Gulf Oil Corporation 02/15/1973 - Name changed to VU A; Hayes U 1 No. 6 5/12/1980 - Well P&A'd by Gulf Oil Corporation
105169	VUA; Hayes U1	006D	10450	7/2/1964	5/12/1980	30 - Plugged and Abandoned	09/17/1964 - Gulf Oil Corporation	08/13/1964 - Well dually completed by Gulf Oil Corporation 09/17/1964 - Name Listed as Hayes Unit #1 No. 6-D 02/15/1973 - Name Changed to VU A; Hayes U 1 No. 6-D 5/12/1980 - Well P&A'd by Gulf Oil Corporation
128241	VUA; Hayes U1	007	11575	5/6/1969	12/28/1983	30 - Plugged and Abandoned	03/27/1969 - Gulf Oil Corporation	03/27/1969 - Name Listed as Hayes Unit 1 No. 7 6/26/1969 - Well completed by Gulf Oil Corporation 02/15/1973 - Name Changed to VU A; Hayes U 1 No. 7 12/28/1983 - Well P&A'd by Gulf Oil Corporation
970424	Hayes Salt Water Disposal	001	1585	3/14/1957	12/6/1983	29 - Dry and Plugged	3/5/1957 - Gulf Oil Corporation - Houston Prod. Div. 3/26/1962 - Gulf Oil Corporation	3/5/1957 - Name listed as Hayes Waste Water #1 8/12/1957 - Name listed as Hayes Unit 1 No. 1 11/6/1957 - Name listed as Hayes Unit 1 (Salt Wtr.) No. 1 12/7/1983 - Well P&A'd by Gulf Oil Corporation
970427	Hayes Unit 1 SWD	002	2000	10/31/1977	9/4/1984	29 - Dry and Plugged	9/30/1977 - Gulf Oil Corporation	9/27/1977 - Name listed as Hayes Unit 1 SWD No. 2 9/4/1984 - Well P&A'd by Gulf Oil Corporation
<i>Other Gulf/Chevron Wells on Property</i>								
97351	Hayes Unit 1	006	-	-	12/1/1976	03 - Permit Expired	07/16/1963 - Gulf Oil Corporation	07/16/1963 - Name Listed as Hayes Unit 1 No. 6 09/07/1976 - Name Listed as VUA; Hayes U 1 No. 9
153121	VUA; Hayes U 1	009	10200	10/8/1976	6/22/1979	29 - Dry and Plugged	09/07/1976 - Gulf Oil Corp.	11/15/1976 - Well completed and temporarily abandoned by Gulf Oil Company (dry hole) 6/22/1979 - Well P&A'd by Gulf Oil Company
<i>Other Wells on the Property</i>								
20853	Cal Marine Natl Bank	001	9073	1/14/1938	3/16/1938	29 - Dry and Plugged	1/17/1938 - Shell Pet. Corp.	01/17/1938 - Name Listed as Calcasieu Marine Nat'l. Bank No. 1 03/14/1938 - Well completed by Shell Petroleum Corporation 03/16/1938 - Permit to P&A well by Shell Oil Corporation
44135	Coastal Hawkins Hayes Unit 1	001	11864	10/11/1951	3/29/1971	30 - Plugged and Abandoned	09/11/1951 - H. L. Hawkins 01/05/1960 - H. L. Hawkins & H. L. Hawkins, Jr. 06/19/1963 - Coastal States Gas Prod Co	09/11/1951 - Name Listed as Hayes Unit No. 1 06/19/1963 - Name Listed as Coastal Hawkins-Hayes Unit 1 No. 1 3/29/1971 - Well P&A'd by Coastal States Gas Prod Co
142076	VUA; Hawkins-Hayes	001	10555	2/27/1973	10/31/1973	30 - Plugged and Abandoned	02/14/1973 - Ranger Oil Company	02/14/1973 - Name Listed as VU A; Hawkins-Hayes No. 1 3/25/1973 - Well dually completed by Ranger Oil Company 10/31/1973 - Well P&A'd by Ranger Oil Company
142399	VUA; Hawkins-Hayes	001-D	10555	2/27/1973	10/31/1973	30 - Plugged and Abandoned	04/11/1973 - Ranger Oil Company	4/5/1973 - Name Listed as VUA; Hawkins-Hayes No. 1-D 4/5/1973 - Well dually completed by Ranger Oil Company 10/31/1973 - Well P&A'd by Ranger Oil Company
195098	VUA; Hayes U1	003	10000	10/11/1984	7/3/2020	30 - Plugged and Abandoned	09/24/1984 - Graham Exploration Ltd. 05/01/1992 - Petrocana, Inc. 09/01/1993 - United World Energy Corp.	09/24/1984 - Name Listed as VUA; Hayes Unit I No. 1 12/28/1984 - Well completed by Graham Exploration Ltd. 05/01/1992 - Name Listed as VUA; Hayes U1 No. 003 9/22/2012 - Well Temporarily P&A'd by United World Energy Corp.
206344	VUA; Hayes U1	001	10474	7/15/1987	7/9/2020	30 - Plugged and Abandoned	07/13/1987 - Flynn Energy Corporation 10/10/1990 - Coda Energy, Inc. 06/28/1991 - Petrocana, Inc. 09/01/1993 - United World Energy Corp.	07/13/1987 - Name Listed as Walker Properties No. 1 8/23/1987 - Well completed by Flynn Energy Corporation 01/12/1988 - Name Changed to VUA; Hayes U1 No. 1
207055	Walker Properties	002	9090	10/31/1987	11/10/1987	29 - Dry and Plugged	10/14/1987 - Flynn Energy Corporation	10/14/1987 - Name Listed as Walker Properties No. 2 11/10/1987 - Well P&A'd by Flynn Energy Corporation
210306	Walker Properties	001	9090	NA	1/26/1990	03 - Permit Expired	07/24/1989 - Richmond Petroleum Inc.	07/24/1989 - Name Listed as Walker Properties No. 1
213760	VUA; Hayes U1	004	9090	1/27/1990	10/16/2018	33 - Shut-in Productive - Future Utility	09/04/1991 - Richmond Petroleum Inc. 09/25/1991 - Petrocana, Inc. 09/01/1993 - United World Energy Corp.	09/04/1991 - Name Listed as Walker Properties No. 1 10/11/1991 & 4/3/1992 - Well completed by Petrocana, Inc. 08/07/1992 - Name changed to VUA; Hayes U1 No. 004

**Notes:**  
 Data based on LDNR SONRIS database and individual well records.  
 NA - Not Available/Not Applicable

**Table 4**  
**Summary of Lease Facility Inspection Reports**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Well SN	Operator	Type	Inspection Date	In Compliance?	Remarks
105169	Gulf Oil Corporation	LFIR	1/11/1989	No	Lease is in good cond except for no well or tank battery ID signs
			2/17/1989	No	Multiple deficiencies listed including lack of signage and deficient equipment and containment Narrative Report dated 2/17/1989, "1 7" case sticking out of ground with T on top with open end, 1 heater treater, 2 high pressure sep., 2,400 bbls tanks, 2 large high pressure natural gas tanks, 1 pit 25' x 50'. Lease inactive, has grass grown up in and around lease"
195098	Graham Exploration LTD.	LFIR	2/9/1988	Yes	No deficiency/violations noted. No existing pits. "Water is being stored in holding tank then being pick up by tank trucks going to Bell City Disposal"
			6/27/1988	Yes	No deficiency/violations noted. No existing pits. "Lease is in good cond. Well is not flowing"
			6/21/1990	Yes	No deficiency/violations noted. No existing pits. "This lease is in very good condition"
			12/4/1995	Yes	No deficiency/violations noted. No existing pits. "No apparent problems at this time"
			2/12/1996	Yes	No deficiency/violations noted. No existing pits. "This lease is in good condition, Recompletion - State Potential"
			5/2/1996	Yes	No deficiency/violations noted. No existing pits. "This lease is in good condition"
			8/7/1997	Yes	"Advised operator to pick up N.O.W. inside F.W., he is doing as advised"
			4/27/1999	Yes	No deficiency/violations noted. No existing pits. "No apparent problems at this time"
			1/14/2002	No	Multiple deficiencies listed, "Site appears to be abandoned please review for P&A"
			3/27/2002	Yes	"Compliance Order 02-110, No deficiencies noted at this time"
			7/9/2008	Yes	No deficiency/violations noted. No existing pits.
			9/24/2008	Yes	No deficiency/violations noted. No existing pits.
			2/4/2010	Yes	No deficiency/violations noted. No existing pits.
			5/18/2010	Yes	No deficiency/violations noted. No existing pits.
6/7/2012	Yes	No deficiency/violations noted. No existing pits.			
8/21/2014	Yes	No deficiency/violations noted. No existing pits.			
5/21/2015	Yes	No deficiency/violations noted. No existing pits.			

**Table 4**  
**Summary of Lease Facility Inspection Reports**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Well SN	Operator	Type	Inspection Date	In Compliance?	Remarks
206344	Flynn Energy Corporation	LFIR	6/29/1988	Yes	No deficiency/violations noted. No existing pits. "This lease is clean and in good cond"
			11/21/1988	Yes	No deficiency/violations noted. No existing pits. "This lease is in good cond" Narrative Report dated 11/21/1988, notes: spoke with president of Flynn Energy Corp. and he made deal with Margo Inc. to takeover the lease and they plan to close pits and rework well A. Atkinson #2
			2/26/1990	No	Multiple deficiencies listed, "No Letter required. Will handle this matter on lease with operator, discussed this matter with Mr. Bud Chambers in Lafayette"
			6/21/1990	No	Multiple deficiencies listed, "It appears they have had another spill"
			8/10/1990	No	Multiple deficiencies listed
			9/7/1990	No	"Met Mr. Fain w/Coda Energy Inc., he stated Coda had purchased this well and with be operating it. Saltwater valves on tanks leaking - need to be repaired or replaced."
	Coda Energy Inc.		10/31/1990	Yes	No deficiency/violations noted. Prior deficiencies are noted as having been repaired/replace and brought into compliance. "This lease is in compliance with S/O 29B."
	Petrocana Inc.		10/31/1991	Yes	No deficiency/violations noted. No existing pits. "Land owner called and asked for inspection, well is shut-in at present, well site is in compliance"
			8/17/1992	NA (Narrative Report)	"This well is being worked over. Discussed production equipment rig up with Ray Landry (Consl Eng.) Petrocana is considering co-mingling of product at the stock tanks on this location. Told Mr. Landry he would need to get this procedure approved prior to operating."
	United World Energy Corporation		10/22/1996	Yes	No deficiency/violations noted. No existing pits. "This lease is in good condition, recompletion - state potential"
			6/17/1997	Yes	No deficiency/violations noted. No existing pits. "No problems at time of inspection"
			9/26/1997	Yes	No deficiency/violations noted. No existing pits. "No problems at this time"
			7/2/1998	No	Multiple deficiencies listed
			8/25/1998	Yes	Notes in compliance with notes, "No seal on production tank outlet, work on compliance order is about 95% complete, lease is shut-in at this time"
			2/14/2006	Yes	No deficiency/violations noted. No existing pits.
			9/13/2006	Yes	No deficiency/violations noted. No existing pits.
			7/9/2008	Yes	No deficiency/violations noted. No existing pits.
			5/16/2011	Yes	No deficiency/violations noted. No existing pits.
11/9/2012		Yes	No deficiency/violations noted. No existing pits.		
213760	Petrocana Inc.	LFIR	5/20/1992	Yes	No deficiency/violations noted. No existing pits. "This lease is in good condition, recompletion - state potential"
	United World Energy Corporation		4/22/1994	Yes	No deficiency/violations noted. No existing pits. "This lease is in good condition, recompletion - state potential"
			4/1/2008	Yes	No deficiency/violations noted. No existing pits.
			6/30/2011	No	"No well site ID, well head no maintained, vegetation - fire hazard"
			12/28/2011	Yes	No deficiency/violations noted. No existing pits. "Well has not been plugged and abandoned"
			5/3/2013	Yes	No deficiency/violations noted. No existing pits.
			10/27/2014	Yes	No deficiency/violations noted. No existing pits.
6/21/2016	Yes	No deficiency/violations noted. No existing pits.			

**Notes:**

Louisiana Department of Natural Resources (LDNR) well files were obtained from LDNR Office records.

**Table 5**  
**Summary of Compliance Orders**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Compliance Order No.	Date	Well SN	Recipient	Action Description	Violations	Compliance Date	Remarks
Operational Complaint #0066	8/15/1988 & 2/14/1989	105169	Gulf Oil Corporation Flynn Energy Corporation Tryvest, Inc.	29B Violations	Noncompliant production pits	NA	8/15/1988-Operational Complaint, received from EPA, several noncompliant production pits in field, operator Tryvest reported pit 11/30/1988-LDNR Memorandum, deficient surface impoundments in Hayes field, requests field inspections be conducted on production facilities of following operators: Flynn Energy Corporation, Tryvest, Inc., and Gulf Oil Corp. 12/2/1988-LDNR Memorandum, notes no reinspection needed for following due to well/pit closures: Flynn Energy Corporation (SN 151672), Tryvest, Inc. (SN 166331 and Gragg #1 Production Pit), and Gulf Oil Corp. (SN 105169 and 103174) 1/11/1989 showed noncompliance with 29B: C-1a (wellsite not properly identified) and D-1a (tank battery not properly identified), instructed to correct within 30 days or civil penalty of \$5,000/day for each day of violation (handwritten VOID, either P&A or must change to Chevron) 2/14/1989-Notice of Noncompliance, SN 105169, inspection date 2/17/1989 - Lease Facility Inspection Report, Narrative Report, and Production Pit Inspection Report all indicate that the lease is not in compliance. No further communication or documentation is available regarding this notice of noncompliance (complaint #0066).
E-I&E 02-0110	3/5/2002	195098	United World Energy Corporation	29B Violations	Well flow line not maintained in acceptable working order, Tank Battery needs ID sign, Evidence of excessive fluid have been allowed to remain with firewall for over 24 hours, Oil storage tanks not equipped with the proper locking/sealing devices, the BS&W bleed-off valves on oil storage tanks are not equipped with proper locking/sealing devices, Lease tankage in production facility lacks structural integrity, and there is unacceptable amount of trash and debris in and around facility.	3/27/2002	3/27/2002 - Lease Facility Inspection Report - In Compliance
0814 (90/ENG-I&E)	7/31/1990	206344	Flynn Energy Corporation & Coda Energy Inc.	29B Violations	Evidence of live oil within tank containment in production facility, Evidence that N.O.W. has been discharged around production facility and allowed to migrate to natural drainage, Closure device on the pipeline loadout line is not being maintained resulting in leakage of N.O.W. to natural drainage, Closure device on the saltwater loadout line is not being maintained resulting in leakage of N.O.W. to natural drainage	10/31/1990	8/6/1990 - Correspondence to LDNR on behalf of Flynn Energy Corporation indicated that the work had been completed to bring the lease into compliance and that an inspection on 7/17/1990 indicated that the lease was in compliance. LFIIRs on 8/10/1990 and 9/7/1990 indicated that the lease was still out of compliance with multiple deficiencies. 9/20/1990 - Memo from LDNR to Flynn Energy Corp to suspend R-4 Authorization due to failure to comply with Compliance Notice 0814 (90/ENG-I&E). 10/31/1990 - Lease Facility Inspection Report indicated that Coda Energy Inc. had taken over operations and brought the lease into compliance.
1042 (90/ENG-I&E)	11/8/1990	206344	Coda Energy, Inc.	29B Violations	BS&W bleed-off valve on oil storage tank(s) in production facility not maintained resulting in leakage of N.O.W. into containment.	10/31/1990	11/8/1990-Compliance Notice 1042 (90/ENG-I&E) referenced the non-compliant Lease Facility Inspection Report from 9/7/1990. However, records indicate there was a Lease Facility Inspection Report on 10/31/1990 reporting that Coda Energy Inc. had taken over operations and brought the lease into compliance.
E-I&E 98-523	7/17/1998	206344	United World Energy Corporation	29B Violations	Evidence of excessive fluid have been allowed to remain with firewall for over 24 hours, Closure device on bleeder through the containment structure has not been maintained resulting in discharge of N.O.W. or potential thereof, BS&W valve on oil stock tank in production facility not maintained resulting in leakage of N.O.W. into containment, unacceptable degree of combustible vegetation in and around production facility, evidence that N.O.W. has been discharge in the vicinity of the well head and allowed to migrate to natural drainage	8/25/1998	8/25/1998 - Lease Facility Inspection Report shows that lease is in compliance - "No seal on production tank outlet, work on compliance order is about 95% complete, lease is shut-in at this time"



**Table 5**  
**Summary of Compliance Orders**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Compliance Order No.	Date	Well SN	Recipient	Action Description	Violations	Compliance Date	Remarks
0180 (94/ENG-I&E)	3/31/1994	213760	United World Energy Corporation	29B Violations	Operator failed to submit certification of types, number of barrels, and final disposition of N.O.W. generated in drilling and/or completion of the well.	4/27/1994	4/27/1994 - United World Energy Corporation responded to LDNR which explained that the previous operator (Richman Petroleum Inc.) had re-entered the previously P&A'd well and concluded that they had either re-injected the cement cutting down hole or hauled it to a disposal sight. United World Energy Corporation explained that it did not have records of the waste disposition and would rather not put its name on the ENG-16 for operations it did not perform. No further communication or documentation is available regarding this compliance order.
E-I&E 11-0949	9/8/2011	213760	United World Energy Corporation	Plug and Abandon	Well needs to be P&A'd, equipment and structures need to be removed, site needs to be restored.	6/21/2016	10/30/2011 - United World Energy Corporation responded to LDNR regarding the Compliance Order and asked for an extension stating that they had plans to work the well over. 12/15/2011 - LDNR responded to United World Energy Corporation denying an extension and given them until 1/15/2012 to get the lease in compliance with 29B standards. 12/19/2011 - United World Energy Corporation responded to LDNR explaining it had cut the grass and painted the well head but blamed the tenant farmer for the trash/debris at the site. 12/28/2011 - Lease Facility Inspection Report - In Compliance. 1/19/2012 -LDNR responded to United World Energy Corporation allowing an extension until 7/1/2012. 6/19/2012 - LDNR responded to United World Energy Corporation allowing an extension until 1/1/2013. 5/3/2013 - Lease Facility Inspection Report - In Compliance. 7/1/2013 - LDNR responded to United World Energy Corporation allowing an extension until 7/1/2014. 6/21/2016 - Lease Facility Inspection Report - In Compliance.

**Notes:**  
Information from LDNR files.  
NA - Not available



Table 6  
**Soil Data Summary**  
 Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.  
 Hayes Oil and Gas Field  
 Calcasieu and Jefferson Davis Parishes, Louisiana

Soil Data Summary (wet weight)		Area 1 (cont.)																			
		H-27																			
		Upland																			
		4/9/2021																			
Parameters	Units	RECAP SOIL_SSn	RECAP SSGW	29-B Upland	29-B Elevated Wetland	0-2		4-6		6-8		8-10		10-12		16-18		34-36		50-51	
						ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
<b>29B/Misc</b>																					
% Moisture	wt%	N/S	N/S	N/S	N/S	14.3	13.7	18.1	17.8	19.7	19.9	19	17.7	14.9	17.4	17.9	18.7	18.3	20.9	21	
Cation Exchange Capacity (CEC)	meq/100g	N/S	N/S	N/S	N/S	28.3	30.8	21.4	31	27.7	33.9	18.1	23.8	20	NA	NA	NA	NA	NA	NA	
Electrical Conductivity (EC)	mmhos/cm	N/S	N/S	4	8	2.18	2.03	3.2	3.94	1.2	0.97	1.76	1.27	0.9	0.54	0.51	1.01	0.72	1.61	1.25	
Exchangeable Sodium Percentage (ESP)	%	N/S	N/S	15	25	6.68	8.76	14.6	9.22	9.55	10	11.8	7.87	7.82	NA	NA	NA	NA	NA	NA	
Sodium Adsorption Ratio (SAR)	Unitless	N/S	N/S	12	14	6.5	8.9	7.82	8.22	6.75	5.58	6.18	5.77	4.77	NA	NA	NA	NA	NA	NA	
Soluble Calcium	meq/L	N/S	N/S	N/S	N/S	3.49	4.31	5.6	14	1.24	1.3	2.69	1.94	1.34	NA	NA	NA	NA	NA	NA	
Soluble Magnesium	meq/L	N/S	N/S	N/S	N/S	2.27	2.64	4.02	8.4	0.84	0.89	1.82	1.3	0.94	NA	NA	NA	NA	NA	NA	
Soluble Sodium	meq/L	N/S	N/S	N/S	N/S	11	16.6	17.1	27.5	6.88	5.83	9.29	7.34	5.09	NA	NA	NA	NA	NA	NA	
Chloride	mg/kg-dry	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
pH	SU	N/S	N/S	6-9	6-9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
True Total Barium	mg/kg-dry	N/S	N/S	40000	20000	124	165	281	389	520	711	190	201	263	NA	NA	NA	NA	NA	NA	
Oil & Grease	%	N/S	N/S	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
<b>Leachate and SPLP</b>																					
Leachate Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SPLP Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SPLP Sodium	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SPLP Barium	mg/L	N/S	40	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SPLP Lead	mg/L	N/S	1	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SPLP Mercury	mg/L	N/S	0.04	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SPLP Strontium	mg/L	N/S	440	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
<b>Metals (wet weight)</b>																					
Arsenic	mg/kg	12	100	10	10	1.69	2.28	3.57	2.15	1.37	4.25	<1.05	2.45	<1.69	NA	NA	NA	NA	NA	NA	
Barium	mg/kg	550	2000	N/S	N/S	39.9	88.9	133	239	6.51	486	200	174	275	NA	NA	NA	NA	NA	NA	
Cadmium	mg/kg	3.9	20	10	10	<0.265	<0.431	<0.254	<0.411	<0.250	<0.399	<0.262	<0.41	<0.424	NA	NA	NA	NA	NA	NA	
Chromium	mg/kg	12000	100	500	500	4.62	5.84	5.93	6.95	3.17	6.55	3.7	4.32	3.88	NA	NA	NA	NA	NA	NA	
Lead	mg/kg	400	100	500	500	7.84	8.3	9.79	7.74	4.88	11.1	4.8	7.07	6.7	NA	NA	NA	NA	NA	NA	
Mercury	mg/kg	2.3	4	10	10	<0.0997	<0.086	<0.0997	<0.082	<0.0994	<0.0795	<0.0988	<0.0872	<0.0877	NA	NA	NA	NA	NA	NA	
Selenium	mg/kg	39	20	10	10	NA	<3.44	NA	<3.29	NA	<3.2	NA	<3.28	<3.4	NA	NA	NA	NA	NA	NA	
Silver	mg/kg	39	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Strontium	mg/kg	4700	44000	N/S	N/S	14.6	15.3	17.5	22.8	11.2	26.3	15.6	13.8	14.7	NA	NA	NA	NA	NA	NA	
Zinc	mg/kg	2300	2800	500	500	4.33	5.97	7.55	10.8	7.58	15	8.77	9.71	10.2	NA	NA	NA	NA	NA	NA	
<b>Hydrocarbons (wet weight)</b>																					
TPH-G	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
TPH-D	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
TPH-O	mg/kg	180	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aliphatic C6-C8	mg/kg	1200	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aliphatic >C8-C10	mg/kg	120	5300	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aliphatic >C10-C12	mg/kg	230	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aliphatic >C12-C16	mg/kg	370	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aliphatic >C16-C35	mg/kg	7100	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aromatic >C8-C10	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aromatic >C10-C12	mg/kg	120	100	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aromatic >C12-C16	mg/kg	180	200	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aromatic >C16-C21	mg/kg	150	2100	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aromatic >C21-C35	mg/kg	180	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
<b>PAHs (wet weight)</b>																					
2-Methylnaphthalene	mg/kg	22	1.7	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Acenaphthene	mg/kg	370	220	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Acenaphthylene	mg/kg	350	88	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Anthracene	mg/kg	2200	120	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(a)anthracene	mg/kg	0.62	330	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(a)pyrene	mg/kg	0.33	23	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(b)fluoranthene	mg/kg	0.62	220	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(ghi)perylene	mg/kg	230	61	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(k)fluoranthene	mg/kg	6.2	120	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Chrysene	mg/kg	62	76	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dibenz(ah)anthracene	mg/kg	0.33	540	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Fluoranthene	mg/kg	220	1200	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Fluorene	mg/kg	280	230	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Indeno(123-cd)pyrene	mg/kg	0.62	9.2	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Naphthalene	mg/kg	6.2	1.5	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Phenanthrene	mg/kg	2100	660	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Pyrene	mg/kg	230	1100	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

**Notes:**  
 Bolded values were detected in the sample  
 Highlight indicates exceedance of corresponding regulatory standard.  
 Gray shaded samples are outside Chevron Limited Admission Areas  
 < - Not detected at or above the reporting limit shown  
 Wetland designation based on USFWS wetland map  
 \* - Listed SPLP standards are 20 x RECAP GW\_SS  
 NA - Not analyzed; N/S - No standard  
 ERM & HLP metals results reported as wet-weight except where noted.  
 ICON metals results converted to wet-weight except where noted.



















Table 6  
**Soil Data Summary**  
 Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.  
 Hayes Oil and Gas Field  
 Calcasieu and Jefferson Davis Parishes, Louisiana

Soil Data Summary (wet weight)					Area 4 (cont.)																																									
Parameters		Units	RECAP SOIL <sub>SS</sub> NI	RECAP SSGW	29-B Upland	29-B Elevated Wetland	H-10 Upland 11/6/2019																H-15 Upland 11/19/2019								H-15R Upland 11/18/2021		H-15E Upland 11/19/2021													
							0-2				4-6				8-10				32-34				38-40				0-2		4-6		6-8		8-10		10-12		12-14		38-40		0-2	6-8	0-2		6-8	
							ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON					
29B/Misc																																														
% Moisture	wt%	N/S	N/S	N/S	N/S	15.8	18.6	18.2	18.1	17.3	19.6	19.8	19.7	21.2	15.6	15.8	16.8	14.7	15.5	16	17.6	16	16.8	19.6	19	18.8	19.2	NA	20.1	22.2	23.1	14.2	15.2													
Cation Exchange Capacity (CEC)	meq/100g	N/S	N/S	N/S	N/S	24.9	35.3	35.8	28.8	26.6	NA	NA	NA	27.6	34.1	35.9	31.4	33.9	28.4	26.5	26.7	21.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA												
Electrical Conductivity (EC)	mmhos/cm	N/S	N/S	4	8	0.36	1.09	1.15	1.21	1.11	1.88	1.9	1.99	1.72	1.44	3.47	3.33	3.61	3.52	5.19	5.64	6.47	7.8	6.97	5.93	1.82	1.57	NA	NA	NA	NA	NA	NA	NA												
Exchangeable Sodium Percentage (ESP)	%	N/S	N/S	15	25	4.21	8.79	8.18	4.47	4.19	NA	NA	NA	5.07	13.5	13.5	13.5	13.1	13.4	14.5	12	15.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA												
Sodium Adsorption Ratio (SAR)	Unitless	N/S	N/S	12	14	4.88	8.18	9.09	4.83	5.3	NA	NA	NA	6.69	12.5	12	12.6	12.1	10.7	11.4	11.4	11.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA												
Soluble Calcium	meq/L	N/S	N/S	N/S	N/S	0.49	1.1	1.19	2.34	2.06	NA	NA	NA	2.06	3.77	3.68	3.85	3.79	8.69	9.22	11.6	15.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA												
Soluble Magnesium	meq/L	N/S	N/S	N/S	N/S	0.28	0.62	0.67	1.31	1.2	NA	NA	NA	0.9	1.84	1.83	1.9	1.96	4.35	4.56	6.16	8.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA												
Soluble Sodium	meq/L	N/S	N/S	N/S	N/S	3.01	7.59	8.78	6.52	6.78	NA	NA	NA	8.14	20.9	20	21.4	20.4	27.3	30	33.9	39.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA											
Chloride	mg/kg-dry	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA												
pH	SU	N/S	N/S	6-9	6-9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA												
True Total Barium	mg/kg-dry	N/S	N/S	40000	20000	850	458	635	131	84	NA	NA	NA	1420	526	660	404	282	388	175	163	213	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA												
Oil & Grease	%	N/S	N/S	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA												
<b>Leachate and SPLP</b>																																														
Leachate Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	93.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA												
SPLP Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	9.96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA												
SPLP Sodium	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA											
SPLP Barium	mg/L	N/S	N/S	40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA											
SPLP Lead	mg/L	N/S	1	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA											
SPLP Mercury	mg/L	N/S	0.04	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA											
SPLP Strontium	mg/L	N/S	440	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA											
<b>Metals (wet weight)</b>																																														
Arsenic	mg/kg	12	100	10	10	4.05	2.36	5.87	6.53	7.63	NA	NA	NA	NA	3.95	2.2	4.58	2.3	5.73	3.49	4.3	7.13	5.23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA												
Barium	mg/kg	550	2000	N/S	N/S	633	27.2	514	392	47.5	NA	NA	NA	1070	286	642	224	219	92	131	64.4	80.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	34.0	61.3	NA	NA											
Cadmium	mg/kg	3.9	20	10	10	<0.418	<0.253	<0.408	<0.249	<0.404	NA	NA	NA	<0.417	<0.248	<0.389	<0.244	<0.415	<0.244	0.414	<0.243	0.458	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA											
Chromium	mg/kg	12000	100	500	500	8.04	6.16	9.08	10.1	12.1	NA	NA	NA	9.03	7.4	8.9	14	13.7	9.95	12.9	8.57	10.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA											
Lead	mg/kg	400	100	500	500	8.59	6.39	9.57	9.55	8.27	NA	NA	NA	14.3	7.53	10.7	5.17	8.45	5.18	8.08	8.42	6.61	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA											
Mercury	mg/kg	2.3	4	10	10	<0.085	<0.101	<0.0851	<0.108	<0.086	NA	NA	NA	0.0962	<0.100	<0.0907	<0.102	<0.0921	<0.103	<0.0882	<0.101	<0.0832	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA											
Selenium	mg/kg	39	20	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA											
Silver	mg/kg	39	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA											
Strontium	mg/kg	4700	44000	N/S	N/S	23.1	17	28.8	22.9	17.9	NA	NA	NA	67.7	35.5	43.1	38.9	39.9	23	37.7	22.9	113	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA											
Zinc	mg/kg	2300	2800	500	500	10.4	11.8	15.9	33.4	33.7	NA	NA	NA	15.3	14.2	18.4	65.2	32.8	27.3	33.9	29.7	32.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA											
<b>Hydrocarbons (wet weight)</b>																																														
TPH-G	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA											
TPH-D	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	216	NA	291	NA	588	NA	207	NA	<10.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10.0	NA											
TPH-O	mg/kg	180	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	38.5	NA	32	NA	27.2	NA	31.8	NA	<15.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10.0	NA											
Aliphatic C6-C8	mg/kg	1200	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	<26.9	NA	42.2	NA	<30.1	NA	<25.8	NA	<25.1	NA	NA	NA	NA	NA	NA	NA	NA	3.28	NA	NA												
Aliphatic >C8-C10	mg/kg	120	5300	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	46.4	NA	129	NA	74.1	NA	<25.8	NA	<25.1	NA	NA	NA	NA	NA	NA	NA	NA	<5.08	NA	NA												
Aliphatic >C10-C12	mg/kg	230	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5.88	NA	19.2	NA	35.4	NA	12.8	NA	<5.83	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA												
Aliphatic >C12-C16	mg/kg	370	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	28.8	NA	87.3	NA	173	NA	45.7	NA	<5.83	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA												
Aliphatic >C16-C35	mg/kg	7100	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	58.3	NA	142	NA	187	NA	30.2	NA	<5.83	NA	NA	NA	NA	NA	NA	NA	<4.00	NA	NA	NA												
Aromatic >C8-C10	mg/kg	65	6																																											



Table 6  
**Soil Data Summary**  
 Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.  
 Hayes Oil and Gas Field  
 Calcasieu and Jefferson Davis Parishes, Louisiana

Soil Data Summary (wet weight)				Area 4 (cont.)																										
Parameters	Units	RECAP SOIL_ SSni	RECAP SSGW	29-B Upland	29-B Elevated Wetland	H-16R Upland		H-16E Upland		H-16N Upland		H-16S Upland		H-16W Upland		H-20 Upland														
						11/15/2021		11/11/2021		11/11/2021		11/11/2021		11/11/2021		3/29/2021					3/29/2021									
						0-2	14-16	50-50.5	0-2	0-2	0-2	0-2	0-2	0-2	4-6	8-10	18-20	28-30	38-40											
ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON			
<b>29B/Misc</b>																														
% Moisture	wrt%	N/S	N/S	N/S	N/S	15.1	14.3	19.5	19.6	22.2	21.5	13.4	16.5	16.1	14.2	19	18.6	16.7	20	17.5	18.4	17.7	17	17.2	23.7	24.1	14.4	14	19.7	20.4
Cation Exchange Capacity (CEC)	meq/100g	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Electrical Conductivity (EC)	mmhos/cm	N/S	N/S	4	8	NA	NA	9.82	6.71	3.01	2.40	NA	NA	NA	NA	NA	NA	NA	NA	0.91	1.66	1.71	0.84	0.85	1.03	1.25	0.72	1.31	1.23	1.33
Exchangeable Sodium Percentage (ESP)	%	N/S	N/S	15	25	NA	NA	16.5	NA	8.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.77	6.64	9.95	9.8	12.6	NA	NA	NA	NA	NA	
Sodium Adsorption Ratio (SAR)	Unitless	N/S	N/S	12	14	NA	NA	42.8	NA	5.45	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.25	6.42	6.74	4.62	4.49	NA	NA	NA	NA	NA	
Soluble Calcium	meq/L	N/S	N/S	N/S	N/S	NA	NA	9.2	NA	8.77	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.47	2.28	2.16	1.07	1.11	NA	NA	NA	NA	NA	
Soluble Magnesium	meq/L	N/S	N/S	N/S	N/S	NA	NA	3.13	NA	6.68	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.79	1.1	1.15	0.6	0.65	NA	NA	NA	NA	NA	
Soluble Sodium	meq/L	N/S	N/S	N/S	N/S	NA	NA	106	NA	15.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.15	8.35	8.68	4.21	4.21	NA	NA	NA	NA	NA	
Chloride	mg/kg-dry	N/S	N/S	N/S	N/S	242	218	4,080	3,090	734	639	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
pH	SU	N/S	N/S	6-9	6-9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
True Total Barium	mg/kg-dry	N/S	N/S	40000	20000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	476	317	439	184	101	NA	NA	NA	NA	NA	
Oil & Grease	%	N/S	N/S	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
<b>Leachate and SPLP</b>																														
Leachate Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SPLP Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	35.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SPLP Sodium	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SPLP Barium	mg/L	N/S	40	N/S	N/S	0.472	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SPLP Lead	mg/L	N/S	1	N/S	N/S	0.0147	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SPLP Mercury	mg/L	N/S	0.04	N/S	N/S	<0.000200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SPLP Strontium	mg/L	N/S	440	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
<b>Metals (wet weight)</b>																														
Arsenic	mg/kg	12	100	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.66	1.29	2.47	5.98	4.8	NA	NA	NA	NA	NA	
Barium	mg/kg	550	2000	N/S	N/S	60.4	1850	NA	NA	NA	NA	204	79.7	193	674	394	56	37.4	1410	355	18.6	234	579	66.5	NA	NA	NA	NA	NA	
Cadmium	mg/kg	3.9	20	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.413	<0.261	<0.411	<0.253	<0.413	NA	NA	NA	NA	NA	
Chromium	mg/kg	12000	100	500	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.49	7.15	7.25	11.3	13	NA	NA	NA	NA	NA	
Lead	mg/kg	400	100	500	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.57	5.21	6.44	7.26	8.61	NA	NA	NA	NA	NA	
Mercury	mg/kg	2.3	4	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.085	<0.0992	<0.0889	<0.0990	<0.0777	NA	NA	NA	NA	NA	
Selenium	mg/kg	39	20	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.33	NA	<3.28	NA	<3.31	NA	NA	NA	NA	NA	
Silver	mg/kg	39	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Strontium	mg/kg	4700	44000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	31.1	16	17.9	19.2	23.3	NA	NA	NA	NA	NA	
Zinc	mg/kg	2300	2800	500	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.1	22.6	11.4	4.68	37.5	NA	NA	NA	NA	NA	
<b>Hydrocarbons (wet weight)</b>																														
TPH-G	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
TPH-D	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
TPH-O	mg/kg	180	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aliphatic C6-C8	mg/kg	1200	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aliphatic >C8-C10	mg/kg	120	5300	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aliphatic >C10-C12	mg/kg	230	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aliphatic >C12-C16	mg/kg	370	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aliphatic >C16-C35	mg/kg	7100	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aromatic >C8-C10	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aromatic >C10-C12	mg/kg	120	100	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aromatic >C12-C16	mg/kg	180	200	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aromatic >C16-C21	mg/kg	150	2100	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aromatic >C21-C35	mg/kg	180	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
<b>PAHs (wet weight)</b>																														
2-Methylnaphthalene	mg/kg	22	1.7	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Acenaphthene	mg/kg	370	220	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Acenaphthylene	mg/kg	350	88	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Anthracene	mg/kg	2200	120	N/S																										



Table 6  
Soil Data Summary  
Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.  
Hayes Oil and Gas Field  
Calcasieu and Jefferson Davis Parishes, Louisiana

Soil Data Summary (wet weight)						Area 4 (cont.)																														
Parameters	Units	RECAP SOIL_SSn	RECAP SSGW	29-B Upland	29-B Elevated Wetland	H-21 Upland 3/30/2021												H-21R Upland 11/17/2021								H-21W Upland 11/18/2021										
						0-2			6-8			8-10			10-12			14-16			0-1		1-2		2-3		10-12		22-24		0-2		6-8		8-10	
						ERM	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
<b>29B/Misc</b>																																				
% Moisture	wt%	N/S	N/S	N/S	N/S	19.1	18.9	22.6	22.9	24.3	20.3	19.5	23.4	23.4	16.1	15.0	16	15.7	16.7	19.4	20.8	19.0	17.8	17.6	18.1	16.2	16.8	15.3	19.3	18.6						
Cation Exchange Capacity (CEC)	meq/100g	N/S	N/S	N/S	N/S	29.2	37.7	23.4	29.6	30.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Electrical Conductivity (EC)	mmhos/cm	N/S	N/S	4	8	2.06	1.64	3.73	4.2	4.51	3.32	3.88	3.41	2.99	0.64	0.60	0.79	0.63	1.32	1.15	3.03	3.98	1.16	1.34	0.68	0.88	1.19	1.24	3.73	3.67						
Exchangeable Sodium Percentage (ESP)	%	N/S	N/S	15	25	23.8	12.1	76.5	53.9	43.8	NA	NA	NA	NA	4.05	5.77	16.3	14.9	24.7	20.8	20	NA	5.97	NA	4.63	5.43	6.32	6.36	4.67	3.91						
Sodium Adsorption Ratio (SAR)	Unitless	N/S	N/S	12	14	12.9	9.37	22.7	27.2	23.5	NA	NA	NA	NA	3.79	4.62	7.45	6.25	11.5	12.4	27.1	NA	3.76	NA	4.72	5.97	7.21	7.93	5.97	5.65						
Soluble Calcium	meq/L	N/S	N/S	N/S	N/S	1.27	1.39	2.37	1.38	3.45	NA	NA	NA	NA	1.98	1.14	0.84	0.72	1.03	0.73	1.26	NA	3.28	NA	1.38	1.34	1.71	1.59	13	14.3						
Soluble Magnesium	meq/L	N/S	N/S	N/S	N/S	0.54	0.64	0.91	0.54	1.39	NA	NA	NA	NA	0.7	0.56	0.57	0.45	0.76	0.35	0.56	NA	1.81	NA	0.69	0.75	1.02	0.98	6.42	7.23						
Soluble Sodium	meq/L	N/S	N/S	N/S	N/S	12.3	9.44	29.1	26.6	36.6	NA	NA	NA	NA	4.39	4.26	6.26	4.77	10.9	9.08	25.9	NA	6	NA	4.8	6.11	8.41	8.99	18.6	18.5						
Chloride	mg/kg-dry	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	61.5	60.1	128	96.1	271	371	1,090	1,250	248	247	94.6	152	276	232	1,010	810							
pH	SU	N/S	N/S	6-9	6-9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
True Total Barium	mg/kg-dry	N/S	N/S	40000	20000	349	402	235	128	592	120	105	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Oil & Grease	%	N/S	N/S	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
<b>Leachate and SPLP</b>																																				
Leachate Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	130	NA	362	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
SPLP Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	56.8	NA	66.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
SPLP Sodium	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	88.8	NA	56	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
SPLP Barium	mg/L	N/S	40	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
SPLP Lead	mg/L	N/S	1	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
SPLP Mercury	mg/L	N/S	0.04	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
SPLP Strontium	mg/L	N/S	440	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
<b>Metals (wet weight)</b>																																				
Arsenic	mg/kg	12	100	10	10	2.51	3	4.51	4.31	2.63	5.48	3.66	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Barium	mg/kg	550	2000	N/S	N/S	110	315	162	91.4	59.4	183	105	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Cadmium	mg/kg	3.9	20	10	10	<0.245	<0.406	<0.386	<0.250	<0.377	<0.250	<0.401	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Chromium	mg/kg	12000	100	500	500	4.7	8.19	8.75	6.1	8.78	10.8	10.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Lead	mg/kg	400	100	500	500	6.93	10.4	9.06	6.67	6.26	8.19	7.02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Mercury	mg/kg	2.3	4	10	10	<0.0997	<0.0781	<0.0836	<0.0992	<0.0765	<0.0986	<0.0821	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Selenium	mg/kg	39	20	10	10	NA	<3.24	<3.09	NA	<3.01	NA	<3.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Silver	mg/kg	39	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Strontium	mg/kg	4700	44000	N/S	N/S	62.8	73.5	140	106	101	98.6	86.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Zinc	mg/kg	2300	2800	500	500	7.21	28.5	17.1	17.3	18.5	36.4	27.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
<b>Hydrocarbons (wet weight)</b>																																				
TPH-G	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
TPH-D	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
TPH-O	mg/kg	180	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Aliphatic C6-C8	mg/kg	1200	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Aliphatic >C8-C10	mg/kg	120	5300	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Aliphatic >C10-C12	mg/kg	230	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Aliphatic >C12-C16	mg/kg	370	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Aliphatic >C16-C35	mg/kg	7100	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Aromatic >C8-C10	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Aromatic >C10-C12	mg/kg	120	100	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Aromatic >C12-C16	mg/kg	180	200	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Aromatic >C16-C21	mg/kg	150	2100	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Aromatic >C21-C35	mg/kg	180	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
<b>PAHs (wet weight)</b>																																				
2-Methylnaphthalene	mg/kg	22	1.7	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Acenaphthene	mg/kg	370	220	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Acenaphthylene	mg/kg	350	88	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Anthracene	mg/kg	2200	120	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Benzo(a)anthracene	mg/kg	0.62	330	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Benzo(a)pyrene	mg/kg	0.33	23	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Benzo(b)fluoranthene	mg/kg	0.62	220	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Benzo(ghi)perylene	mg/kg	230	61	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Benzo(k)fluoranthene	mg/kg	6.2	120	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Chrysene	mg/kg	62	76	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Dibenz(ah)anthracene	mg/kg	0.33	540	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						
Fluoranthene	mg/kg	220	12																																	









Table 6  
Soil Data Summary  
Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.  
Hayes Oil and Gas Field  
Calcasieu and Jefferson Davis Parishes, Louisiana

Soil Data Summary (wet weight)					Area 5 (cont.)																														
Parameters	Units	RECAP SOIL_SSn	RECAP SSGW	29-B Upland	29-B Elevated Wetland	H-15E Upland 12/13/2021												H-17 Upland 11/20/2019										H-17SW Upland 12/7/2021							
						0-2		4-6		8-10		14-16		0-2		4-6		6-8		8-10		10-12		12-14		14-16		38-40		4-6		8-10		10-12	
						ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
<b>29B/Misc</b>																																			
% Moisture	wt%	N/S	N/S	N/S	N/S	10.4	14.3	17.3	18.2	14.8	15.4	24.0	22.2	16.7	14.1	15.4	12.8	12.9	12.7	13.1	15.5	15.7	20.2	17.9	17	17.8	16.7	16.3	21.6	20.4	18.9	18.7	22.7	24.2	
Cation Exchange Capacity (CEC)	meq/100g	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	17.9	25.3	29.3	20.1	16.3	21.1	22	36	33.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Electrical Conductivity (EC)	mmhos/cm	N/S	N/S	4	8	0.58	0.52	0.91	0.82	1.19	1.04	0.96	1.05	1.06	1.59	1.59	3.12	2.67	3.17	3.06	3.75	4.15	3.76	3.87	3.06	3.61	0.81	0.75	1.15	1.42	1.8	2.14	1.72	3.07	
Exchangeable Sodium Percentage (ESP)	%	N/S	N/S	15	25	1.00	1.40	6.46	8.86	NA	NA	NA	NA	6.97	22.3	20.9	22.5	27.3	22.8	24.9	12	14.2	NA	NA	NA	NA	NA	NA	6.89	7.11	6.03	6.29	NA	NA	
Sodium Adsorption Ratio (SAR)	Unitless	N/S	N/S	12	14	1.99	2.84	7.54	7.32	NA	NA	NA	NA	7.1	18.6	13.4	20	19.1	17.8	19.1	12.1	13.6	NA	NA	NA	NA	NA	6.67	7.54	5.09	5.41	NA	NA		
Soluble Calcium	meq/L	N/S	N/S	N/S	N/S	2.57	1.63	0.93	0.81	NA	NA	NA	NA	1.07	0.52	0.84	1.58	1.26	1.92	1.69	4.55	4.73	NA	NA	NA	NA	NA	2.06	2.03	5.2	5.37	NA	NA		
Soluble Magnesium	meq/L	N/S	N/S	N/S	N/S	1.03	0.67	0.66	0.42	NA	NA	NA	NA	0.54	0.22	0.41	0.71	0.53	0.85	0.64	2.06	2.1	NA	NA	NA	NA	NA	1.03	0.86	2.23	1.99	NA	NA		
Soluble Sodium	meq/L	N/S	N/S	N/S	N/S	2.68	3.04	6.73	5.73	NA	NA	NA	NA	6.39	11.3	10.5	21.4	18	20.9	20.6	21.9	25.1	NA	NA	NA	NA	NA	8.29	9.06	9.82	10.4	NA	NA		
Chloride	mg/kg-dry	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
pH	SU	N/S	N/S	6-9	6-9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
True Total Barium	mg/kg-dry	N/S	N/S	40000	20000	NA	NA	NA	NA	NA	NA	NA	NA	1090	218	213	174	125	160	177	390	361	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Oil & Grease	%	N/S	N/S	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
<b>Leachate and SPLP</b>																																			
Leachate Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
SPLP Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SPLP Sodium	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SPLP Barium	mg/L	N/S	N/S	40	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SPLP Lead	mg/L	N/S	N/S	1	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SPLP Mercury	mg/L	N/S	N/S	0.04	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SPLP Strontium	mg/L	N/S	N/S	440	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
<b>Metals (wet weight)</b>																																			
Arsenic	mg/kg	12	100	10	10	NA	NA	NA	NA	NA	NA	NA	NA	4.18	5.21	4.13	1.2	2.4	1.48	3.19	5.69	8.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Barium	mg/kg	550	2000	N/S	N/S	394	874	82.3	156	NA	NA	NA	NA	822	140	170	69.4	92.3	131	122	304	393	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Cadmium	mg/kg	3.9	20	10	10	NA	NA	NA	NA	NA	NA	NA	NA	<0.39	<0.249	<0.411	<0.248	<0.425	<0.248	<0.421	<0.248	0.41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Chromium	mg/kg	12000	100	500	500	NA	NA	NA	NA	NA	NA	NA	NA	8.24	7.93	8.54	2.12	4.69	5.04	5.63	24.3	10.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Lead	mg/kg	400	100	500	500	NA	NA	NA	NA	NA	NA	NA	NA	16.2	28.3	8.97	2.93	4.6	7.12	5.9	6.4	8.77	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Mercury	mg/kg	2.3	4	10	10	NA	NA	NA	NA	NA	NA	NA	NA	<0.0833	<0.102	<0.0846	<0.103	<0.0871	<0.0994	<0.0869	<0.109	<0.0843	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Selenium	mg/kg	39	20	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Silver	mg/kg	39	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Strontium	mg/kg	4700	44000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	63.9	76.5	59.1	35.4	44.4	52	46.3	32	38.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Zinc	mg/kg	2300	2800	500	500	NA	NA	NA	NA	NA	NA	NA	NA	18.2	11.7	15.7	5.14	9.93	12.7	11	36.6	36.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
<b>Hydrocarbons (wet weight)</b>																																			
TPH-G	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
TPH-D	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	556	617	NA	168	NA	92.9	NA	26.8	NA	59.6	NA	NA	NA	NA	NA	NA	NA	NA		
TPH-O	mg/kg	180	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	26.3	NA	24.6	NA	13.4	NA	11.9	NA	13.3	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Aliphatic C6-C8	mg/kg	1200	10000	N/S	N/S	2.68	NA	NA	NA	NA	NA	NA	NA	NA	<22.5	NA	<22.7	NA	38.8	NA	<26.2	NA	<28.9	NA	<25.3	NA	NA	NA	NA	NA	NA	NA	NA		
Aliphatic >C8-C10	mg/kg	120	5300	N/S	N/S	<5.22	NA	NA	NA	NA	NA	NA	NA	NA	28.7	NA	79.3	NA	44.4	NA	<26.2	NA	<28.9	NA	<25.3	NA	NA	NA	NA	NA	NA	NA	NA		
Aliphatic >C10-C12	mg/kg	230	10000	N/S	N/S	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	11	NA	8	NA	<5.83	NA	<5.71	NA	<6	NA	<6	NA	NA	NA	NA	NA	NA	NA	NA		
Aliphatic >C12-C16	mg/kg	370	10000	N/S	N/S	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	59.2	NA	29.9	NA	20	NA	10.9	NA	<6	NA	<6	NA	NA	NA	NA	NA	NA	NA	NA		
Aliphatic >C16-C35	mg/kg	7100	10000	N/S	N/S	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	47.7	NA	27.5	NA	14	NA	<5.71	NA	<6	NA	<6	NA	NA	NA	NA	NA	NA	NA	NA		
Aromatic >C8-C10	mg/kg	65	65	N/S	N/S	<3.48	NA	NA	NA	NA	NA	NA	NA	NA	<22.5	NA	<22.7	NA	<23.3	NA	<26.2	NA	<28.9	NA	<25.3	NA	NA	NA	NA	NA	NA	NA	NA		
Aromatic >C10-C12	mg/kg	120	100	N/S	N/S	<1.00	NA	NA	NA	NA	NA	NA	NA	NA	<5.88	NA	<6	NA	<5.83	NA	<5.71	NA	<6	NA	<6	NA	NA	NA	NA	NA	NA	NA	NA		
Aromatic >C12-C16	mg/kg	180	200	N/S	N/S	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	7.51	NA	10.3	NA	<5.83	NA	<5.71	NA	<6	NA	<6	NA	NA	NA	NA	NA	NA	NA	NA		
Aromatic >C16-C21	mg/kg	150	2100	N/S	N/S	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	<5.88	NA	<6	NA	<5.83	NA	<5.71	NA	<6	NA	<6	NA	NA	NA	NA	NA	NA	NA	NA		
Aromatic >C21-C35	mg/kg	180	10000	N/S	N/S	<2.00																													



Table 6  
Soil Data Summary  
Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.  
Hayes Oil and Gas Field  
Calcasieu and Jefferson Davis Parishes, Louisiana

Soil Data Summary (wet weight)		Area 5 (cont.)																																	
		H-18NW Upland														H-18SW Upland				H-19 Upland						H-19R Upland		H-19NE Upland		H-19SW Upland					
		RECAP SOIL_SSn	RECAP SSGW	29-B Upland	29-B Elevated Wetland	12/3/2021														12/14/2021				11/22/2019						12/14/2021		12/14/2021		12/14/2021	
						0-2		4-6		8-10		14-16		16-18		22-24		0-2		4-6		8-10		38-40		0-2		0-2		0-2					
Parameters	Units					ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON			
29B/Misc																																			
% Moisture	wt%	N/S	N/S	N/S	N/S	13.4	14.4	17.6	19.9	13.3	13.7	20	22.4	20.8	21.3	15.7	16.5	16.6	15.9	16	17.4	16.9	18.1	14.8	15.7	18.3	15.4	18.6	14.0	14.5	17.5	16.8			
Cation Exchange Capacity (CEC)	meq/100g	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25.5	33.6	32.4	50.8	22.8	NA	NA	NA	NA	NA	NA	NA	NA			
Electrical Conductivity (EC)	mmhos/cm	N/S	N/S	4	8	NA	NA	6.13	7.11	6.46	5.87	3.66	4.12	7.41	8.54	1.18	1.06	NA	1.00	1.34	4.27	3.65	3.6	2.97	2.93	3.86	NA	NA	NA	2.07	NA	0.60			
Exchangeable Sodium Percentage (ESP)	%	N/S	N/S	15	25	NA	NA	14.4	14.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.82	7.59	9.47	5.86	5	NA	NA	NA	NA	NA	NA	NA	NA			
Sodium Adsorption Ratio (SAR)	Unitless	N/S	N/S	12	14	NA	NA	30.6	28.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.78	7.93	7.56	5.32	5.25	NA	NA	NA	NA	NA	NA	NA	NA			
Soluble Calcium	meq/L	N/S	N/S	N/S	N/S	NA	NA	4.77	7.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.25	9.51	7.81	7.98	7.42	NA	NA	NA	NA	NA	NA	NA	NA			
Soluble Magnesium	meq/L	N/S	N/S	N/S	N/S	NA	NA	2.61	3.31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.92	4.54	3.83	5.89	3.68	NA	NA	NA	NA	NA	NA	NA	NA			
Soluble Sodium	meq/L	N/S	N/S	N/S	N/S	NA	NA	58.8	64.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.29	21	18.2	14	12.4	NA	NA	NA	NA	NA	NA	NA	NA			
Chloride	mg/kg-dry	N/S	N/S	N/S	N/S	NA	NA	745	NA	2180	NA	1600	NA	2000	NA	2770	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
pH	SU	N/S	N/S	6-9	6-9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
True Total Barium	mg/kg-dry	N/S	N/S	40000	20000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9360	314	233	277	79.9	NA	NA	NA	NA	NA	NA	NA	NA			
Oil & Grease	%	N/S	N/S	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Leachate and SPLP																																			
Leachate Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
SPLP Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
SPLP Sodium	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
SPLP Barium	mg/L	N/S	N/S	40	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.775	NA	12.4	NA	NA	NA	NA			
SPLP Lead	mg/L	N/S	N/S	1	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
SPLP Mercury	mg/L	N/S	N/S	0.04	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
SPLP Strontium	mg/L	N/S	N/S	440	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Metals (wet weight)																																			
Arsenic	mg/kg	12	100	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.93	2.56	5.77	2.55	2.79	NA	NA	NA	NA	NA	NA	NA	NA			
Barium	mg/kg	550	2000	N/S	N/S	591	538	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	40.9	1700	3150	28.8	120	46	27.8	NA	NA	NA	3690	2070	1860	579	3290	
Cadmium	mg/kg	3.9	20	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.417	<0.249	<0.413	<0.246	<0.401	NA	NA	NA	NA	NA	NA	NA	NA			
Chromium	mg/kg	12000	100	500	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.2	5.61	7.96	12.7	8.02	NA	NA	NA	NA	NA	NA	NA	NA			
Lead	mg/kg	400	100	500	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	28.6	6.79	10.1	9.74	6.03	NA	NA	NA	NA	NA	NA	NA	NA			
Mercury	mg/kg	2.3	4	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0899	<0.105	<0.0906	<0.105	<0.0912	NA	NA	NA	NA	NA	NA	NA	NA			
Selenium	mg/kg	39	20	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Silver	mg/kg	39	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Strontium	mg/kg	4700	44000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	64.8	16.5	20.9	26.3	15.9	NA	NA	NA	NA	NA	NA	NA	NA			
Zinc	mg/kg	2300	2800	500	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.2	11.2	15.7	44.6	19.8	NA	NA	NA	NA	NA	NA	NA	NA			
Hydrocarbons (wet weight)																																			
TPH-G	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
TPH-D	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
TPH-O	mg/kg	180	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Aliphatic C6-C8	mg/kg	1200	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Aliphatic >C8-C10	mg/kg	120	5300	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Aliphatic >C10-C12	mg/kg	230	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Aliphatic >C12-C16	mg/kg	370	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Aliphatic >C16-C35	mg/kg	7100	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Aromatic >C8-C10	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Aromatic >C10-C12	mg/kg	120	100	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Aromatic >C12-C16	mg/kg	180	200	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Aromatic >C16-C21	mg/kg	150	2100	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Aromatic >C21-C35	mg/kg	180	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
PAHs (wet weight)																																			
2-Methylnaphthalene	mg/kg	22	1.7	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Acenaphthene	mg/kg	370	220	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Acenaphthylene	mg/kg	350	88	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Anthracene	mg/kg	2200	120	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Benzo(a)anthracene	mg/kg	0.62	330	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			

Table 6  
Soil Data Summary  
Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.  
Hayes Oil and Gas Field  
Calcasieu and Jefferson Davis Parishes, Louisiana

Soil Data Summary (wet weight)						Area 5 (cont.)																					
Parameters	Units	RECAP SOIL_ SSni	RECAP SSGW	29-B Upland	29-B Elevated Wetland	MW-8 Upland 12/14/2021										MW-9 Upland 12/2/2021											
						0-2		4-6		8-10		14-16		20-22		0-2		4-6		8-10		12-14		14-16		20-22	
						ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
29B/Misc																											
% Moisture	wt%	N/S	N/S	N/S	N/S	12.9	15.4	17.5	17.9	19.6	19.2	23.1	21.7	16.8	17.2	13.9	14.2	14	14.3	15.8	16.6	19.8	20.3	17.8	19.8	14.4	14.8
Cation Exchange Capacity (CEC)	meq/100g	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Electrical Conductivity (EC)	mmhos/cm	N/S	N/S	4	8	0.83	0.45	0.66	0.82	1.76	1.70	1.78	2.20	1.02	0.93	0.77	0.81	0.85	0.94	1.68	1.53	1.13	0.97	0.89	0.71	0.62	0.75
Exchangeable Sodium Percentage (ESP)	%	N/S	N/S	15	25	2.74	6.20	9.60	9.18	NA	NA	NA	NA	NA	NA	7.3	8.28	9.97	11.6	NA	NA	NA	NA	NA	NA	NA	NA
Sodium Adsorption Ratio (SAR)	Unitless	N/S	N/S	12	14	4.04	5.20	7.25	8.55	NA	NA	NA	NA	NA	NA	7.15	7.38	8.52	8.58	NA	NA	NA	NA	NA	NA	NA	NA
Soluble Calcium	meq/L	N/S	N/S	N/S	N/S	2.90	0.60	0.63	0.66	NA	NA	NA	NA	NA	NA	0.91	1	0.75	0.94	NA	NA	NA	NA	NA	NA	NA	NA
Soluble Magnesium	meq/L	N/S	N/S	N/S	N/S	0.57	0.22	0.38	0.31	NA	NA	NA	NA	NA	NA	0.62	0.59	0.51	0.57	NA	NA	NA	NA	NA	NA	NA	NA
Soluble Sodium	meq/L	N/S	N/S	N/S	N/S	5.33	3.34	5.15	5.97	NA	NA	NA	NA	NA	NA	6.27	6.57	6.78	7.48	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/kg-dry	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	SU	N/S	N/S	6-9	6-9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
True Total Barium	mg/kg-dry	N/S	N/S	40000	20000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oil & Grease	%	N/S	N/S	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Leachate and SPLP																											
Leachate Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SPLP Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SPLP Sodium	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SPLP Barium	mg/L	N/S	40	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SPLP Lead	mg/L	N/S	1	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SPLP Mercury	mg/L	N/S	0.04	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SPLP Strontium	mg/L	N/S	440	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (wet weight)																											
Arsenic	mg/kg	12	100	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/kg	550	2000	N/S	N/S	1390	162	NA	NA	NA	NA	NA	NA	NA	NA	31.5	117	1030	200	296	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	3.9	20	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	12000	100	500	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	400	100	500	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/kg	2.3	4	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	39	20	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	39	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Strontium	mg/kg	4700	44000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	2300	2800	500	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbons (wet weight)																											
TPH-G	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-D	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-O	mg/kg	180	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aliphatic C6-C8	mg/kg	1200	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aliphatic >C8-C10	mg/kg	120	5300	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aliphatic >C10-C12	mg/kg	230	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aliphatic >C12-C16	mg/kg	370	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aliphatic >C16-C35	mg/kg	7100	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aromatic >C8-C10	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aromatic >C10-C12	mg/kg	120	100	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aromatic >C12-C16	mg/kg	180	200	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aromatic >C16-C21	mg/kg	150	2100	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aromatic >C21-C35	mg/kg	180	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PAHs (wet weight)																											
2-Methylnaphthalene	mg/kg	22	1.7	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	370	220	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	mg/kg	350	88	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	mg/kg	2200	120	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	0.62	330	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	0.33	23	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	0.62	220	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(ghi)perylene	mg/kg	230	61	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	6.2	120	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	mg/kg	62	76	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	0.33	540	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	mg/kg	2																									



Table 6  
Soil Data Summary  
Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.  
Hayes Oil and Gas Field  
Calcasieu and Jefferson Davis Parishes, Louisiana

Soil Data Summary (wet weight)						Area 5 (cont.)																										
Parameters	Units	RECAP SOIL SSni	RECAP SSGW	29-B Upland	29-B Elevated Wetland	MW-10 Upland												MW-11 Upland												B1 Upland	B2 Upland	B3 Upland
						12/13/2021												12/7/2021												7/3/2020	7/3/2020	7/3/2020
						0-2		4-6		8-10		10-12		12-14		16-18		0-2		4-6		8-10		10-12		20-22		0.5-1	0.5-1	0.5-1		
ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	HLP	HLP	HLP				
<b>29B/Misc</b>																																
% Moisture	wt%	N/S	N/S	N/S	N/S	12.9	13.3	16.2	16.8	17.5	18.4	21.5	20.9	21.8	21.0	20.7	23.4	16.3	16.9	17	17.9	16	17.4	22.9	18.1	17	17.3	35.1	18.4	21.8		
Cation Exchange Capacity (CEC)	meq/100g	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Electrical Conductivity (EC)	mmhos/cm	N/S	N/S	4	8	0.80	0.67	0.88	0.72	1.15	1.44	1.40	1.49	1.13	1.35	1.39	1.09	2.38	2.99	1.55	1.99	1.26	1.84	1.49	2.15	1.12	0.99	0.77	0.7	1.35		
Exchangeable Sodium Percentage (ESP)	%	N/S	N/S	15	25	2.21	4.57	7.65	9.45	7.34	8.63	NA	NA	NA	NA	NA	NA	10.4	11.0	11.9	11.8	8.74	10.2	NA	NA	NA	NA	1.53	7.36	2.73		
Sodium Adsorption Ratio (SAR)	Unitless	N/S	N/S	12	14	4.22	4.84	8.40	8.33	6.93	6.91	NA	NA	NA	NA	NA	NA	10.2	10.9	9.56	11.5	7.48	10.8	NA	NA	NA	NA	1.56	3.46	2.35		
Soluble Calcium	meq/L	N/S	N/S	N/S	N/S	2.09	1.75	0.72	0.67	1.77	2.48	NA	NA	NA	NA	NA	NA	3.68	4.16	1.85	2.01	1.77	1.65	NA	NA	NA	NA	3.78	1.46	6.45		
Soluble Magnesium	meq/L	N/S	N/S	N/S	N/S	1.03	0.97	0.68	0.40	1.08	1.32	NA	NA	NA	NA	NA	NA	1.84	2.04	1.07	0.95	1.07	0.86	NA	NA	NA	NA	0.64	0.88	1.51		
Soluble Sodium	meq/L	N/S	N/S	N/S	N/S	5.27	5.65	7.01	6.09	8.27	9.53	NA	NA	NA	NA	NA	NA	16.9	19.2	11.5	14.0	8.91	12.1	NA	NA	NA	NA	2.32	3.75	4.68		
Chloride	mg/kg-dry	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
pH	SU	N/S	N/S	6-9	6-9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.74	7.2	7.64		
True Total Barium	mg/kg-dry	N/S	N/S	40000	20000	4120	661	1140	985	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1420	436	1620		
Oil & Grease	%	N/S	N/S	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.5	1.1	3.57		
<b>Leachate and SPLP</b>																																
Leachate Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
SPLP Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
SPLP Sodium	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
SPLP Barium	mg/L	N/S	40	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
SPLP Lead	mg/L	N/S	1	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
SPLP Mercury	mg/L	N/S	0.04	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
SPLP Strontium	mg/L	N/S	440	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
<b>Metals (wet weight)</b>																																
Arsenic	mg/kg	12	100	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Barium	mg/kg	550	2000	N/S	N/S	1050	410	16.9	670	NA	NA	NA	NA	NA	NA	NA	NA	53.7	89.7	NA	NA	NA	NA	NA	NA	NA	NA	877	378	820		
Cadmium	mg/kg	3.9	20	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Chromium	mg/kg	12000	100	500	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Lead	mg/kg	400	100	500	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Mercury	mg/kg	2.3	4	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Selenium	mg/kg	39	20	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Silver	mg/kg	39	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Strontium	mg/kg	4700	44000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Zinc	mg/kg	2300	2800	500	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
<b>Hydrocarbons (wet weight)</b>																																
TPH-G	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
TPH-D	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	874	262	245		
TPH-O	mg/kg	180	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2580	1970	3240		
Aliphatic C6-C8	mg/kg	1200	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Aliphatic >C8-C10	mg/kg	120	5300	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Aliphatic >C10-C12	mg/kg	230	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Aliphatic >C12-C16	mg/kg	370	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Aliphatic >C16-C35	mg/kg	7100	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Aromatic >C8-C10	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Aromatic >C10-C12	mg/kg	120	100	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Aromatic >C12-C16	mg/kg	180	200	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Aromatic >C16-C21	mg/kg	150	2100	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Aromatic >C21-C35	mg/kg	180	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
<b>PAHs (wet weight)</b>																																
2-Methylnaphthalene	mg/kg	22	1.7	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Acenaphthene	mg/kg	370	220	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Acenaphthylene	mg/kg	350	88	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Anthracene	mg/kg	2200	120	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Benzo(a)anthracene	mg/kg	0.62	330	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Benzo(a)pyrene	mg/kg	0.33	23	N/S	N/S	NA	NA																									









Table 6  
**Soil Data Summary**  
 Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.  
 Hayes Oil and Gas Field  
 Calcasieu and Jefferson Davis Parishes, Louisiana

Soil Data Summary (wet weight)		Area 8 (cont.)																								
Parameters	Units	RECAP SOIL_SSn1	RECAP SSGW	29-B Upland	29-B Elevated Wetland	H-4						H-4R	H-4E		H-4E2		H-4N		H-4N2		H-4S		H-4W		H-4W2	
						Upland						Upland	Upland		Upland		Upland		Upland		Upland		Upland		Upland	
						11/4/2019						11/12/2021	11/12/2021		1/10/2022		11/12/2021		1/10/2022		11/12/2021		11/12/2021		1/10/2022	
						0-2	4-6		8-10		16-18		0-2	0-2		0-2		0-2		0-2		0-2		0-2		0-2
ICON	ERM	ICON	ICON	ERM	ICON	ERM	ERM	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	
<b>29B/Misc</b>																										
% Moisture	wrt%	N/S	N/S	N/S	N/S	18.7	17.2	17.4	21.9	18	17.5	18.1	27	23.5	20.3	22.1	21.1	18.6	21.2	20.9	25.3	24.6	17.3	17.9	24.6	20.5
Cation Exchange Capacity (CEC)	meq/100g	N/S	N/S	N/S	N/S	18.3	29.4	25.7	40.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Electrical Conductivity (EC)	mmhos/cm	N/S	N/S	4	8	0.38	1.23	0.84	2.56	0.66	0.96	NA	NA	NA	0.58	0.69	NA	NA	0.35	0.35	NA	NA	NA	NA	0.62	0.62
Exchangeable Sodium Percentage (ESP)	%	N/S	N/S	15	25	1.32	5.48	6.05	3.69	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium Adsorption Ratio (SAR)	Unitless	N/S	N/S	12	14	1.66	7.27	7.38	7.22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soluble Calcium	meq/L	N/S	N/S	N/S	N/S	1.97	1.79	0.99	7.27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soluble Magnesium	meq/L	N/S	N/S	N/S	N/S	0.61	0.86	0.49	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soluble Sodium	meq/L	N/S	N/S	N/S	N/S	1.89	8.36	6.33	16.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/kg-dry	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	SU	N/S	N/S	6-9	6-9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
True Total Barium	mg/kg-dry	N/S	N/S	40000	20000	12300	172	396	590	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oil & Grease	%	N/S	N/S	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Leachate and SPLP</b>																										
Leachate Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SPLP Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SPLP Sodium	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SPLP Barium	mg/L	N/S	40	N/S	N/S	NA	NA	NA	NA	NA	NA	2.41	NA	NA	0.708	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SPLP Lead	mg/L	N/S	1	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SPLP Mercury	mg/L	N/S	0.04	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SPLP Strontium	mg/L	N/S	440	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Metals (wet weight)</b>																										
Arsenic	mg/kg	12	100	10	10	6.22	2.42	3.46	4.27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/kg	550	2000	N/S	N/S	3690	94.7	120	166	NA	NA	NA	2,090	2830	3,920	5680	2,280	1770	2,940	3180	373	672	1,070	5440	504	3390
Cadmium	mg/kg	3.9	20	10	10	<0.389	<0.241	<0.407	<0.376	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	12000	100	500	500	7.6	6.73	8.08	14.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	400	100	500	500	9.51	10.5	8.51	10.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/kg	2.3	4	10	10	<0.0886	<0.108	<0.0892	0.128	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	39	20	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	39	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Strontium	mg/kg	4700	44000	N/S	N/S	31.9	12.5	12.9	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	2300	2800	500	500	10	8.67	10.3	34.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Hydrocarbons (wet weight)</b>																										
TPH-G	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-D	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-O	mg/kg	180	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aliphatic C6-C8	mg/kg	1200	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aliphatic >C8-C10	mg/kg	120	5300	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aliphatic >C10-C12	mg/kg	230	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aliphatic >C12-C16	mg/kg	370	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aliphatic >C16-C35	mg/kg	7100	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aromatic >C8-C10	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aromatic >C10-C12	mg/kg	120	100	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aromatic >C12-C16	mg/kg	180	200	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aromatic >C16-C21	mg/kg	150	2100	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aromatic >C21-C35	mg/kg	180	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>PAHs (wet weight)</b>																										
2-Methylnaphthalene	mg/kg	22	1.7	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	370	220	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	mg/kg	350	88	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	mg/kg	2200	120	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	0.62	330	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	0.33	23	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	0.62	220	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(ghi)perylene	mg/kg	230	61	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	6.2	120	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	mg/kg	62	76	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(ah)anthracene	mg/kg	0.33	540	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	mg/kg	220	1200	N/S																						



Table 6  
**Soil Data Summary**  
 Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.  
 Hayes Oil and Gas Field  
 Calcasieu and Jefferson Davis Parishes, Louisiana

Soil Data Summary (wet weight)		Area 9 (cont.)														
		H-34														
		Upland														
		8/19/2021														
Parameters	Units	RECAP SOIL_SSn	RECAP SSGW	29-B Upland	29-B Elevated Wetland	2-4	4-6		6-8		10-12		16-18		28-30	
						ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
<b>29B/Misc</b>																
% Moisture	wt%	N/S	N/S	N/S	N/S	17.8	21	19.7	16.9	16.4	19.4	21.2	22.1	20.8	21.4	21.3
Cation Exchange Capacity (CEC)	meq/100g	N/S	N/S	N/S	N/S	27.4	60.2	42.2	35.1	25.2	38.6	54	NA	NA	NA	NA
Electrical Conductivity (EC)	mmhos/cm	N/S	N/S	4	8	0.78	0.64	0.59	0.88	0.81	1.25	0.81	0.66	0.54	0.71	0.61
Exchangeable Sodium Percentage (ESP)	%	N/S	N/S	15	25	1.47	2.34	4.35	2.94	3.23	5.23	2.45	NA	NA	NA	NA
Sodium Adsorption Ratio (SAR)	Unitless	N/S	N/S	12	14	2.7	5.07	4.33	5.45	4.45	5.7	3.7	NA	NA	NA	NA
Soluble Calcium	meq/L	N/S	N/S	N/S	N/S	2.29	0.69	0.71	1.09	1.17	2.06	1.51	NA	NA	NA	NA
Soluble Magnesium	meq/L	N/S	N/S	N/S	N/S	0.84	0.43	0.44	0.65	0.69	1.05	0.88	NA	NA	NA	NA
Soluble Sodium	meq/L	N/S	N/S	N/S	N/S	3.37	3.8	3.29	5.09	4.29	7.11	4.05	NA	NA	NA	NA
Chloride	mg/kg-dry	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	SU	N/S	N/S	6-9	6-9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
True Total Barium	mg/kg-dry	N/S	N/S	40000	20000	111	179	153	191	147	2,540	189	NA	NA	NA	NA
Oil & Grease	%	N/S	N/S	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Leachate and SPLP</b>																
Leachate Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	18.7	NA	NA
SPLP Chloride	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	1.95	NA	NA	NA
SPLP Sodium	mg/L	N/S	N/S	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SPLP Barium	mg/L	N/S	40	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SPLP Lead	mg/L	N/S	1	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SPLP Mercury	mg/L	N/S	0.04	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SPLP Strontium	mg/L	N/S	440	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Metals (wet weight)</b>																
Arsenic	mg/kg	12	100	10	10	3.65	1.95	4.38	4.09	4.85	3.57	3.97	NA	NA	NA	NA
Barium	mg/kg	550	2000	N/S	N/S	169	123	126	42.7	95.3	197	121	NA	NA	NA	NA
Cadmium	mg/kg	3.9	20	10	10	<0.397	<0.258	<0.366	<0.246	<0.385	2.39	<0.382	NA	NA	NA	NA
Chromium	mg/kg	12000	100	500	500	9.7	7.45	9.31	3.66	6.04	4.26	11.7	NA	NA	NA	NA
Lead	mg/kg	400	100	500	500	14.3	8.94	9.4	5.06	8.44	8.04	13.9	NA	NA	NA	NA
Mercury	mg/kg	2.3	4	10	10	<0.0896	<0.106	<0.0745	<0.102	<0.0788	<0.109	<0.0761	NA	NA	NA	NA
Selenium	mg/kg	39	20	10	10	<3.18	<2.06	<2.93	<1.97	<3.08	<1.91	<3.06	NA	NA	NA	NA
Silver	mg/kg	39	100	200	200	NA	<0.258	NA	<0.246	NA	<0.239	NA	NA	NA	NA	NA
Strontium	mg/kg	4700	44000	N/S	N/S	8.8	NA	14.4	NA	11	NA	22.1	NA	NA	NA	NA
Zinc	mg/kg	2300	2800	500	500	18.9	10.4	10.9	9.26	14.7	19	38.1	NA	NA	NA	NA
<b>Hydrocarbons (wet weight)</b>																
TPH-G	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-D	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-O	mg/kg	180	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aliphatic C6-C8	mg/kg	1200	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aliphatic >C8-C10	mg/kg	120	5300	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aliphatic >C10-C12	mg/kg	230	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aliphatic >C12-C16	mg/kg	370	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aliphatic >C16-C35	mg/kg	7100	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aromatic >C8-C10	mg/kg	65	65	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aromatic >C10-C12	mg/kg	120	100	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aromatic >C12-C16	mg/kg	180	200	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aromatic >C16-C21	mg/kg	150	2100	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aromatic >C21-C35	mg/kg	180	10000	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>PAHs (wet weight)</b>																
2-Methylnaphthalene	mg/kg	22	1.7	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	370	220	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	mg/kg	350	88	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	mg/kg	2200	120	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	0.62	330	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	0.33	23	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	0.62	220	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(ghi)perylene	mg/kg	230	61	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	6.2	120	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	mg/kg	62	76	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(ah)anthracene	mg/kg	0.33	540	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	mg/kg	220	1200	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	mg/kg	280	230	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(123-cd)pyrene	mg/kg	0.62	9.2	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	mg/kg	6.2	1.5	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	mg/kg	2100	660	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	mg/kg	230	1100	N/S	N/S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**Notes:**  
 Bolded values were detected in the sample  
 Highlight indicates exceedance of corresponding regulatory standard.  
 Gray shaded samples are outside Chevron Limited Admission Areas  
 < - Not detected at or above the reporting limit shown  
 Wetland designation based on USFWS wetland map  
 \* - Listed SPLP standards are 20 x RECAP GW\_SS  
 NA - Not analyzed; N/S - No standard  
 ERM & HLP metals results reported as wet-weight except where noted.  
 ICON metals results converted to wet-weight except where noted.



**Table 7**  
**Groundwater Analytical Data**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Parameters	Area 1														Area 2						
	Well Identifier:				H-25			H-26			H-27			H-9			H-12			MW-1	
	UTM Zone 15R Easting (m):				506724			506899			507109			0707269			0508067			507828	
	UTM Zone 15R Northing (m):				3327899			3327907			3327897			3423878			3328235			3328129	
	Screened Depth Interval (feet BGS):				38-48'			45-50'			46-51'			50-55'			50-60'			50-60	
Sample Date:				4/20/2021			4/20/2021			4/20/2021			3/5/2020			3/5/2020			12/15/2021		
	Units	GW <sub>SS</sub>	GW <sub>NDW</sub>	ERM	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON							
<b>Total Metals</b>																					
Arsenic	mg/L	0.01	0.05	NA	NA	NA	NA	NA	<0.013	<0.100	<0.025	<0.100	<0.0010	<0.00250							
Barium	mg/L	2	45	NA	NA	NA	NA	NA	<b>0.29</b>	<b>0.257</b>	<b>2.27</b>	<b>2.11</b>	<b>0.022</b>	<b>0.0200</b>							
Cadmium	mg/L	0.005	0.01	NA	NA	NA	NA	NA	<0.013	<0.00500	<0.025	<0.0500	<0.0010	<0.00500							
Calcium	mg/L	NS	NS	NA	NA	<b>108</b>	NA	NA	<b>3,060</b>	<b>2,650</b>	<b>2,310</b>	<b>1,830</b>	<b>140</b>	<b>143</b>							
Chromium	mg/L	0.1	960	NA	NA	NA	NA	NA	<0.050	<0.0100	<0.10	<0.100	<b>0.001</b>	<0.0100							
Iron <sup>(1)</sup>	mg/L	0.3	0.3	NA	NA	NA	NA	NA	<b>6.54</b>	<b>5.53</b>	<10.0	<b>6.93</b>	<b>0.888</b>	<b>0.892</b>							
Lead	mg/L	0.015	0.05	NA	NA	NA	NA	NA	<0.015	<0.0100	<0.025	<0.100	<0.0010	<0.0100							
Magnesium	mg/L	NS	NS	NA	NA	<b>47.1</b>	NA	NA	<b>1150</b>	<b>1,030</b>	<b>616</b>	<b>558</b>	<b>69.6</b>	<b>67.0</b>							
Manganese <sup>(1)</sup>	mg/L	0.05	0.05	NA	NA	NA	NA	NA	<b>17.4</b>	<b>14.6</b>	<b>16.8</b>	<b>14.4</b>	<b>0.871</b>	<b>0.828</b>							
Mercury	mg/L	0.002	0.002	NA	NA	NA	NA	NA	<0.00020	<0.000200	<0.00020	<0.000200	<0.00020	<0.000200							
Potassium	mg/L	NS	NS	NA	NA	<b>7.37</b>	NA	NA	<b>26.9</b>	<b>37.3</b>	<b>47.2</b>	<b>58.7</b>	<b>4.22</b>	<5.00							
Sodium	mg/L	NS	NS	NA	NA	<b>241</b>	NA	NA	<b>7,840</b>	<b>7,390</b>	<b>38,300</b>	<b>17,800</b>	<b>186</b>	<b>179</b>							
Strontium <sup>(3)</sup>	mg/L	2.2	33	NA	NA	NA	NA	NA	<b>22.3</b>	<b>20.2</b>	<b>49.2</b>	<b>46.3</b>	<b>0.833</b>	<b>0.792</b>							
Zinc	mg/L	1.1	8	NA	NA	NA	NA	NA	<1.00	<0.0100	<1.10	<0.100	<0.010	<0.0100							
<b>Dissolved Metals</b>																					
Arsenic	mg/L	0.01	0.05	<b>0.0016</b>	<0.00250	NA	<b>0.0041</b>	<b>0.00428</b>	<0.013	NA	<0.025	NA	<0.0200	NA							
Barium	mg/L	2	45	<b>0.087</b>	<b>0.0775</b>	NA	<b>0.048</b>	<b>0.0489</b>	<b>0.27</b>	NA	<b>2.13</b>	NA	<b>0.021</b>	NA							
Cadmium	mg/L	0.005	0.01	<0.0010	<0.00500	NA	<0.0010	<0.00500	<0.013	NA	<0.025	NA	<0.0010	NA							
Calcium	mg/L	NS	NS	NA	<b>126</b>	NA	NA	<b>180</b>	NA	NA	NA	NA	NA	NA							
Chromium	mg/L	0.1	0.05	<b>0.003</b>	<0.0100	NA	<0.0010	<0.0100	<0.050	NA	<0.10	NA	<0.001	NA							
Iron <sup>(1)</sup>	mg/L	0.3	0.3	<b>1.23</b>	<b>0.377</b>	NA	<b>1.32</b>	<b>1.22</b>	<b>6.07</b>	NA	<10.0	NA	<b>0.514</b>	NA							
Lead	mg/L	0.015	0.05	<b>0.0014</b>	<0.0100	NA	<0.0010	<0.0100	<0.015	NA	<0.025	NA	<0.0010	NA							
Magnesium	mg/L	NS	NS	NA	<b>50.2</b>	NA	NA	<b>76.8</b>	NA	NA	NA	NA	NA	NA							
Manganese <sup>(1)</sup>	mg/L	0.05	0.05	<b>1.58</b>	<b>1.51</b>	NA	<b>0.78</b>	<b>0.755</b>	<b>15.1</b>	NA	<b>16.2</b>	NA	<b>0.92</b>	NA							
Mercury	mg/L	0.002	0.002	<0.00020	<0.000200	NA	<0.00020	<0.000200	<0.00020	NA	<0.00020	NA	NA	NA							
Potassium	mg/L	NS	NS	NA	<5.00	NA	NA	<5.00	NA	NA	NA	NA	NA	NA							
Sodium	mg/L	NS	NS	NA	<b>271</b>	NA	NA	<b>283</b>	NA	NA	NA	NA	NA	NA							
Strontium <sup>(3)</sup>	mg/L	2.2	33	<b>0.70</b>	<b>0.748</b>	NA	<b>1.23</b>	<b>1.13</b>	<b>20.9</b>	NA	<b>44.1</b>	NA	<b>0.845</b>	NA							
Zinc	mg/L	1.1	8	<0.020	<0.0100	NA	<0.020	<b>0.0107</b>	<1.0	NA	<1.10	NA	<0.010	NA							
<b>Anions</b>																					
Chloride <sup>(1)</sup>	mg/L	250	250	<b>372</b>	<b>347</b>	<b>250</b>	<b>496</b>	<b>466</b>	<b>23,900</b>	<b>22,300</b>	<b>45,800</b>	<b>39,200</b>	<b>58.5</b>	<b>62.4</b>							
Sulfate <sup>(1)</sup>	mg/L	250	250	<b>237</b>	<b>254</b>	<b>246</b>	<b>445</b>	<b>499</b>	<b>360</b>	<b>472</b>	<b>148</b>	<b>56.4</b>	<b>493</b>	<b>571</b>							
<b>Alkalinity</b>																					
Bicarbonate Alkalinity	mg/L	NS	NS	<b>362</b>	<b>388</b>	<b>342</b>	<b>311</b>	<b>338</b>	<b>300</b>	<b>258</b>	<b>348</b>	<b>295</b>	<b>530</b>	<b>450</b>							
Carbonate Alkalinity	mg/L	NS	NS	<1.0	<10.0	<10.0	<1.0	<10.0	<1.0	<10.0	<1.0	<10.0	<10	<20.0							
Total Alkalinity	mg/L	NS	NS	<b>362</b>	<b>388</b>	<b>342</b>	<b>311</b>	<b>338</b>	<b>300</b>	<b>258</b>	<b>348</b>	<b>295</b>	<b>530</b>	<b>450</b>							
Hydroxide Alkalinity	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA							
Total Dissolved Solids (TDS) <sup>(1)</sup>	mg/L	500	500	<b>2,250</b>	<b>1,260</b>	<b>1,120</b>	<b>1,690</b>	<b>1,720</b>	<b>45,800</b>	<b>32,700</b>	<b>71,900</b>	<b>63,600</b>	<b>1,350</b>	<b>570</b>							
<b>BTEX Compounds</b>																					
Benzene	mg/L	0.005	0.013	<0.00500	<0.00500	NA	<0.00500	<0.00500	<b>0.014</b>	<b>0.0119</b>	<b>0.089</b>	<b>0.07</b>	<0.001	<0.00500							
Ethylbenzene	mg/L	0.7	8.1	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.001	<0.00500							
Toluene	mg/L	1	46	<0.00500	<0.01	NA	<0.00500	<0.01	<b>0.012</b>	<0.01	<0.00500	<0.01	<0.002	<0.0100							
Xylene (total)	mg/L	10	10	<0.015	<0.05	NA	<0.015	<0.05	<0.015	<0.05	<0.015	<0.05	<0.001	<0.0500							
o-Xylene	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.00500							
mp-Xylene	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.002	<0.0100							
<b>Hydrocarbons</b>																					
TPH - Gasoline Range	mg/L	0.15	31	NA	<0.150	NA	NA	<0.150	NA	<0.150	NA	<b>0.209</b>	NA	<0.150							
TPH - Diesel Range	mg/L	0.15	24	NA	<b>0.359</b>	NA	NA	<b>0.248</b>	NA	<0.133	NA	<0.127	NA	<0.131							
TPH - Oil Range	mg/L	0.15	24	NA	<0.126	NA	NA	<0.125	NA	<0.123	NA	<0.118	NA	<0.121							
Aliphatic C6-C8	mg/L	3.2	3,900	<0.030	NA	NA	<0.030	NA	<b>0.04</b>	NA	<b>0.122</b>	NA	<0.005	NA							
Aliphatic >C8-C10	mg/L	0.15	79	<0.020	NA	NA	<0.020	NA	<0.020	NA	<0.020	NA	<0.013	NA							
Aliphatic >C10-C12	mg/L	0.15	79	<0.100	NA	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.130	NA							
Aliphatic >C12-C16	mg/L	0.15	79	<0.100	NA	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.130	NA							
Aliphatic >C16-C35	mg/L	7.3	1,600	<0.150	NA	NA	<0.150	NA	<0.150	NA	<0.150	NA	<0.217	NA							
Aromatic >C8-C10	mg/L	0.15	31	<0.030	NA	NA	<0.030	NA	<0.030	NA	<0.030	NA	<0.005	NA							
Unadjusted >C10-C12 Aromatics	mg/L	0.15	31	<0.100	NA	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.130	NA							
Unadjusted >C12-C16 Aromatics	mg/L	0.15	31	<0.100	NA	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.130	NA							
Unadjusted >C16-C21 Aromatics	mg/L	0.15	24	<0.100	NA	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.130	NA							
Aromatic >C21-C35	mg/L	0.15	24	<0.100	NA	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.152	NA							
<b>Radium</b>																					
Radium 226	pCi/L	NS	NS	NA	NA	NA	NA	NA	<b>0.394</b>	<b>5.20</b>	<b>0.679</b>	<b>20.7</b>	<b>0.0873</b>	<b>0.252</b>							
Radium 228	pCi/L	NS	NS	NA	NA	NA	NA	NA	<b>0.393</b>	<b>11.8</b>	<b>1.40</b>	<b>29.3</b>	<b>0.236</b>	<b>0.390</b>							
Radium 226+228 <sup>(2)</sup>	pCi/L	5	5	NA	NA	NA	NA	NA	<b>0.787</b>	<b>17.0</b>	<b>2.079</b>	<b>50.0</b>	<b>0.324</b>	<b>0.642</b>							
Total Dissolved Solids (TDS) <sup>(1)</sup>	mg/L	500	500	NA	NA	NA	NA	NA	<b>38,400</b>	NA	<b>65,000</b>	NA	<b>1233</b>	NA							

**Notes:**  
Bolded values were detected in the sample  
Highlight indicates exceedance of corresponding regulatory standard  
Gray shaded samples are outside Chevron Limited Admission Areas  
GW<sub>SS</sub> - RECAP Groundwater Screening Standard  
GW<sub>NDW</sub> - RECAP Class 3 Non-Drinking Water Standard w/o DAF  
<sup>(1)</sup> - Listed limit is EPA SMCL  
<sup>(2)</sup> - Listed limit is EPA MCL  
<sup>(3)</sup> - GW<sub>SS</sub> and GW<sub>NDW</sub> not provided in RECAP; the risk-based value was calculated in accordance with Appendix H of RECAP (2003).  
< - Not detected at or above the reporting limit shown  
NA - Not analyzed; NS - No Standard

**Table 7**  
**Groundwater Analytical Data**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Parameters	Area 2 (cont.)										
	Well Identifier:			MW-2		MW-3		MW-4		MW-5	
	UTM Zone 15R Easting (m):			507705		507710		507845		507937	
	UTM Zone 15R Northing (m):			3328142		3328311		3328349		3328245	
	Screened Depth Interval (feet BGS):			48-58		34-39		42-52		30-35	
Sample Date:			12/15/2021		12/15/2021		12/15/2021		12/15/2021		
	Units	GW <sub>SS</sub>	GW <sub>NDW</sub>	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
<b>Total Metals</b>											
Arsenic	mg/L	0.01	0.05	<0.0010	<0.00250	<0.0010	<0.00250	<0.0010	<0.00250	<0.0010	<0.00250
Barium	mg/L	2	45	<b>0.053</b>	<b>0.0232</b>	<b>0.015</b>	<b>0.0129</b>	<b>0.031</b>	<b>0.0330</b>	<b>0.025</b>	<b>0.0285</b>
Cadmium	mg/L	0.005	0.01	<0.0010	<0.00500	<0.0010	<0.00500	<0.0010	<0.00500	<0.0010	<0.00500
Calcium	mg/L	NS	NS	<b>128</b>	<b>129</b>	<b>240</b>	<b>256</b>	<b>359</b>	<b>375</b>	<b>428</b>	<b>467</b>
Chromium	mg/L	0.1	960	<b>0.009</b>	<0.0100	<0.001	<0.0100	<0.001	<0.0100	<0.001	<0.0100
Iron <sup>(1)</sup>	mg/L	0.3	0.3	<b>4.63</b>	<b>1.46</b>	<b>0.183</b>	<b>0.268</b>	<b>0.289</b>	<b>0.851</b>	<b>0.119</b>	<b>1.17</b>
Lead	mg/L	0.015	0.05	<b>0.0033</b>	<0.0100	<0.0010	<0.0100	<0.0010	<0.0100	<0.0010	<0.0100
Magnesium	mg/L	NS	NS	<b>53.2</b>	<b>54.5</b>	<b>96.8</b>	<b>102</b>	<b>173</b>	<b>189</b>	<b>181</b>	<b>197</b>
Manganese <sup>(1)</sup>	mg/L	0.05	0.05	<b>0.996</b>	<b>1.03</b>	<b>3.31</b>	<b>3.16</b>	<b>4.25</b>	<b>4.12</b>	<b>1.62</b>	<b>1.69</b>
Mercury	mg/L	0.002	0.002	<0.00020	<0.000200	<0.00020	<0.000200	<0.00020	<0.000200	<0.00020	<0.000200
Potassium	mg/L	NS	NS	<b>4.69</b>	<5.00	<b>5.18</b>	<b>5.70</b>	<b>5.81</b>	<b>6.91</b>	<b>5.30</b>	<b>6.37</b>
Sodium	mg/L	NS	NS	<b>176</b>	<b>175</b>	<b>253</b>	<b>270</b>	<b>360</b>	<b>383</b>	<b>272</b>	<b>308</b>
Strontium <sup>(3)</sup>	mg/L	2.2	33	<b>0.659</b>	<b>0.648</b>	<b>1.19</b>	<b>1.18</b>	<b>2.12</b>	<b>2.05</b>	<b>2.07</b>	<b>2.23</b>
Zinc	mg/L	1.1	8	<b>0.016</b>	<0.0100	<0.010	<0.0100	<0.010	<0.0100	<0.010	<0.0100
<b>Dissolved Metals</b>											
Arsenic	mg/L	0.01	0.05	<0.0010	NA	<0.0010	NA	<0.0010	NA	<0.0010	NA
Barium	mg/L	2	45	<b>0.027</b>	NA	<b>0.014</b>	NA	<b>0.029</b>	NA	<b>0.025</b>	NA
Cadmium	mg/L	0.005	0.01	<0.0010	NA	<0.0010	NA	<0.0010	NA	<0.0010	NA
Calcium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.05	<0.001	NA	<0.001	NA	<0.001	NA	<0.001	NA
Iron <sup>(1)</sup>	mg/L	0.3	0.3	<b>1.34</b>	NA	<b>0.183</b>	NA	<b>0.171</b>	NA	<0.100	NA
Lead	mg/L	0.015	0.05	<0.0010	NA	<0.0010	NA	<0.0010	NA	<0.0010	NA
Magnesium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA
Manganese <sup>(1)</sup>	mg/L	0.05	0.05	<b>0.982</b>	NA	<b>3.15</b>	NA	<b>4.06</b>	NA	<b>1.61</b>	NA
Mercury	mg/L	0.002	0.002	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA
Strontium <sup>(3)</sup>	mg/L	2.2	33	<b>0.662</b>	NA	<b>1.14</b>	NA	<b>1.95</b>	NA	<b>2.20</b>	NA
Zinc	mg/L	1.1	8	<0.010	NA	<0.010	NA	<0.010	NA	<0.010	NA
<b>Anions</b>											
Chloride <sup>(1)</sup>	mg/L	250	250	<b>62.6</b>	<b>57.2</b>	<b>153</b>	<b>156</b>	<b>1,010</b>	<b>1,090</b>	<b>1,100</b>	<b>1,320</b>
Sulfate <sup>(1)</sup>	mg/L	250	250	<b>403</b>	<b>411</b>	<b>919</b>	<b>918</b>	<b>659</b>	<b>620</b>	<b>628</b>	<b>740</b>
<b>Alkalinity</b>											
Bicarbonate Alkalinity	mg/L	NS	NS	<b>478</b>	<b>438</b>	<b>481</b>	<b>450</b>	<b>367</b>	<b>320</b>	<b>241</b>	<b>225</b>
Carbonate Alkalinity	mg/L	NS	NS	<2	<20.0	<2	<20.0	<2	<20.0	<2	<20.0
Total Alkalinity	mg/L	NS	NS	<b>478</b>	<b>438</b>	<b>481</b>	<b>450</b>	<b>367</b>	<b>320</b>	<b>241</b>	<b>225</b>
Hydroxide Alkalinity	mg/L	NS	NS	<2	NA	<2	NA	<2	NA	<2	NA
Total Dissolved Solids (TDS) <sup>(1)</sup>	mg/L	500	500	<b>1,120</b>	<b>1,020</b>	<b>2,060</b>	<b>1,640</b>	<b>2,860</b>	<b>2,510</b>	<b>3,360</b>	<b>2,500</b>
<b>BTEX Compounds</b>											
Benzene	mg/L	0.005	0.013	<0.001	<0.00500	<0.001	<0.00500	<0.001	<0.00500	<0.001	<0.00500
Ethylbenzene	mg/L	0.7	8.1	<0.001	<0.00500	<0.001	<0.00500	<0.001	<0.00500	<0.001	<0.00500
Toluene	mg/L	1	46	<0.002	<0.0100	<0.002	<0.0100	<0.002	<0.0100	<0.002	<0.0100
Xylene (total)	mg/L	10	10	<0.001	<0.0500	<0.001	<0.0500	<0.001	<0.0500	<0.001	<0.0500
o-Xylene	mg/L	NS	NS	<0.001	<0.00500	<0.001	<0.00500	<0.001	<0.00500	<0.001	<0.00500
mp-Xylene	mg/L	NS	NS	<0.002	<0.0100	<0.002	<0.0100	<0.002	<0.0100	<0.002	<0.0100
<b>Hydrocarbons</b>											
TPH - Gasoline Range	mg/L	0.15	31	NA	<0.150	NA	<0.150	NA	<0.150	NA	<0.150
TPH - Diesel Range	mg/L	0.15	24	NA	<0.133	NA	<0.131	NA	<0.130	NA	<0.131
TPH - Oil Range	mg/L	0.15	24	NA	<0.123	NA	<0.121	NA	<0.120	NA	<0.141
Aliphatic C6-C8	mg/L	3.2	3,900	<0.015	NA	<0.015	NA	<0.015	NA	<0.015	NA
Aliphatic >C8-C10	mg/L	0.15	79	<0.030	NA	<0.030	NA	<0.030	NA	<0.030	NA
Aliphatic >C10-C12	mg/L	0.15	79	<0.130	NA	<0.130	NA	<0.130	NA	<0.130	NA
Aliphatic >C12-C16	mg/L	0.15	79	<0.130	NA	<0.130	NA	<0.130	NA	<0.130	NA
Aliphatic >C16-C35	mg/L	7.3	1,600	<0.217	NA	<0.217	NA	<b>0.254</b>	NA	<0.217	NA
Aromatic >C8-C10	mg/L	0.15	31	<0.020	NA	<0.020	NA	<0.020	NA	<0.020	NA
Unadjusted >C10-C12 Aromatics	mg/L	0.15	31	<0.130	NA	<0.130	NA	<0.130	NA	<0.130	NA
Unadjusted >C12-C16 Aromatics	mg/L	0.15	31	<0.130	NA	<0.130	NA	<0.130	NA	<0.130	NA
Unadjusted >C16-C21 Aromatics	mg/L	0.15	24	<0.130	NA	<0.130	NA	<0.130	NA	<0.130	NA
Aromatic >C21-C35	mg/L	0.15	24	<0.152	NA	<0.152	NA	<0.152	NA	<0.152	NA
<b>Radium</b>											
Radium 226	pCi/L	NS	NS	<b>0.479</b>	<b>0.666</b>	<b>0.330</b>	<b>-0.116</b>	<b>0.190</b>	<b>0.352</b>	<b>0.578</b>	<b>0.188</b>
Radium 228	pCi/L	NS	NS	<b>0.983</b>	<b>0.358</b>	<b>0.568</b>	<b>0.551</b>	<b>0.719</b>	<b>0.316</b>	<b>2.095</b>	<b>-0.151</b>
Radium 226+228 <sup>(2)</sup>	pCi/L	5	5	<b>1.462</b>	<b>1.024</b>	<b>0.897</b>	<b>0.551</b>	<b>0.909</b>	<b>0.668</b>	<b>2.673</b>	<b>0.188</b>
Total Dissolved Solids (TDS) <sup>(1)</sup>	mg/L	500	500	<b>1085</b>	NA	<b>2150</b>	NA	<b>2718</b>	NA	<b>3412</b>	NA

**Notes:**

- Bolded values were detected in the sample
- Highlight indicates exceedance of corresponding regulatory standard
- Gray shaded samples are outside Chevron Limited Admission Areas
- GW<sub>SS</sub> - RECAP Groundwater Screening Standard
- GW<sub>NDW</sub> - RECAP Class 3 Non-Drinking Water Standard w/o DAF
- <sup>(1)</sup> - Listed limit is EPA SMCL
- <sup>(2)</sup> - Listed limit is EPA MCL
- <sup>(3)</sup> - GW<sub>SS</sub> and GW<sub>NDW</sub> not provided in RECAP; the risk-based value was calculated in accordance with Appendix H of RECAP (2003).
- < - Not detected at or above the reporting limit shown
- NA - Not analyzed; NS - No Standard



**Table 7**  
**Groundwater Analytical Data**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Parameters	Area 4													
	Well Identifier:			H-2		H-10		H-16		H-20			H-22	
	UTM Zone 15R Easting (m):			0508071		0508023		0508142		508356			508092	
	UTM Zone 15R Northing (m):			3328241		3328292		3328216		3328261			3328089	
	Screened Depth Interval (feet BGS):			30-35'		35-40'		35-40'		35-45'			34-44'	
	Sample Date:			3/5/2020		3/5/2020		3/6/2020		4/19/2021			4/19/2021	
	Units	GW <sub>SS</sub>	GW <sub>NDW</sub>	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ICON-dup	ERM	ICON
<b>Total Metals</b>														
Arsenic	mg/L	0.01	0.05	<0.0050	<0.0100	<0.0050	<0.0100	<0.010	<0.0100	<b>0.0016</b>	<0.00250	<0.00250	<b>0.0013</b>	<0.00250
Barium	mg/L	2	45	<b>0.026</b>	<b>0.0234</b>	<b>0.027</b>	<b>0.0279</b>	<b>0.14</b>	<b>0.102</b>	<b>0.016</b>	<b>0.0162</b>	<b>0.015</b>	<b>0.032</b>	<b>0.036</b>
Cadmium	mg/L	0.005	0.01	<0.0050	<0.00500	<0.0050	<0.00500	<b>0.0064</b>	<b>0.0075</b>	<0.0010	<0.00500	<0.00500	<0.0010	<0.00500
Calcium	mg/L	NS	NS	<b>364</b>	<b>330</b>	<b>439</b>	<b>432</b>	<b>3,120</b>	<b>2,210</b>	<b>211</b>	<b>207</b>	<b>210</b>	<b>188</b>	<b>187</b>
Chromium	mg/L	0.1	960	<0.0050	<0.0100	<0.0050	<0.0100	<0.020	<0.0100	<0.0010	<0.0100	<0.0100	<b>0.0011</b>	<0.0100
Iron <sup>(1)</sup>	mg/L	0.3	0.3	<0.50	<b>0.104</b>	<b>0.82</b>	<b>0.902</b>	<2.00	<b>0.435</b>	<b>0.18</b>	<b>0.292</b>	<b>0.24</b>	<b>0.69</b>	<b>1.22</b>
Lead	mg/L	0.015	0.05	<0.0050	<0.0100	<0.0050	<0.0100	<0.015	<0.0100	<0.0010	<0.0100	<0.0100	<0.0010	<0.0100
Magnesium	mg/L	NS	NS	<b>140</b>	<b>137</b>	<b>180</b>	<b>189</b>	<b>1,030</b>	<b>744</b>	<b>121</b>	<b>106</b>	<b>108</b>	<b>81.0</b>	<b>79.1</b>
Manganese <sup>(1)</sup>	mg/L	0.05	0.05	<b>1.23</b>	<b>1.13</b>	<b>1.4</b>	<b>1.32</b>	<b>12.6</b>	<b>8.96</b>	<b>1.73</b>	<b>1.64</b>	<b>1.67</b>	<b>1.24</b>	<b>1.17</b>
Mercury	mg/L	0.002	0.002	<0.00020	<0.000200	<0.00020	<0.000200	<0.00020	<0.000200	<0.00020	<0.000200	<0.000200	<0.00020	<0.000200
Potassium	mg/L	NS	NS	<b>5.77</b>	<b>6.22</b>	<b>5.25</b>	<b>6.19</b>	<b>21.2</b>	<b>22.4</b>	<b>4.80</b>	<b>6.24</b>	<b>6.25</b>	<b>4.38</b>	<b>6.05</b>
Sodium	mg/L	NS	NS	<b>406</b>	<b>478</b>	<b>348</b>	<b>360</b>	<b>3,850</b>	<b>3,140</b>	<b>341</b>	<b>310</b>	<b>315</b>	<b>359</b>	<b>313</b>
Strontium <sup>(3)</sup>	mg/L	2.2	33	<b>1.81</b>	<b>1.72</b>	<b>2.35</b>	<b>2.31</b>	<b>27.2</b>	<b>28.4</b>	<b>1.33</b>	<b>1.18</b>	<b>1.21</b>	<b>0.98</b>	<b>0.94</b>
Zinc	mg/L	1.1	8	<0.10	<0.0100	<0.10	<0.0100	<0.40	<0.0100	<0.020	<0.0100	<0.0100	<0.020	<0.0100
<b>Dissolved Metals</b>														
Arsenic	mg/L	0.01	0.05	<0.0050	NA	<0.0050	NA	<0.010	NA	<b>0.0016</b>	NA	NA	<0.0010	NA
Barium	mg/L	2	45	<b>0.022</b>	NA	<b>0.02</b>	NA	<b>0.10</b>	NA	<b>0.014</b>	NA	NA	<b>0.024</b>	NA
Cadmium	mg/L	0.005	0.01	<0.0050	NA	<0.0050	NA	<0.0050	NA	<0.0010	NA	NA	<0.0010	NA
Calcium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.05	<0.0050	NA	<0.0050	NA	<0.020	NA	<0.0010	NA	NA	<0.0010	NA
Iron <sup>(1)</sup>	mg/L	0.3	0.3	<0.50	NA	<0.50	NA	<2.00	NA	<0.10	NA	NA	<0.10	NA
Lead	mg/L	0.015	0.05	<0.0050	NA	<0.0050	NA	<0.015	NA	<0.0010	NA	NA	<0.0010	NA
Magnesium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese <sup>(1)</sup>	mg/L	0.05	0.05	<b>1.14</b>	NA	<b>1.28</b>	NA	<b>9.3</b>	NA	<b>1.62</b>	NA	NA	<b>1.12</b>	NA
Mercury	mg/L	0.002	0.002	<0.00020	NA	<0.00020	NA	<0.00020	NA	<0.00020	NA	NA	<0.00020	NA
Potassium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Strontium <sup>(3)</sup>	mg/L	2.2	33	<b>1.66</b>	NA	<b>2.12</b>	NA	<b>25.6</b>	NA	<b>1.30</b>	NA	NA	<b>0.85</b>	NA
Zinc	mg/L	1.1	8	<0.10	NA	<0.10	NA	<0.40	NA	<0.020	NA	NA	<0.020	NA
<b>Anions</b>														
Chloride <sup>(1)</sup>	mg/L	250	250	<b>1,340</b>	<b>1,220</b>	<b>1,290</b>	<b>1,200</b>	<b>13,000</b>	<b>11,900</b>	<b>316</b>	<b>282</b>	<b>287</b>	<b>315</b>	<b>283</b>
Sulfate <sup>(1)</sup>	mg/L	250	250	<b>599</b>	<b>668</b>	<b>824</b>	<b>906</b>	<b>598</b>	<b>585</b>	<b>834</b>	<b>961</b>	<b>942</b>	<b>670</b>	<b>757</b>
<b>Alkalinity</b>														
Bicarbonate Alkalinity	mg/L	NS	NS	<b>322</b>	<b>292</b>	<b>293</b>	<b>262</b>	<b>273</b>	<b>265</b>	<b>363</b>	<b>342</b>	<b>352</b>	<b>356</b>	<b>340</b>
Carbonate Alkalinity	mg/L	NS	NS	<1.0	<10.0	<1.0	<10.0	<1.0	<10.0	<1.0	<10.0	<10.0	<1.0	<10.0
Total Alkalinity	mg/L	NS	NS	<b>322</b>	<b>292</b>	<b>293</b>	<b>262</b>	<b>273</b>	<b>265</b>	<b>363</b>	<b>342</b>	<b>352</b>	<b>356</b>	<b>340</b>
Hydroxide Alkalinity	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids (TDS) <sup>(1)</sup>	mg/L	500	500	<b>2,930</b>	<b>3,230</b>	<b>3,650</b>	<b>3,320</b>	<b>19,900</b>	<b>24,900</b>	<b>1,910</b>	<b>2,060</b>	<b>2,040</b>	<b>1,720</b>	<b>1,810</b>
<b>BTEX Compounds</b>														
Benzene	mg/L	0.005	0.013	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Ethylbenzene	mg/L	0.7	8.1	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Toluene	mg/L	1	46	<0.00500	<0.01	<0.00500	<0.01	<0.00500	<0.01	<0.00500	<0.01	<0.01	<0.00500	<0.01
Xylene (total)	mg/L	10	10	<0.015	<0.05	<0.015	<0.05	<0.015	<0.05	<0.015	<0.05	<0.05	<0.015	<0.05
o-Xylene	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
mp-Xylene	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Hydrocarbons</b>														
TPH - Gasoline Range	mg/L	0.15	31	NA	<0.150	NA	<0.150	NA	<0.150	NA	<0.150	<0.150	NA	<0.150
TPH - Diesel Range	mg/L	0.15	24	NA	<0.134	NA	<0.138	NA	<b>0.415</b>	NA	<0.136	<0.136	NA	<0.140
TPH - Oil Range	mg/L	0.15	24	NA	<0.123	NA	<0.127	NA	<b>0.156</b>	NA	<0.125	<0.125	NA	<0.120
Aliphatic C6-C8	mg/L	3.2	3,900	<0.030	NA	<0.030	NA	<0.030	NA	<0.030	NA	NA	<0.030	NA
Aliphatic >C8-C10	mg/L	0.15	79	<0.020	NA	<0.020	NA	<0.020	NA	<0.020	NA	NA	<0.020	NA
Aliphatic >C10-C12	mg/L	0.15	79	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	NA	<0.100	NA
Aliphatic >C12-C16	mg/L	0.15	79	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	NA	<0.100	NA
Aliphatic >C16-C35	mg/L	7.3	1,600	<0.150	NA	<0.150	NA	<0.150	NA	<0.150	NA	NA	<0.150	NA
Aromatic >C8-C10	mg/L	0.15	31	<0.030	NA	<0.030	NA	<0.030	NA	<0.030	NA	NA	<0.030	NA
Unadjusted >C10-C12 Aromatics	mg/L	0.15	31	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	NA	<0.100	NA
Unadjusted >C12-C16 Aromatics	mg/L	0.15	31	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	NA	<0.100	NA
Unadjusted >C16-C21 Aromatics	mg/L	0.15	24	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	NA	<0.100	NA
Aromatic >C21-C35	mg/L	0.15	24	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	NA	<0.100	NA
<b>Radium</b>														
Radium 226	pCi/L	NS	NS	<b>0.256</b>	<b>0.340</b>	<b>0.615</b>	<b>0.422</b>	<b>-0.0269</b>	<b>0.837</b>	<b>0.231</b>	<b>0.0621</b>	NA	<b>0.205</b>	<b>0.304</b>
Radium 228	pCi/L	NS	NS	<b>0.416</b>	<b>0.517</b>	<b>2.02</b>	<b>0.696</b>	<b>0.104</b>	<b>4.55</b>	<b>1.00</b>	<b>1.23</b>	NA	<b>0.453</b>	<b>1.36</b>
Radium 226+228 <sup>(2)</sup>	pCi/L	5	5	<b>0.672</b>	<b>0.857</b>	<b>2.635</b>	<b>1.118</b>	<b>0.0771</b>	<b>5.387</b>	<b>1.231</b>	<b>1.29</b>	NA	<b>0.658</b>	<b>1.66</b>
Total Dissolved Solids (TDS) <sup>(1)</sup>	mg/L	500	500	<b>2,770</b>	NA	<b>2,240</b>	NA	<b>23,600</b>	NA	<b>2,150</b>	NA	NA	<b>1,720</b>	NA

**Notes:**  
Bolded values were detected in the sample  
Highlight indicates exceedance of corresponding regulatory standard  
Gray shaded samples are outside Chevron Limited Admission Areas  
GW<sub>SS</sub> - RECAP Groundwater Screening Standard  
GW<sub>NDW</sub> - RECAP Class 3 Non-Drinking Water Standard w/o DAF  
<sup>(1)</sup> - Listed limit is EPA SMCL  
<sup>(2)</sup> - Listed limit is EPA MCL  
<sup>(3)</sup> - GW<sub>SS</sub> and GW<sub>NDW</sub> not provided in RECAP; the risk-based value was calculated in accordance with Appendix H of RECAP (2003).  
< - Not detected at or above the reporting limit shown  
NA - Not analyzed; NS - No Standard

**Table 7**  
**Groundwater Analytical Data**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Parameters	Area 4 (cont.)													Area 5	
	Well Identifier:			H-23		MW-6		MW-7		H-1		H-18			
	UTM Zone 15R Easting (m):			508079		508137		508221		0508287		0508226			
	UTM Zone 15R Northing (m):			3328398		3328272		3328165		3327846		3327886			
	Screened Depth Interval (feet BGS):			27-37'		30-40		34-44		35-40'		45-50'			
Sample Date:			4/19/2021		12/17/2021		12/16/2021		3/6/2020		3/6/2020				
	Units	GW <sub>SS</sub>	GW <sub>NDW</sub>	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON		
<b>Total Metals</b>															
Arsenic	mg/L	0.01	0.05	<0.0010	<0.00250	<b>0.0042</b>	<b>0.00322</b>	<b>0.0017</b>	<0.00250	<0.0050	<0.0100	<0.0050	<0.0100		
Barium	mg/L	2	45	<b>0.023</b>	<b>0.0205</b>	<b>0.121</b>	<b>0.0504</b>	<b>0.050</b>	<b>0.0479</b>	<b>0.15</b>	<b>0.142</b>	<b>0.081</b>	<b>0.0707</b>		
Cadmium	mg/L	0.005	0.01	<0.0010	<0.00500	<b>0.0016</b>	<0.00500	<b>0.0010</b>	<0.00500	<0.0050	<0.00500	<b>0.0059</b>	<b>0.0073</b>		
Calcium	mg/L	NS	NS	<b>179</b>	<b>175</b>	<b>520</b>	<b>543</b>	<b>679</b>	<b>679</b>	<b>443</b>	<b>397</b>	<b>857</b>	<b>749</b>		
Chromium	mg/L	0.1	960	<0.0010	<0.0100	<b>0.006</b>	<0.0100	<0.001	<0.0100	<0.0050	<0.0100	<0.0050	<0.0100		
Iron <sup>(1)</sup>	mg/L	0.3	0.3	<b>0.18</b>	<b>0.218</b>	<b>4.60</b>	<b>0.131</b>	<0.100	<b>0.0540</b>	<0.50	<b>0.808</b>	<0.50	<b>0.111</b>		
Lead	mg/L	0.015	0.05	<0.0010	<0.0100	<b>0.0036</b>	<0.0100	<0.0010	<0.0100	<0.0050	<0.0100	<0.0050	<0.0100		
Magnesium	mg/L	NS	NS	<b>81.0</b>	<b>78</b>	<b>186</b>	<b>180</b>	<b>317</b>	<b>307</b>	<b>174</b>	<b>166</b>	<b>415</b>	<b>364</b>		
Manganese <sup>(1)</sup>	mg/L	0.05	0.05	<b>0.95</b>	<b>0.926</b>	<b>4.27</b>	<b>3.75</b>	<b>1.66</b>	<b>1.54</b>	<b>2.38</b>	<b>2.18</b>	<b>5.66</b>	<b>4.94</b>		
Mercury	mg/L	0.002	0.002	<0.00020	<0.000200	<0.00020	<0.000200	<0.00020	<0.000200	<0.00020	<0.000200	<0.00020	<0.000200		
Potassium	mg/L	NS	NS	<b>4.09</b>	<b>5.53</b>	<b>9.89</b>	<b>10.3</b>	<b>6.99</b>	<b>8.48</b>	<b>6.38</b>	<b>6.93</b>	<b>10.5</b>	<b>11.0</b>		
Sodium	mg/L	NS	NS	<b>406</b>	<b>374</b>	<b>517</b>	<b>556</b>	<b>944</b>	<b>962</b>	<b>369</b>	<b>356</b>	<b>688</b>	<b>813</b>		
Strontium <sup>(3)</sup>	mg/L	2.2	33	<b>0.93</b>	<b>0.89</b>	<b>2.88</b>	<b>2.47</b>	<b>3.76</b>	<b>3.41</b>	<b>2.19</b>	<b>2.22</b>	<b>4.48</b>	<b>4.50</b>		
Zinc	mg/L	1.1	8	<0.020	<0.0100	<b>0.022</b>	<0.0100	<0.010	<0.0100	<0.10	<0.0100	<0.10	<0.0100		
<b>Dissolved Metals</b>															
Arsenic	mg/L	0.01	0.05	<0.0010	NA	<b>0.0012</b>	NA	<0.0010	NA	<0.0050	NA	<0.0050	NA		
Barium	mg/L	2	45	<b>0.020</b>	NA	<b>0.062</b>	NA	<b>0.050</b>	NA	<b>0.14</b>	NA	<b>0.067</b>	NA		
Cadmium	mg/L	0.005	0.01	<0.0010	NA	<b>0.0015</b>	NA	<0.0010	NA	<0.0050	NA	<0.0050	NA		
Calcium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Chromium	mg/L	0.1	0.05	<0.0010	NA	<0.001	NA	<0.001	NA	<0.0050	NA	<0.0050	NA		
Iron <sup>(1)</sup>	mg/L	0.3	0.3	<0.10	NA	<b>0.182</b>	NA	<0.100	NA	<0.50	NA	<0.50	NA		
Lead	mg/L	0.015	0.05	<0.0010	NA	<0.0010	NA	<0.0010	NA	<0.0050	NA	<0.0050	NA		
Magnesium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Manganese <sup>(1)</sup>	mg/L	0.05	0.05	<b>0.89</b>	NA	<b>4.48</b>	NA	<b>1.65</b>	NA	<b>2.16</b>	NA	<b>5.04</b>	NA		
Mercury	mg/L	0.002	0.002	<0.00020	NA	NA	NA	NA	NA	<0.00020	NA	<0.00020	NA		
Potassium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Sodium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Strontium <sup>(3)</sup>	mg/L	2.2	33	<b>0.81</b>	NA	<b>2.77</b>	NA	<b>3.87</b>	NA	<b>2.08</b>	NA	<b>4.3</b>	NA		
Zinc	mg/L	1.1	8	<0.020	NA	<0.010	NA	<0.010	NA	<0.10	NA	<0.10	NA		
<b>Anions</b>															
Chloride <sup>(1)</sup>	mg/L	250	250	<b>363</b>	<b>321</b>	<b>1,940</b>	<b>1,910</b>	<b>2,350</b>	<b>2,580</b>	<b>1,830</b>	<b>1,690</b>	<b>3,960</b>	<b>3,650</b>		
Sulfate <sup>(1)</sup>	mg/L	250	250	<b>695</b>	<b>783</b>	<b>595</b>	<b>575</b>	<b>1470</b>	<b>1670</b>	<b>139</b>	<b>153</b>	<b>348</b>	<b>372</b>		
<b>Alkalinity</b>															
Bicarbonate Alkalinity	mg/L	NS	NS	<b>368</b>	<b>362</b>	<b>320</b>	<b>285</b>	<b>390</b>	<b>350</b>	<b>307</b>	<b>275</b>	<b>274</b>	<b>245</b>		
Carbonate Alkalinity	mg/L	NS	NS	<1.0	<10.0	<10	<20.0	<10	<20.0	<1.0	<10.0	<1.0	<10.0		
Total Alkalinity	mg/L	NS	NS	<b>368</b>	<b>362</b>	<b>320</b>	<b>285</b>	<b>390</b>	<b>350</b>	<b>307</b>	<b>275</b>	<b>274</b>	<b>245</b>		
Hydroxide Alkalinity	mg/L	NS	NS	NA	NA	<10	NA	<10	NA	NA	NA	NA	NA		
Total Dissolved Solids (TDS) <sup>(1)</sup>	mg/L	500	500	<b>1,790</b>	<b>1,840</b>	<b>5,830</b>	<b>3,290</b>	<b>6,990</b>	<b>6,720</b>	<b>3,310</b>	<b>3,370</b>	<b>6,450</b>	<b>7,600</b>		
<b>BTEX Compounds</b>															
Benzene	mg/L	0.005	0.013	<0.00500	<0.00500	<0.001	<0.00500	<0.001	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500		
Ethylbenzene	mg/L	0.7	8.1	<0.00500	<0.00500	<0.001	<0.00500	<0.001	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500		
Toluene	mg/L	1	46	<0.00500	<0.01	<0.002	<0.0100	<0.002	<0.0100	<0.00500	<0.01	<0.00500	<0.01		
Xylene (total)	mg/L	10	10	<0.015	<0.05	<0.001	<0.0500	<0.001	<0.0500	<0.015	<0.05	<0.015	<0.05		
o-Xylene	mg/L	NS	NS	NA	NA	<0.001	<0.00500	<0.001	<0.00500	NA	NA	NA	NA		
mp-Xylene	mg/L	NS	NS	NA	NA	<0.002	<0.0100	<0.002	<0.0100	NA	NA	NA	NA		
<b>Hydrocarbons</b>															
TPH - Gasoline Range	mg/L	0.15	31	NA	<0.150	NA	<0.150	NA	<0.150	NA	<0.150	NA	<0.150		
TPH - Diesel Range	mg/L	0.15	24	NA	<0.132	NA	<0.133	NA	<0.133	NA	<0.130	NA	<0.130		
TPH - Oil Range	mg/L	0.15	24	NA	<0.122	NA	<0.136	NA	<0.123	NA	<0.120	NA	<0.120		
Aliphatic C6-C8	mg/L	3.2	3,900	<0.030	NA	<0.005	NA	<0.005	NA	<0.030	NA	<0.030	NA		
Aliphatic >C8-C10	mg/L	0.15	79	<0.020	NA	<0.013	NA	<0.013	NA	<0.020	NA	<0.020	NA		
Aliphatic >C10-C12	mg/L	0.15	79	<0.100	NA	<0.130	NA	<0.136	NA	<0.100	NA	<0.100	NA		
Aliphatic >C12-C16	mg/L	0.15	79	<0.100	NA	<0.130	NA	<0.136	NA	<0.100	NA	<0.100	NA		
Aliphatic >C16-C35	mg/L	7.3	1,600	<0.150	NA	<0.217	NA	<0.227	NA	<0.150	NA	<0.150	NA		
Aromatic >C8-C10	mg/L	0.15	31	<0.030	NA	<0.005	NA	<0.005	NA	<0.030	NA	<0.030	NA		
Unadjusted >C10-C12 Aromatics	mg/L	0.15	31	<0.100	NA	<0.130	NA	<0.136	NA	<0.100	NA	<0.100	NA		
Unadjusted >C12-C16 Aromatics	mg/L	0.15	31	<0.100	NA	<0.130	NA	<0.136	NA	<0.100	NA	<0.100	NA		
Unadjusted >C16-C21 Aromatics	mg/L	0.15	24	<0.100	NA	<0.130	NA	<0.136	NA	<0.100	NA	<0.100	NA		
Aromatic >C21-C35	mg/L	0.15	24	<0.100	NA	<0.152	NA	<0.159	NA	<0.100	NA	<0.100	NA		
<b>Radium</b>															
Radium 226	pCi/L	NS	NS	<b>0.527</b>	<b>0.000</b>	<b>0.520</b>	<b>0.356</b>	<b>0.459</b>	<b>0.204</b>	<b>1.26</b>	<b>0.606</b>	<b>1.15</b>	<b>1.25</b>		
Radium 228	pCi/L	NS	NS	<b>0.672</b>	<b>1.02</b>	<b>1.708</b>	<b>2.27</b>	<b>0.777</b>	<b>0.659</b>	<b>1.92</b>	<b>1.47</b>	<b>0.481</b>	<b>2.11</b>		
Radium 226+228 <sup>(2)</sup>	pCi/L	5	5	<b>1.20</b>	<b>1.02</b>	<b>2.228</b>	<b>2.626</b>	<b>1.236</b>	<b>0.863</b>	<b>3.18</b>	<b>2.076</b>	<b>1.631</b>	<b>3.36</b>		
Total Dissolved Solids (TDS) <sup>(1)</sup>	mg/L	500	500	<b>1,960</b>	NA	<b>1733</b>	NA	<b>6620</b>	NA	<b>1,980</b>	NA	<b>6,430</b>	NA		

**Notes:**  
Bolded values were detected in the sample  
Highlight indicates exceedance of corresponding regulatory standard  
Gray shaded samples are outside Chevron Limited Admission Areas  
GW<sub>SS</sub> - RECAP Groundwater Screening Standard  
GW<sub>NDW</sub> - RECAP Class 3 Non-Drinking Water Standard w/o DAF  
<sup>(1)</sup> - Listed limit is EPA SMCL  
<sup>(2)</sup> - Listed limit is EPA MCL  
<sup>(3)</sup> - GW<sub>SS</sub> and GW<sub>NDW</sub> not provided in RECAP; the risk-based value was calculated in accordance with Appendix H of RECAP (2003).  
< - Not detected at or above the reporting limit shown  
NA - Not analyzed; NS - No Standard



**Table 7**  
**Groundwater Analytical Data**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Parameters	Area 5 (cont.)												
	Well Identifier:			MW-8		MW-9		MW-9D		MW-10		MW-11	
	UTM Zone 15R Easting (m):			508218		508266		508266		508109		508382	
	UTM Zone 15R Northing (m):			3327817		3327954		3327954		3327861		3327862	
	Screened Depth Interval (feet BGS):			45-50		31-36		40-50		42-52		29-34	
	Sample Date:			12/15/2021		12/16/2021		12/16/2021		12/16/2021		12/15/2021	
	Units	GW <sub>SS</sub>	GW <sub>NDW</sub>	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
<b>Total Metals</b>													
Arsenic	mg/L	0.01	0.05	<0.0010	<0.00250	<b>0.0013</b>	<0.00250	<b>0.0040</b>	<b>0.00329</b>	<b>0.0030</b>	<0.00250	<b>0.0016</b>	<0.00250
Barium	mg/L	2	45	<b>0.040</b>	<b>0.0352</b>	<b>0.029</b>	<b>0.0263</b>	<b>0.140</b>	<b>0.0648</b>	<b>0.076</b>	<b>0.0280</b>	<b>0.163</b>	<b>0.137</b>
Cadmium	mg/L	0.005	0.01	<0.0010	<0.00500	<0.0010	<0.00500	<0.0010	<0.00500	<0.0010	<0.00500	<0.0010	<0.00500
Calcium	mg/L	NS	NS	<b>151</b>	<b>153</b>	<b>131</b>	<b>134</b>	<b>159</b>	<b>159</b>	<b>200</b>	<b>204</b>	<b>350</b>	<b>346</b>
Chromium	mg/L	0.1	960	<b>0.001</b>	<0.0100	<0.001	<0.0100	<b>0.025</b>	<0.0100	<b>0.016</b>	<0.0100	<b>0.001</b>	<0.0100
Iron <sup>(1)</sup>	mg/L	0.3	0.3	<b>0.715</b>	<b>0.628</b>	<b>0.165</b>	<b>0.199</b>	<b>11.4</b>	<b>4.06</b>	<b>12.0</b>	<b>0.206</b>	<b>2.44</b>	<b>2.05</b>
Lead	mg/L	0.015	0.05	<0.0010	<0.0100	<0.0010	<0.0100	<b>0.0062</b>	<0.0100	<b>0.0087</b>	<0.0100	<0.0010	<0.0100
Magnesium	mg/L	NS	NS	<b>72.7</b>	<b>68.7</b>	<b>60.3</b>	<b>59.1</b>	<b>85.9</b>	<b>81.7</b>	<b>92.7</b>	<b>92.3</b>	<b>155</b>	<b>144</b>
Manganese <sup>(1)</sup>	mg/L	0.05	0.05	<b>1.54</b>	<b>1.43</b>	<b>1.11</b>	<b>1.00</b>	<b>1.84</b>	<b>1.68</b>	<b>1.81</b>	<b>1.71</b>	<b>2.01</b>	<b>1.76</b>
Mercury	mg/L	0.002	0.002	<0.00020	<0.000200	<0.00020	<0.000200	<0.00020	<0.000200	<0.00020	<0.000200	<0.00020	<0.000200
Potassium	mg/L	NS	NS	<b>4.36</b>	<5.00	<b>4.25</b>	<5.00	<b>6.35</b>	<b>5.56</b>	<b>6.38</b>	<b>5.08</b>	<b>5.34</b>	<b>5.95</b>
Sodium	mg/L	NS	NS	<b>211</b>	<b>223</b>	<b>309</b>	<b>325</b>	<b>268</b>	<b>286</b>	<b>296</b>	<b>315</b>	<b>476</b>	<b>478</b>
Strontium <sup>(3)</sup>	mg/L	2.2	33	<b>0.867</b>	<b>0.812</b>	<b>0.754</b>	<b>0.689</b>	<b>0.980</b>	<b>0.910</b>	<b>1.10</b>	<b>1.09</b>	<b>1.79</b>	<b>1.64</b>
Zinc	mg/L	1.1	8	<0.010	<b>0.0133</b>	<0.010	<b>0.0115</b>	<b>0.040</b>	<b>0.0195</b>	<b>0.040</b>	<0.0100	<0.010	<0.0100
<b>Dissolved Metals</b>													
Arsenic	mg/L	0.01	0.05	<0.0010	NA	<0.0010	NA	<b>0.0015</b>	NA	<b>0.0010</b>	NA	<0.0010	NA
Barium	mg/L	2	45	<b>0.034</b>	NA	<b>0.029</b>	NA	<b>0.041</b>	NA	<b>0.033</b>	NA	<b>0.156</b>	NA
Cadmium	mg/L	0.005	0.01	<0.0010	NA	<0.0010	NA	<0.0010	NA	<0.0010	NA	<0.0010	NA
Calcium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.05	<0.001	NA	<0.001	NA	<0.001	NA	<0.001	NA	<0.001	NA
Iron <sup>(1)</sup>	mg/L	0.3	0.3	<b>0.206</b>	NA	<0.100	NA	<b>0.235</b>	NA	<b>0.390</b>	NA	<b>1.52</b>	NA
Lead	mg/L	0.015	0.05	<0.0010	NA	<0.0010	NA	<0.0010	NA	<0.0010	NA	<0.0010	NA
Magnesium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese <sup>(1)</sup>	mg/L	0.05	0.05	<b>1.53</b>	NA	<b>1.12</b>	NA	<b>1.74</b>	NA	<b>1.74</b>	NA	<b>1.97</b>	NA
Mercury	mg/L	0.002	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Strontium <sup>(3)</sup>	mg/L	2.2	33	<b>0.855</b>	NA	<b>0.759</b>	NA	<b>0.952</b>	NA	<b>1.10</b>	NA	<b>1.78</b>	NA
Zinc	mg/L	1.1	8	<0.010	NA	<0.010	NA	<0.010	NA	<0.010	NA	<0.010	NA
<b>Anions</b>													
Chloride <sup>(1)</sup>	mg/L	250	250	<b>237</b>	<b>239</b>	<b>399</b>	<b>387</b>	<b>232</b>	<b>230</b>	<b>219</b>	<b>221</b>	<b>1,570</b>	<b>1610</b>
Sulfate <sup>(1)</sup>	mg/L	250	250	<b>501</b>	<b>513</b>	<b>422</b>	<b>441</b>	<b>675</b>	<b>698</b>	<b>847</b>	<b>850</b>	<b>181</b>	<b>172</b>
<b>Alkalinity</b>													
Bicarbonate Alkalinity	mg/L	NS	NS	<b>400</b>	<b>340</b>	<b>420</b>	<b>375</b>	<b>440</b>	<b>398</b>	<b>441</b>	<b>392</b>	<b>380</b>	<b>325</b>
Carbonate Alkalinity	mg/L	NS	NS	<10	<20.0	<10	<20.0	<10	<20.0	<2	<20.0	<10	<20.0
Total Alkalinity	mg/L	NS	NS	<b>400</b>	<b>340</b>	<b>420</b>	<b>375</b>	<b>440</b>	<b>398</b>	<b>441</b>	<b>392</b>	<b>380</b>	<b>325</b>
Hydroxide Alkalinity	mg/L	NS	NS	<10	NA	<10	NA	<10	NA	<2	NA	<10	NA
Total Dissolved Solids (TDS) <sup>(1)</sup>	mg/L	500	500	<b>1,580</b>	<b>1,540</b>	<b>1,710</b>	<b>835</b>	<b>1,860</b>	<b>370</b>	<b>1,940</b>	<b>1,650</b>	<b>4,420</b>	<b>1900</b>
<b>BTEX Compounds</b>													
Benzene	mg/L	0.005	0.013	<0.001	<0.00500	<0.001	<0.00500	<0.001	<0.00500	<0.001	<0.00500	<0.001	<0.00500
Ethylbenzene	mg/L	0.7	8.1	<0.001	<0.00500	<0.001	<0.00500	<0.001	<0.00500	<0.001	<0.00500	<0.001	<0.00500
Toluene	mg/L	1	46	<0.002	<0.0100	<0.002	<0.0100	<0.002	<0.0100	<0.002	<0.0100	<0.002	<0.0100
Xylene (total)	mg/L	10	10	<0.001	<0.0500	<0.001	<0.0500	<0.001	<0.0500	<0.001	<0.0500	<0.001	<0.0500
o-Xylene	mg/L	NS	NS	<0.001	<0.00500	<0.001	<0.00500	<0.001	<0.00500	<0.001	<0.00500	<0.001	<0.00500
mp-Xylene	mg/L	NS	NS	<0.002	<0.0100	<0.002	<0.0100	<0.002	<0.0100	<0.002	<0.0100	<0.002	<0.0100
<b>Hydrocarbons</b>													
TPH - Gasoline Range	mg/L	0.15	31	NA	<0.150	NA	<0.150	NA	<0.150	NA	<0.150	NA	<0.150
TPH - Diesel Range	mg/L	0.15	24	NA	<0.133	NA	<0.133	NA	<b>0.216</b>	NA	<0.129	NA	<0.130
TPH - Oil Range	mg/L	0.15	24	NA	<0.123	NA	<0.123	NA	<b>0.451</b>	NA	<0.119	NA	<0.120
Aliphatic C6-C8	mg/L	3.2	3,900	<0.005	NA	<0.005	NA	<0.005	NA	<0.015	NA	<0.005	NA
Aliphatic >C8-C10	mg/L	0.15	79	<0.013	NA	<0.013	NA	<0.013	NA	<0.030	NA	<0.013	NA
Aliphatic >C10-C12	mg/L	0.15	79	<0.136	NA	<0.130	NA	<0.143	NA	<0.130	NA	<0.130	NA
Aliphatic >C12-C16	mg/L	0.15	79	<0.136	NA	<0.130	NA	<0.143	NA	<0.130	NA	<0.130	NA
Aliphatic >C16-C35	mg/L	7.3	1,600	<0.227	NA	<0.217	NA	<0.238	NA	<0.217	NA	<0.217	NA
Aromatic >C8-C10	mg/L	0.15	31	<0.005	NA	<0.005	NA	<0.005	NA	<0.020	NA	<0.005	NA
Unadjusted >C10-C12 Aromatics	mg/L	0.15	31	<0.136	NA	<0.130	NA	<0.143	NA	<0.130	NA	<0.130	NA
Unadjusted >C12-C16 Aromatics	mg/L	0.15	31	<0.136	NA	<0.130	NA	<0.143	NA	<0.130	NA	<0.130	NA
Unadjusted >C16-C21 Aromatics	mg/L	0.15	24	<0.136	NA	<0.130	NA	<0.143	NA	<0.130	NA	<0.130	NA
Aromatic >C21-C35	mg/L	0.15	24	<0.159	NA	<0.152	NA	<0.167	NA	<0.152	NA	<0.152	NA
<b>Radium</b>													
Radium 226	pCi/L	NS	NS	<b>0.117</b>	<b>-0.0567</b>	<b>0.301</b>	NA	<b>0.543</b>	<b>0.252</b>	<b>0.198</b>	<b>0.473</b>	<b>0.449</b>	<b>0.826</b>
Radium 228	pCi/L	NS	NS	<b>0.466</b>	<b>0.792</b>	<b>0.734</b>	NA	<b>0.786</b>	<b>0.831</b>	<b>0.370</b>	<b>-0.0747</b>	<b>0.608</b>	<b>2.07</b>
Radium 226+228 <sup>(2)</sup>	pCi/L	5	5	<b>0.583</b>	<b>0.792</b>	<b>1.035</b>	NA	<b>1.329</b>	<b>1.083</b>	<b>0.568</b>	<b>0.473</b>	<b>1.056</b>	<b>2.896</b>
Total Dissolved Solids (TDS) <sup>(1)</sup>	mg/L	500	500	<b>1443</b>	NA	<b>1582</b>	NA	<b>1733</b>	NA	<b>1979</b>	NA	<b>3267</b>	NA

**Notes:**  
Bolded values were detected in the sample  
Highlight indicates exceedance of corresponding regulatory standard  
Gray shaded samples are outside Chevron Limited Admission Areas  
GW<sub>SS</sub> - RECAP Groundwater Screening Standard  
GW<sub>NDW</sub> - RECAP Class 3 Non-Drinking Water Standard w/o DAF  
<sup>(1)</sup> - Listed limit is EPA SMCL  
<sup>(2)</sup> - Listed limit is EPA MCL  
<sup>(3)</sup> - GW<sub>SS</sub> and GW<sub>NDW</sub> not provided in RECAP; the risk-based value was calculated in accordance with Appendix H of RECAP (2003).  
< - Not detected at or above the reporting limit shown  
NA - Not analyzed; NS - No Standard

**Table 7**  
**Groundwater Analytical Data**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Parameters	Area 6				Area 8				Area 9							
	Well Identifier:				H-24		H-3		H-32A		H-32B		H-33		H-34	
	UTM Zone 15R Easting (m):				508615		0509690		510597		510597		510601		510597	
	UTM Zone 15R Northing (m):				3327849		3327925		3327476		3327476		3327161		3326857	
	Screened Depth Interval (feet BGS):				41-46'		22-27'		20-30'		40-50'		20-30'		18-28'	
Sample Date:				4/19/2021		3/6/2020		8/23/2021		8/23/2021		8/23/2021		8/23/2021		
	Units	GW <sub>SS</sub>	GW <sub>NDW</sub>	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	
<b>Total Metals</b>																
Arsenic	mg/L	0.01	0.05	<b>0.0011</b>	<0.00250	<0.0050	<b>0.0269</b>	<0.0010	<0.00250	<b>0.0012</b>	<0.00250	<0.0010	<0.00250	<0.0010	<0.00250	
Barium	mg/L	2	45	<b>0.048</b>	<b>0.0507</b>	<b>0.24</b>	<b>0.192</b>	<b>0.082</b>	<b>0.0795</b>	<b>0.041</b>	<b>0.0381</b>	<b>0.043</b>	<b>0.037</b>	<b>0.16</b>	<b>0.154</b>	
Cadmium	mg/L	0.005	0.01	<0.0010	<0.00500	<0.0050	<0.00500	<0.0010	<0.00500	<0.0010	<0.00500	<0.0010	<0.00500	<0.0010	<0.00500	
Calcium	mg/L	NS	NS	<b>191</b>	<b>191</b>	<b>102</b>	<b>82.1</b>	<b>52.5</b>	<b>56.0</b>	<b>91.2</b>	<b>97.8</b>	<b>102</b>	<b>109</b>	<b>79.5</b>	<b>84.9</b>	
Chromium	mg/L	0.1	960	<0.0010	<0.0100	<0.0050	<0.0100	<0.0010	<0.0100	<0.0010	<0.0100	<0.0010	<0.0100	<b>0.0058</b>	<0.0100	
Iron <sup>(1)</sup>	mg/L	0.3	0.3	<b>0.28</b>	<b>0.417</b>	<0.50	<b>0.428</b>	<b>0.41</b>	<b>0.438</b>	<b>0.34</b>	<b>0.443</b>	<b>0.43</b>	<b>0.365</b>	<b>0.93</b>	<b>1.02</b>	
Lead	mg/L	0.015	0.05	<0.0010	<0.0100	<0.0050	<0.0100	<0.0010	<0.0100	<0.0010	<0.0100	<0.0010	<0.0100	<0.0010	<0.0100	
Magnesium	mg/L	NS	NS	<b>86.9</b>	<b>85.3</b>	<b>27</b>	<b>22.6</b>	<b>18.7</b>	<b>19.6</b>	<b>40.8</b>	<b>42.9</b>	<b>38.9</b>	<b>40.5</b>	<b>29.3</b>	<b>30.6</b>	
Manganese <sup>(1)</sup>	mg/L	0.05	0.05	<b>1.32</b>	<b>1.35</b>	<b>0.34</b>	<b>0.284</b>	<b>0.23</b>	<b>0.244</b>	<b>0.62</b>	<b>0.667</b>	<b>0.20</b>	<b>0.199</b>	<b>0.090</b>	<b>0.0931</b>	
Mercury	mg/L	0.002	0.002	<0.00020	<0.000200	<0.00020	<0.000200	<0.00020	<0.000200	<0.00020	<0.000200	<0.00020	<0.000200	<0.00020	<0.000200	
Potassium	mg/L	NS	NS	<b>4.54</b>	<b>5.94</b>	<b>2.42</b>	<5.00	<b>1.71</b>	<5.00	<b>2.84</b>	<5.00	<b>1.79</b>	<5.00	<b>1.78</b>	<5.00	
Sodium	mg/L	NS	NS	<b>262</b>	<b>254</b>	<b>397</b>	<b>96.9</b>	<b>233</b>	<b>229</b>	<b>254</b>	<b>260</b>	<b>383</b>	<b>372</b>	<b>223</b>	<b>216</b>	
Strontium <sup>(3)</sup>	mg/L	2.2	33	<b>1.1</b>	<b>1.05</b>	<b>2.21</b>	<b>0.429</b>	<b>0.29</b>	<b>0.292</b>	<b>0.56</b>	<b>0.571</b>	<b>0.55</b>	<b>0.547</b>	<b>0.44</b>	<b>0.440</b>	
Zinc	mg/L	1.1	8	<0.020	<0.0100	<0.10	<0.0100	<0.020	<0.0100	<0.020	<0.0100	<0.020	<0.0100	<0.020	<0.0100	
<b>Dissolved Metals</b>																
Arsenic	mg/L	0.01	0.05	<0.0010	NA	<0.0050	NA	<0.0010	NA	<0.0010	NA	<0.0010	NA	<0.0010	NA	
Barium	mg/L	2	45	<b>0.042</b>	NA	<b>0.18</b>	NA	<b>0.074</b>	NA	<b>0.035</b>	NA	<b>0.037</b>	NA	<b>0.14</b>	NA	
Cadmium	mg/L	0.005	0.01	<0.0010	NA	<0.0050	NA	<0.0010	NA	<0.0010	NA	<0.0010	NA	<0.0010	NA	
Calcium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Chromium	mg/L	0.1	0.05	<0.0010	NA	<0.0050	NA	<0.0010	NA	<0.0010	NA	<0.0010	NA	<b>0.0036</b>	NA	
Iron <sup>(1)</sup>	mg/L	0.3	0.3	<0.10	NA	<0.50	NA	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA	
Lead	mg/L	0.015	0.05	<0.0010	NA	<0.0050	NA	<0.0010	NA	<0.0010	NA	<0.0010	NA	<0.0010	NA	
Magnesium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Manganese <sup>(1)</sup>	mg/L	0.05	0.05	<b>1.28</b>	NA	<b>0.29</b>	NA	<b>0.16</b>	NA	<b>0.56</b>	NA	<b>0.15</b>	NA	<b>0.071</b>	NA	
Mercury	mg/L	0.002	0.002	<0.00020	NA	<0.00020	NA	<0.00020	NA	<0.00020	NA	<0.00020	NA	<0.00020	NA	
Potassium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Sodium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Strontium <sup>(3)</sup>	mg/L	2.2	33	<b>0.95</b>	NA	<b>0.4</b>	NA	<b>0.28</b>	NA	<b>0.54</b>	NA	<b>0.52</b>	NA	<b>0.42</b>	NA	
Zinc	mg/L	1.1	8	<0.020	NA	<0.10	NA	<0.020	NA	<0.020	NA	<0.020	NA	<0.020	NA	
<b>Anions</b>																
Chloride <sup>(1)</sup>	mg/L	250	250	<b>583</b>	<b>552</b>	<b>84.4</b>	<b>77.6</b>	<b>312</b>	<b>213</b>	<b>254</b>	<b>157</b>	<b>629</b>	<b>496</b>	<b>472</b>	<b>359</b>	
Sulfate <sup>(1)</sup>	mg/L	250	250	<b>250</b>	<b>266</b>	<b>63.6</b>	<b>65.2</b>	<b>77.0</b>	<b>74.3</b>	<b>315</b>	<b>323</b>	<b>156</b>	<b>163</b>	<b>68.5</b>	<b>54.6</b>	
<b>Alkalinity</b>																
Bicarbonate Alkalinity	mg/L	NS	NS	<b>347</b>	<b>342</b>	<b>363</b>	<b>368</b>	<b>301</b>	<b>290</b>	<b>375</b>	<b>372</b>	<b>325</b>	<b>315</b>	<b>222</b>	<b>190</b>	
Carbonate Alkalinity	mg/L	NS	NS	<1.0	<10.0	<1.0	<10.0	<1.0	<10.0	<1.0	<10.0	<1.0	<10.0	<1.0	<10.0	
Total Alkalinity	mg/L	NS	NS	<b>347</b>	<b>342</b>	<b>363</b>	<b>368</b>	<b>301</b>	<b>290</b>	<b>375</b>	<b>372</b>	<b>325</b>	<b>315</b>	<b>222</b>	<b>190</b>	
Hydroxide Alkalinity	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Total Dissolved Solids (TDS) <sup>(1)</sup>	mg/L	500	500	<b>1,490</b>	<b>1,540</b>	<b>572</b>	<b>590</b>	<b>762</b>	<b>795</b>	<b>1,100</b>	<b>1,120</b>	<b>1,310</b>	<b>1,400</b>	<b>943</b>	<b>995</b>	
<b>BTEX Compounds</b>																
Benzene	mg/L	0.005	0.013	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	
Ethylbenzene	mg/L	0.7	8.1	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	
Toluene	mg/L	1	46	<0.00500	<0.01	<0.00500	<0.01	<0.00500	<0.0100	<0.00500	<0.0100	<0.00500	<0.0100	<0.00500	<0.0100	
Xylene (total)	mg/L	10	10	<0.015	<0.05	<0.015	<0.05	<0.015	<0.0500	<0.015	<0.0500	<0.015	<0.0500	<0.015	<0.0500	
o-Xylene	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
mp-Xylene	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
<b>Hydrocarbons</b>																
TPH - Gasoline Range	mg/L	0.15	31	NA	<0.150	NA	<0.150	NA	<0.150	NA	<0.150	NA	<0.150	NA	<0.150	
TPH - Diesel Range	mg/L	0.15	24	NA	<0.134	NA	<b>0.168</b>	NA	<b>0.194</b>	NA	<0.143	NA	<b>0.240</b>	NA	<0.133	
TPH - Oil Range	mg/L	0.15	24	NA	<0.124	NA	<0.121	NA	<0.120	NA	<0.122	NA	<0.125	NA	<0.123	
Aliphatic C6-C8	mg/L	3.2	3,900	<0.030	NA	<0.030	NA	<0.030	NA	<0.030	NA	<0.030	NA	<0.030	NA	
Aliphatic >C8-C10	mg/L	0.15	79	<0.020	NA	<0.020	NA	<0.020	NA	<0.020	NA	<0.020	NA	<0.020	NA	
Aliphatic >C10-C12	mg/L	0.15	79	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	
Aliphatic >C12-C16	mg/L	0.15	79	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	
Aliphatic >C16-C35	mg/L	7.3	1,600	<0.150	NA	<0.150	NA	<0.150	NA	<0.150	NA	<0.150	NA	<0.150	NA	
Aromatic >C8-C10	mg/L	0.15	31	<0.030	NA	<0.030	NA	<0.030	NA	<0.030	NA	<0.030	NA	<0.030	NA	
Unadjusted >C10-C12 Aromatics	mg/L	0.15	31	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	
Unadjusted >C12-C16 Aromatics	mg/L	0.15	31	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	
Unadjusted >C16-C21 Aromatics	mg/L	0.15	24	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	
Aromatic >C21-C35	mg/L	0.15	24	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	
<b>Radium</b>																
Radium 226	pCi/L	NS	NS	<b>0.201</b>	<b>0.349</b>	<b>0.174</b>	<b>0.279</b>	<b>0.0793</b>	<b>0.0666</b>	<b>0.193</b>	<b>0.0701</b>	<b>0.284</b>	<b>0.0698</b>	<b>0.387</b>	<b>0.125</b>	
Radium 228	pCi/L	NS	NS	<b>-0.058</b>	<b>0.596</b>	<b>0.448</b>	<b>0.287</b>	<b>0.344</b>	<b>0.0954</b>	<b>0.495</b>	<b>0.242</b>	<b>0.265</b>	<b>0.613</b>	<b>0.634</b>	<b>0.854</b>	
Radium 226+228 <sup>(2)</sup>	pCi/L	5	5	<b>0.143</b>	<b>0.945</b>	<b>0.622</b>	<b>0.566</b>	<b>0.4233</b>	<b>0.162</b>	<b>0.688</b>	<b>0.3121</b>	<b>0.549</b>	<b>0.6828</b>	<b>1.021</b>	<b>0.979</b>	
Total Dissolved Solids (TDS) <sup>(1)</sup>	mg/L	500	500	<b>1,990</b>	NA	<b>239</b>	NA	<b>807</b>	NA	<b>1383</b>	NA	<b>1130</b>	NA	<b>982</b>	NA	

**Notes:**  
Bolded values were detected in the sample  
Highlight indicates exceedance of corresponding regulatory standard  
Gray shaded samples are outside Chevron Limited Admission Areas  
GW<sub>SS</sub> - RECAP Groundwater Screening Standard  
GW<sub>NDW</sub> - RECAP Class 3 Non-Drinking Water Standard w/o DAF  
<sup>(1)</sup> - Listed limit is EPA SMCL  
<sup>(2)</sup> - Listed limit is EPA MCL  
<sup>(3)</sup> - GW<sub>SS</sub> and GW<

**Table 8**  
**Surface Water Analytical Data**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Parameters	Sample ID:			SW-BO 2'		SW-BO 13'	
	UTM Zone 15R Easting (m):			507801		507801	
	UTM Zone 15R Northing (m):			3328232		3328232	
	Sample Depth (feet):			2'		13'	
	Sample Date:			12/16/2021		12/16/2021	
	Units	GW <sub>SS</sub>	Surface Water Standard	ERM	ICON	ERM	ICON
<b>Total Metals</b>							
Arsenic	mg/L	0.01	NS	<0.0010	<0.00250	<0.0010	<0.00250
Barium	mg/L	2	NS	<b>0.860</b>	<b>0.742</b>	<b>0.952</b>	<b>0.887</b>
Cadmium	mg/L	0.005	NS	<0.0010	<0.00500	<0.0010	<0.00500
Calcium	mg/L	NS	NS	<b>13.4</b>	<b>11.8</b>	<b>13.5</b>	<b>11.9</b>
Chromium	mg/L	0.1	NS	<0.001	<0.0100	<0.001	<0.0100
Iron	mg/L	NS	NS	<b>0.565</b>	<b>0.601</b>	<b>7.85</b>	<b>7.66</b>
Lead	mg/L	0.015	NS	<0.0010	<0.0010	<0.0010	<0.0100
Magnesium	mg/L	NS	NS	<b>1.49</b>	<b>1.36</b>	<b>1.52</b>	<b>1.35</b>
Manganese	mg/L	NS	NS	<b>0.104</b>	<b>0.109</b>	<b>0.716</b>	<b>0.744</b>
Mercury	mg/L	0.002	NS	<0.00020	<0.000200	<0.00020	<0.000200
Potassium	mg/L	NS	NS	<b>3.29</b>	<5.00	<b>3.17</b>	<5.00
Sodium	mg/L	NS	NS	<b>23.8</b>	<b>23.2</b>	<b>23.8</b>	<b>21.3</b>
Strontium	mg/L	2.2	NS	<b>0.111</b>	<b>0.106</b>	<b>0.109</b>	<b>0.108</b>
Zinc	mg/L	1.1	NS	<0.010	<0.0100	<0.010	<0.0100
<b>Dissolved Metals</b>							
Arsenic	mg/L	0.01	NS	<0.0010	NA	<0.0010	NA
Barium	mg/L	2	NS	<b>0.832</b>	NA	<b>0.86</b>	NA
Cadmium	mg/L	0.005	NS	<0.0010	NA	<0.0010	NA
Calcium	mg/L	NS	NS	NA	NA	NA	NA
Chromium	mg/L	0.1	NS	<0.001	NA	<0.0010	NA
Iron	mg/L	NS	NS	<b>0.151</b>	NA	<b>1.67</b>	NA
Lead	mg/L	0.015	NS	<0.0010	NA	<0.0010	NA
Magnesium	mg/L	NS	NS	NA	NA	NA	NA
Manganese	mg/L	NS	NS	<b>0.063</b>	NA	<b>0.681</b>	NA
Mercury	mg/L	0.002	NS	NA	NA	NA	NA
Potassium	mg/L	NS	NS	NA	NA	NA	NA
Sodium	mg/L	NS	NS	NA	NA	NA	NA
Strontium	mg/L	2.2	NS	<b>0.115</b>	NA	<b>0.107</b>	NA
Zinc	mg/L	1.1	NS	<0.010	NA	<0.010	NA
<b>Anions</b>							
Chloride <sup>(2)</sup>	mg/L	NS	90	<b>23.2</b>	<b>23.0</b>	<b>23.3</b>	<b>23.2</b>
Sulfate <sup>(2)</sup>	mg/L	NS	10	<0.500	<1.25	<0.500	<1.25
<b>Alkalinity</b>							
Bicarbonate Alkalinity	mg/L	NS	NS	<b>80</b>	<b>65.0</b>	<b>70</b>	<b>62.5</b>
Carbonate Alkalinity	mg/L	NS	NS	<10	<20.0	<10	<20.0
Total Alkalinity	mg/L	NS	NS	<b>80</b>	<b>65.0</b>	<b>70</b>	<b>62.5</b>
Hydroxide Alkalinity	mg/L	NS	NS	<10	NA	<10	NA
Total Dissolved Solids (TDS) <sup>(2)</sup>	mg/L	NS	400	<b>145</b>	<b>160</b>	<b>142</b>	<b>130</b>
<b>BTEX Compounds</b>							
Benzene <sup>(1)</sup>	mg/L	0.005	0.00659	<0.001	<0.00500	<0.001	<0.00500
Ethylbenzene <sup>(1)</sup>	mg/L	0.7	0.834	<0.001	<0.00500	<0.001	<0.00500
Toluene <sup>(1)</sup>	mg/L	1	46.2	<0.002	<0.0100	<0.002	<0.0100
Xylene (total)	mg/L	10	NS	<0.001	<0.0500	<0.001	<0.0500
o-Xylene	mg/L	NS	NS	<0.001	<0.00500	<0.001	<0.00500
mp-Xylene	mg/L	NS	NS	<0.002	<0.0100	<0.002	<0.0100
<b>Hydrocarbons</b>							
TPH - Gasoline Range	mg/L	0.15	NS	NA	<0.135	NA	<0.150
TPH - Diesel Range	mg/L	0.15	NS	NA	<0.125	NA	<b>0.182</b>
TPH - Oil Range	mg/L	0.15	NS	NA	<0.150	NA	<b>0.130</b>
Aliphatic C6-C8	mg/L	3.2	NS	<0.005	NA	<0.005	NA
Aliphatic >C8-C10	mg/L	0.15	NS	<0.013	NA	<0.013	NA
Aliphatic >C10-C12	mg/L	0.15	NS	<0.136	NA	<0.143	NA
Aliphatic >C12-C16	mg/L	0.15	NS	<0.136	NA	<0.143	NA
Aliphatic >C16-C35	mg/L	7.3	NS	<0.227	NA	<0.238	NA
Aromatic >C8-C10	mg/L	0.15	NS	<0.005	NA	<0.005	NA
Unadjusted >C10-C12 Aromatics	mg/L	0.15	NS	<0.136	NA	<0.143	NA
Unadjusted >C12-C16 Aromatics	mg/L	0.15	NS	<0.136	NA	<0.143	NA
Unadjusted >C16-C21 Aromatics	mg/L	0.15	NS	<0.136	NA	<0.143	NA
Aromatic >C21-C35	mg/L	0.15	NS	<0.159	NA	<0.167	NA
<b>Radium</b>							
Radium 226	pCi/L	NS	NS	-0.0279	<b>0.171</b>	0.0911	<b>0.117</b>
Radium 228	pCi/L	NS	NS	0.140	<b>0.119</b>	0.462	<b>0.536</b>
Radium 226+228	pCi/L	NS	NS	0.140	<b>0.29</b>	0.553	<b>0.653</b>
Total Dissolved Solids (TDS) <sup>(2)</sup>	mg/L	NS	400	100	NA	38	NA

**Notes:**

Bolded values were detected in the sample

Highlight indicates exceedance of corresponding regulatory limit

GW<sub>SS</sub> - RECAP Groundwater Screening Standard

<sup>(1)</sup> - LDEQ surface water standard from LAC 33 IX Subpart 1 Section 1113 Table 1

<sup>(2)</sup> - LDEQ surface water standard for drainage basin subsegment #050601 Lacassine Bayou-From headwaters to ICWW

< - Not detected at or above the reporting limit shown

NA - Not analyzed; NS - No Standard

**Table 9**  
**Groundwater Field Parameters**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

<b>Well ID</b>	<b>H-1</b>							
Date	3/6/2020							
DTW (ft btoc)	2.3							
Stickup (ft agl)	1.03							
TD (ft btoc)	40.71							
<b>Time</b>	<b>pH</b>	<b>SC</b> <b>[µS/cm]</b>	<b>Temp [C]</b>	<b>Turb</b> <b>[NTU]</b>	<b>TDS</b> <b>(ppm)</b>	<b>ORP [mV]</b>	<b>DO (ppm)</b>	<b>Vol [Gal]</b>
1043	8.08	5318	20.5	-	4147	-122	-	0
1047	7.66	5319	20.4	-	4119	-90	-	1
1053	7.51	5287	20.9	-	4087	-60	-	2
1058	7.52	5270	20.9	-	4081	-16	-	3
1104	7.62	5238	21.0	-	4056	7	-	4
1110	Sample Time							

<b>Well ID</b>	<b>H-2</b>							
Date	3/5/2020							
DTW (ft btoc)	3.19							
Stickup (ft agl)	1.32							
TD (ft btoc)	35.94							
<b>Time</b>	<b>pH</b>	<b>SC</b> <b>[µS/cm]</b>	<b>Temp [C]</b>	<b>Turb</b> <b>[NTU]</b>	<b>TDS</b> <b>(ppm)</b>	<b>ORP [mV]</b>	<b>DO (ppm)</b>	<b>Vol [Gal]</b>
1629	8.13	4859	21.3	-	3736	16	-	1
1632	7.87	4875	21.2	-	3733	28	-	2
1639	7.52	4866	21.3	-	3735	13	-	3.5
1642	7.44	4867	21.4	-	3726	11	-	4
1648	7.35	4887	21.2	-	3726	10	-	5
1655	Sample Time							
1715	Pump Off							

<b>Well ID</b>	<b>H-3</b>							
Date	3/6/2020							
DTW (ft btoc)	4.56							
Stickup (ft agl)	1.02							
TD (ft btoc)	27.8							
<b>Time</b>	<b>pH</b>	<b>SC</b> <b>[µS/cm]</b>	<b>Temp [C]</b>	<b>Turb</b> <b>[NTU]</b>	<b>TDS</b> <b>(ppm)</b>	<b>ORP [mV]</b>	<b>DO (ppm)</b>	<b>Vol [Gal]</b>
1247	7.73	1024	22.5	-	707.6	-59	-	0
1254	8.21	1021	22.1	-	703.5	-59	-	1
1259	8.11	1024	22.1	-	704.1	-45	-	2
1304	8.04	1020	21.8	-	702.2	-44	-	3
1315	Sample Time							
1340	Pump Off							

<b>Well ID</b>	<b>H-9</b>							
Date	3/5/2020							
DTW (ft btoc)	2.95							
Stickup (ft agl)	-							
TD (ft btoc)	55.75							
<b>Time</b>	<b>pH</b>	<b>SC</b> <b>[µS/cm]</b>	<b>Temp [C]</b>	<b>Turb</b> <b>[NTU]</b>	<b>TDS</b> <b>(ppt)</b>	<b>ORP [mV]</b>	<b>DO (ppm)</b>	<b>Vol [Gal]</b>
1305	7.05	45.66	20.2	-	48.62	-	-	0
1310	7.06	47.87	20.2	-	51.39	-	-	1
1315	6.75	48.74	20.0	-	52.57	-	-	2
1321	6.72	48.94	20.2	-	52.73	-	-	3
1330	6.4	48.92	19.9	-	53.43	47	-	4
1335	Sample Taken							
1404	Pump Off							

**Table 9**  
**Groundwater Field Parameters**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

**Well ID**            **H-10**  
Date                3/5/2020  
DTW (ft btoc)     6.6  
Stickup (ft agl)   -  
TD (ft btoc)       40.39

Time	pH	SC [μS/cm]	Temp [C]	Turb [NTU]	TDS (ppt)	ORP [mV]	DO (ppm)	Vol [Gal]
1436	7.96	4938	21.4	-	3802	-67	-	0.5
1442	7.67	4950	21.2	-	3802	-55	-	1
1447	7.66	4979	21.2	-	3838	-16	-	2
1452	7.56	4972	21.5	-	3825	-8	-	3
1507	7.41	4985	21.5	-	3840	25	-	4
1520	7.44	4975	21.9	-	3838	19	-	5.5
1526	7.58	4986	21.8	-	3836	18	-	6
1530	Sample Time							
1603	Pump Off							

**Well ID**            **H-12**  
Date                3/5/2020  
DTW (ft btoc)     3.77  
Stickup (ft agl)   -  
TD (ft btoc)       60.4

Time	pH	SC [μS/cm]	Temp [C]	Turb [NTU]	TDS (ppt)	ORP [mV]	DO (ppm)	Vol [Gal]
1020	5.38	78.3	20.4	-	101.9	77	-	0.25
1023	5.72	82.22	20.6	-	109.5	33	-	0.5
1029	6.04	83.79	20.6	-	112.1	33	-	2
1034	6.26	82.8	20.7	-	111.3	-	-	3
1039	6.57	83.42	20.0	-	113.6	-	-	4
1050	6.59	83.38	20.0	-	113.2	-	-	5
1100	6.67	83.36	19.7	-	113.8	-	-	6
1105	Sample Time							
1137	Pump Off							

**Well ID**            **H-16**  
Date                3/6/2020  
DTW (ft btoc)     3.22  
Stickup (ft agl)   2.2  
TD (ft btoc)       41.9

Time	pH	SC [mS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (ppm)	Vol [Gal]
748	7.35	29.10	19.0	-	28.49	-93	-	0
755	7.36	29.27	19.7	-	28.90	-81	-	1
800	7.34	29.42	20.0	-	28.86	-62	-	2
806	7.19	29.47	19.8	-	28.81	-43	-	3
812	7.21	29.42	20.0	-	28.71	-27	-	4
815	Sample Time							



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**Well ID**            **H-18**  
Date                3/6/2020  
DTW (ft btoc)     2.0  
Stickup (ft agl)   1.2  
TD (ft btoc)       51.03

Time	pH	SC [mS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (ppm)	Vol [Gal]
925	7.91	9734 (µS)	20.6	-	8012	11	-	0
931	7.73	10.41	20.3	-	8520	29	-	1
935	7.61	10.36	20.7	-	8574	8	-	2
940	7.52	10.36	21.0	-	8600	5	-	3
946	7.52	10.41	20.8	-	8610	65	-	4
950	Sample Time							
1022	Pump Off							

**Well ID**            **H-20**  
Date                4/19/2021  
DTW (ft btoc)     2.18  
Stickup (ft agl)   1.45  
TD (ft btoc)       45.58

Time	pH	SC [µS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (ppm)	Vol [Gal]
923	Pump On, tubing @ TD							
930	6.09	2771	20.1	647	2018	138	-	1
934	6.29	2883	20.4	55	2107	113	-	1.5
938	6.45	2923	20.4	20	2140	97	-	2
942	6.57	2933	20.4	14	2148	99	-	2.5
946	6.66	2936	20.4	10	2149	96	-	3
950	6.72	2942	20.6	7	2155	97	-	3.5
954	6.79	2941	20.6	6	2153	102	-	4
1000	Sample Time							
1020	Finish Sampling							

**Well ID**            **H-22**  
Date                4/19/2021  
DTW (ft btoc)     3.26  
Stickup (ft agl)   1.95  
TD (ft btoc)       45.67

Time	pH	SC [µS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (ppm)	Vol [Gal]
1036	Pump On, tubing @ TD							
1042	7.02	2602	20.9	-	1877	101	-	1
1046	6.95	2668	21.1	27	1926	90	-	1.5
1050	6.97	2673	21.2	36	1932	87	-	2
1054	6.99	2677	20.9	21	1937	92	-	2.5
1058	7.01	2676	21.0	17	1935	92	-	3
1102	7.02	2679	21.1	20	1940	94	-	3.5
1106	7.10	2679	21.0	19	1939	96	-	4
1110	Sample Time							
1135	Finish Sampling							

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**Well ID**            **H-23**  
Date                4/19/2021  
DTW (ft btoc)     3.52  
Stickup (ft agl)   1.55  
TD (ft btoc)       38.55

Time	pH	SC [µS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (ppm)	Vol [Gal]
1259	Pump On, tubing @ TD							
1305	7.16	2827	22.4	52	2049	90	-	1
1311	7.21	2855	22.0	30	2072	112	-	1.5
1316	7.20	2862	22.5	25	2077	110	-	2
1320	7.22	2876	22.3	22	2088	110	-	2.5
1324	7.13	2859	21.9	26	2076	113	-	3
1328	7.13	2861	22.2	12	2089	112	-	3.5
1332	7.16	2874	22.1	19	2084	112	-	4
1335	Sample Time							
1358	Finish Sampling							

**Well ID**            **H-24**  
Date                4/19/2021  
DTW (ft btoc)     4.23  
Stickup (ft agl)   1.9  
TD (ft btoc)       47.85

Time	pH	SC [µS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (ppm)	Vol [Gal]
1420	Pump On, tubing @ TD							
1428	7.17	2749	23.0	25	1982	129	-	1
1432	7.06	2743	22.6	19	1981	114	-	1.5
1437	7.11	2751	22.8	9	1989	113	-	2
1442	7.17	2756	22.3	11	1991	115	-	2.5
1446	7.09	2752	22.4	11	1994	108	-	3
1450	7.08	2765	22.1	9	1994	106	-	3.5
1454	7.11	2766	22.1	7	1998	112	-	4
1500	Sample Time							
1520	Finish Sampling							

**Well ID**            **H-25**  
Date                4/20/2021  
DTW (ft btoc)     3.83  
Stickup (ft agl)   1.9  
TD (ft btoc)       49.85

Time	pH	SC [µS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (ppm)	Vol [Gal]
744	Pump On, tubing @ TD							
752	6.45	2273	19.7	15	1624	142	-	1
800	Unable to pump from 33'							
1250	Hand pump check valve							
1253	7.57	2240	23.3	-	1583	85	-	1.5
1256	7.42	2247	22.5	-	1598	72	-	2
1440	Sample Time - Dry - still need salt & metals - let recharge							

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**Well ID H-26**  
Date 4/20/2021  
DTW (ft btoc) 3.30  
Stickup (ft agl) 2.05  
TD (ft btoc) 51.62

Time	pH	SC [μS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (ppm)	Vol [Gal]
808	Pump On, tubing @ TD							
817	7.07	1946	19.7	-	1375	113	-	0.5
823	7.09	1966	19.9	76	1392	44	-	1
1243	Hand pump check valve							
1244	7.68	1942	24.4	-	1363	71	-	1.5
1246	7.64	1954	23.4	-	1370	71	-	1.75
1300	Well Dry							
1425	Sample Time - ICON collect salt only, no volume for ERM split. Dry at 175 mL							

**Well ID H-27**  
Date 4/20/2021  
DTW (ft btoc) 5.52  
Stickup (ft agl) 1.8  
TD (ft btoc) 52.85

Time	pH	SC [μS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (ppm)	Vol [Gal]
837	Pump On, tubing @ TD							
841	7.11	2837	19.9	-	2078	-19	-	0.5
846	7.05	2877	20.2	-	2055	-60	-	1
851	Pump off, head too low to pump, ICON to get check valve							
1150	Set up Watterra, Pump on							
1154	Pump on, pump is stripping generator, start pumping by hand							
1202	7.52	2847	21.6	-	2068	-21	-	1.5
1219	7.36	2792	22.7	-	2024	-6	-	2.5
1225	Well Dry at ~3 gallons							
1400	Sample Collected - No Rad & No total metals							

**Well ID H-34**  
Date 8/23/2021  
DTW (ft btoc) 2.97  
Stickup (ft agl) 0.75  
TD (ft btoc) 29.85

Time	pH	SC [μS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (ppm)	Vol [Gal]
1026	pump on							
1027	8.2	1693	26.8	-	1216	20	-	0
1031	7.58	1649	23.8	-	1189	30	-	0.5
1034	7.63	1649	23.8	-	1190	31	-	1
1036	pulls tubing up 5' from bottom							
1037	7.69	1652	23.8	-	1189	23	-	1.5
1039	-	-	-	70.5	-	-	-	-
1040	7.76	1648	24.4	23.8	1186	21	-	2
1044	7.81	1645	24	11.8	1184	20	-	2.5
1047	7.72	1651	24.2	7.01	1189	5	-	3
1048	pump off							
1055	Sample Collected							



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**Well ID**            **H-32A**  
Date                8/23/2021  
DTW (ft btoc)    2.70  
Stickup (ft agl) flush mount  
TD (ft btoc)      19.52

Time	pH	SC [μS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (ppm)	Vol [Gal]
1136	pump on							
1136	8.14	1412	25.1	-	999.6	-123	-	0
1139	8.11	1409	24.1	-	1001	-119	-	0.5
1143	8.14	1419	24.7	-	1011	-147	-	1
1147	8.12	1418	24.0	23.7	1012	-125	-	1.5
1151	8.07	1412	23.9	8.94	1006	-110	-	2
1156	8	1412	24.1	-	1004	-103	-	2
1200	Sample Collected			11.1				

**Well ID**            **H-32B**  
Date                8/23/2021  
DTW (ft btoc)    2.70  
Stickup (ft agl) flush mount  
TD (ft btoc)      49.34

Time	pH	SC [μS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (ppm)	Vol [Gal]
1311	pump on							
1312	8.64	992.7	26.9	-	691.4	-68	-	0
1314	8.20	1294	25.2	-	916.2	-164	-	0.5
1318	8.16	1529	24.6	-	1093	-125	-	1
1322	7.81	1706	24.7	11.2	1231	-145	-	1.5
1327	7.68	1723	24.4	4.53	1245	-139	-	2
1335	7.83	1768	25.1	2.12	1278	-62	-	3
1345	7.87	1771	25.1	3.82	1281	-31	-	4
1350	Sample Collected							

**Well ID**            **H-33**  
Date                8/23/2021  
DTW (ft btoc)    2.30  
Stickup (ft agl) flush mount  
TD (ft btoc)      29.90

Time	pH	SC [μS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (ppm)	Vol [Gal]
1431	pump on							
1431	8.21	2398	25.5	-	1775	-152	-	0
1434	8.05	2404	25.5	-	1786	-82	-	0.5
1438	8.14	2405	24.2	25.4	1784	-11	-	1
1443	7.75	2409	24.6	11.7	1793	-61	-	1.5
1448	7.91	2400	24.6	14.5	1787	-6	-	2
1450	Sample Collected							

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<b>Well ID</b>									
Date	MW-1								
DTW (ft btoc)	12/15/2021								
Stickup (ft agl)	6.09								
TD (ft btoc)	3.25								
	62.06								
<b>Time</b>	<b>pH</b>	<b>SC</b> <b>[mS/cm]</b>	<b>Temp [C]</b>	<b>Turb</b> <b>[NTU]</b>	<b>TDS</b> <b>(ppm)</b>	<b>ORP [mV]</b>	<b>DO (mg/L)</b>	<b>Vol [Gal]</b>	
1251	Pump on								
1253	7.07	1.79	21.3	113	-	-12	1.57	0	
1254	Raise/lower tubing repeatedly to surge/develop well								
1258	7.14	1.76	21.2	OR	-	-123.6	0.29	0.5	
1304	7.08	1.71	21.2	146	-	-141.9	0.46	1	
1310	7.1	1.69	21.4	65.1	-	-145.9	0.38	1.5	
1315	7.08	1.69	21.5	33.4	-	-147.8	0.36	2	
1321	7.08	1.69	21.3	25.3	-	-147.7	0.34	2.5	
1327	7.09	1.68	21.2	22.4	-	-147.3	0.31	3	
1332	7.06	1.68	21.2	14.4	-	-147.4	0.29	3.5	
1337	7.07	1.68	21.3	35.6	-	-147.4	0.27	4	
1342	7.11	1.68	21.4	29.5	-	-146.2	0.25	4.5	
1345	Sample collected								
1421	Complete sampling, pump off								

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Well ID	MW-2							
Date	12/21/2021							
DTW (ft btoc)	5.64							
Stickup (ft agl)	3							
TD (ft btoc)	60.46							
Time	pH	SC [mS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (mg/L)	Vol [Gal]
801	Pump on							
	Repeatedly raise/lower tubing to surge/develop well							
802	7.32	1.58	18.8	197	-	-164.5	1.7	0
806	7.25	1.6	19.3	109	-	-198.7	0.69	0.5
810	7.26	1.59	19.5	147	-	-201.8	0.39	1
816	7.16	1.58	19.6	802	-	-203.1	0.27	1.5
820	7.13	1.54	19.8	OR	-	-195.6	0.23	2
825	7.1	1.53	19.7	OR	-	-191.7	0.21	2.5
829	6.98	1.53	19.8	OR	-	-190.4	0.19	3
833	6.99	1.52	19.9	OR	-	-189.3	0.17	3.5
838	7.08	1.52	19.9	OR	-	-188.9	0.17	4
842	7.03	1.52	19.9	OR	-	-189.2	0.16	4.5
847	7.02	1.52	19.8	OR	-	-190.3	0.16	5
852	6.99	1.52	20	OR	-	-189.7	0.15	5.5
858	6.95	1.52	20.1	OR	-	-191	0.14	6
	Tubing no longer reaching bottom. After pumping out silt, add extra tubing and lower tubing to purge out any remaining silt							
903	6.95	1.52	19.6	OR	-	-167.2	0.18	6.5
908	6.93	1.52	19.7	OR	-	-174.7	0.17	7
913	6.92	1.51	19.7	706	-	-180.8	0.15	7.5
918	6.89	1.51	19.5	767	-	-182.7	0.16	8
922	6.94	1.51	19.8	815	-	-184.2	0.16	8.5
928	6.92	1.51	19.7	866	-	-185.3	0.17	9
933	6.94	1.51	19.7	643	-	-186	0.16	9.5
938	6.9	1.51	19.8	535	-	-186.7	0.15	10
943	6.92	1.51	20	254	-	-187.6	0.15	10.5
947	6.93	1.5	20.1	248	-	-188.1	0.14	11
952	6.92	1.51	20.1	216	-	-188.8	0.13	11.5
955	Sample collected							
955	-	-	-	185	-	-	-	-
	Turbidity after removing flow through cell prior to sampling							
1006	-	-	-	120	-	-	-	-
	Turbidity prior to metals sampling, ICON will field filter metals (dissolved)							
1031	Pump off, sampling completed							

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**Well ID**            **MW-3**  
Date                12/20/2021  
DTW (ft btoc)     6.10  
Stickup (ft agl)   3  
TD (ft btoc)      42.95

Time	pH	SC [mS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (mg/L)	Vol [Gal]
1547	Pump on							
	Repeatedly raise/lower tubing to surge/develop well							
1548	6.8	2.44	18.6	17.3	-	-120.4	1.57	0
1553	6.62	2.44	19.2	61.3	-	-125.7	0.53	0.5
1558	6.63	2.42	19.5	30.2	-	-105.4	0.39	1
1604	6.56	2.41	19.2	4.79	-	-99.7	0.32	1.5
1609	6.6	2.41	19.3	8.39	-	-96.2	0.3	2
1613	6.59	2.41	19.4	29.1	-	-95.7	0.26	2.5
1619	6.58	2.41	19.3	23.7	-	-95.4	0.24	3
1623	6.58	2.41	19.4	27.9	-	-95.9	0.23	3.5
1628	6.55	2.41	19.2	14.9	-	-95.5	0.21	4
1630	Sample collected							
1707	Pump off, sampling completed							

**Well ID**            **MW-4**  
Date                12/20/2021  
DTW (ft btoc)     6.79  
Stickup (ft agl)   3  
TD (ft btoc)      54.34

Time	pH	SC [mS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (mg/L)	Vol [Gal]
1425	Pump on							
	Repeatedly raise/lower tubing to surge/develop well							
1428	6.88	3.41	17.2	356	-	-68	0.86	0
1432	6.68	4.39	19.2	OR	-	-147.8	0.32	0.5
1437	6.65	4.22	19.4	304	-	-146.8	0.87	1
1442	6.66	4.2	19.3	138	-	-145.4	0.55	1.5
1447	6.64	4.17	19.5	59.5	-	-142.1	0.4	2
1452	6.65	4.16	19.5	41.8	-	-140.5	0.32	2.5
1457	6.67	4.16	19.5	21.8	-	-139	0.3	3
1501	6.62	4.16	19.4	17.3	-	-136.1	0.28	3.5
1505	Sample collected							
1536	Pump off, sampling completed							

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Well ID	MW-5								
Date	12/20/2021								
DTW (ft btoc)	6.99								
Stickup (ft agl)	3								
TD (ft btoc)	37.90								
Time	pH	SC [mS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (mg/L)	Vol [Gal]	
1243	Pump On								
	Repeatedly raise/lower tubing to surge/develop well								
1244	6.95	4.25	18.4	OR	-	139.6	1.1	0	
1248	6.69	4.33	19.2	OR	-	126.1	1.47	0.5	
1254	6.66	4.42	19.2	154	-	126.2	0.56	1	
1259	6.61	4.42	19.2	118	-	120.3	0.47	1.5	
1305	6.6	4.42	19.4	173	-	113.6	0.4	2	
1310	6.64	4.41	19.3	112	-	107.1	0.34	2.5	
1315	6.65	4.41	19.3	98.8	-	101.2	0.32	3	
1319	6.61	4.4	19.2	83.1	-	96.2	0.31	3.5	
1325	6.65	4.4	19.2	83.6	-	89.9	0.28	4	
1330	6.68	4.4	19.1	50.9	-	84.3	0.26	4.5	
	Sample collected								
1347	-	-	-	16.7	-	-	-	-	
	Turbidity prior to sampling metals								
1414	Pump off, sampling completed								

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Well ID	MW-6							
Date	12/16/2021							
DTW (ft btoc)	7.15							
Stickup (ft agl)	3							
TD (ft btoc)	43.04							
Time	pH	SC [mS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (mg/L)	Vol [Gal]
1532	Pump on							
1533	6.39	4.85	21.9	149	-	156.5	1.27	0
1534	Repeatedly raise/lower tubing to surge/develop well							
1537	6.36	6.86	21.7	42	-	88.4	0.4	0.5
1542	6.35	8.36	21.8	258	-	58.8	0.81	1
1548	6.38	8.16	21.6	512	-	45.5	0.73	1.5
1554	6.35	8.25	21.6	859	-	26.5	0.55	2
1559	6.33	8.2	21.6	OR	-	-67.1	0.41	2.5
1605	6.35	7.73	21.7	OR	-	-79	0.32	3
1611	6.37	7.53	21.7	OR	-	-84.2	0.3	3.5
1616	6.37	7.36	21.7	1000	-	-93.8	0.3	4
1622	6.38	7.05	21.6	381	-	-90.4	0.39	4.5
1627	6.38	6.99	21.5	682	-	-90.5	0.39	5
1632	6.38	6.88	21.5	576	-	-91.8	0.32	5.5
1638	6.37	6.69	21.4	873	-	-97.5	0.25	6
1642	6.38	6.58	21.4	288	-	-99	0.26	6.5
1647	6.37	6.51	21.4	181	-	-100.9	0.23	7
1648	Pump off, running out of sunlight, will return to continue developing							
12/17/2021								
759	Pump on							
800	6.4	6.39	20.5	562	-	138.4	2.99	7
804	6.34	6.39	20.9	39.5	-	97.2	0.72	7.5
808	6.31	7.26	20.9	15.9	-	-91.9	0.54	8
813	6.32	6.76	20.9	19.8	-	-115.8	0.44	8.5
818	6.33	6.55	21	33	-	-113.6	0.38	9
823	6.34	6.46	21	43.1	-	-110.5	0.41	9.5
827	6.32	6.49	21	85.3	-	-113.9	0.26	10
830	Sample collected							
842	-	-	-	111	-	-	-	-
	Turbidity prior to metals sampling, ICON will filter metals samples							
845	-	-	-	4.28	-	-	-	-
	Turbidity through filter							
911	Pump off, sampling completed							



**Table 9**  
**Groundwater Field Parameters**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Well ID	MW-7							
Date	12/15/2021							
DTW (ft btoc)	6.99							
Stickup (ft agl)	3.5							
TD (ft btoc)	46.58							
Time	pH	SC [mS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (mg/L)	Vol [Gal]
918	Pump on							
919	6.81	6.29	21.2	27.2	-	157.7	1.64	0
921	Raise/lower tubing, repeatedly to surge/develop well							
925	6.77	6.22	21.2	8.13	-	143.2	0.64	0.5
930	6.76	6.12	21.3	8.65	-	133.3	0.59	1
934	6.75	6.19	21.3	5	-	127.1	0.63	1.25
938	Air/bubbles in tubing, well going dry							
	6.78	6.21	21.5	3.33	-	123.9	0.67	1.4
	Well dry, pump off. After emptying flow through cell, 1.5 gallons purged, will return to continue sampling							
1132	Pump on							
1134	6.7	6	22.9	220	-	47.5	3.01	1.5
1139	6.76	6.58	23	28.1	-	64.9	1.96	2
1148	Flow rate very low due to low battery on pump							
	Plugged into external battery, flow rate back to normal							
1153	6.81	7.1	23.3	10.9	-	76.9	2.39	2.5
	Well dry, pump off							
1434	Pump on							
1436	6.76	7.48	22.2	432	-	105.3	4.22	2.5
1441	6.77	7.98	22.1	7.76	-	98.9	4.08	3
1445	6.7	8.23	22.7	7.02	-	97.8	3.25	3.25
	Well dry, pump off							
12/16/2021								
750	Sample collected							
804	-	-	-	6.2	-	-	-	-
	Turbidity prior to sampling for metals							
813	Pump off, well dry, filled all containers except radium, will return							
1407	Pump on, resume sampling							
1426	Pump off, well dry. Filled ERM Radium container and 1/2 of 1 ICON Radium container, will return							
12/17/2021								
722	Pump on							
725	Sampling completed							

**Table 9**  
**Groundwater Field Parameters**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

<b>Well ID</b>									
Date	<b>MW-8</b>								
DTW (ft btoc)	12/15/2021								
Stickup (ft agl)	6.76								
TD (ft btoc)	3.4								
	53.75								
<b>Time</b>	<b>pH</b>	<b>SC</b> <b>[mS/cm]</b>	<b>Temp [C]</b>	<b>Turb</b> <b>[NTU]</b>	<b>TDS</b> <b>(ppm)</b>	<b>ORP [mV]</b>	<b>DO (mg/L)</b>	<b>Vol [Gal]</b>	
1547	Pump on								
1548	6.88	2.57	22.4	261	-	-197.6	2.03	0	
	Raise/lower tubing repeatedly to surge/develop well								
1554	6.92	2.35	21.6	342	-	-426	0.46	0.5	
1559	6.9	2.14	21.5	86	-	-398.7	0.35	1	
1605	6.9	2.1	21.5	46.6	-	-372.1	0.32	1.5	
1610	6.9	2.09	21.6	29.8	-	-361.2	0.32	2	
1615	6.9	2.04	21.5	21.1	-	-345	0.32	2.5	
1620	6.91	2.03	21.5	15.2	-	-341	0.32	3	
1624	6.9	2.04	21.4	15.1	-	-341.3	0.33	3.5	
1629	6.91	2.02	21.4	40.5	-	-338.1	0.34	4	
1630	Sample Collected								
1642	-	-	-	8.41	-	-	-	-	
	Turbidity prior to collecting water for metals								
1706	Pump off, sampling completed								
<b>Well ID</b>									
Date	<b>MW-9</b>								
DTW (ft btoc)	12/15/2021								
Stickup (ft agl)	6.73								
TD (ft btoc)	3.4								
	38.98								
<b>Time</b>	<b>pH</b>	<b>SC</b> <b>[mS/cm]</b>	<b>Temp [C]</b>	<b>Turb</b> <b>[NTU]</b>	<b>TDS</b> <b>(ppm)</b>	<b>ORP [mV]</b>	<b>DO (mg/L)</b>	<b>Vol [Gal]</b>	
1005	Begin pumping								
1006	7.19	2.11	21.4	3.33	-	-99.5	1.42	0	
1010	Raise/lower tubing to surge/develop well								
1011	7.17	2.04	21.5	369	-	-102.5	1.02	0.5	
1015	7.2	2.04	21.8	37	-	-42.6	1.09	0.75	
	Well dry, pump off. Will begin purging MW-9D								
1202	Pump on								
1204	7.26	2.26	22.4	85.5	-	27.9	1.15	0.75	
1209	7.14	2.13	22.7	28.1	-	5.5	0.97	1.25	
1210	Well dry, pump off								
1455	Pump on								
1456	7.2	2.41	22.3	92.1	-	46.1	1.64	1.25	
1459	7.14	2.31	22	27.8	-	17.3	0.77	1.5	
1502	7.14	2.27	22.1	21.5	-	12.3	1.01	1.75	
	Well dry, pump off								
12/16/2021									
820	Water sample collected								
833	Well dry, pump off. Filled VOAs and 1/2 of ICONS conventionals, will return								
1432	Pump on, continue sampling								
1438	-	-	-	3.73	-	-	-	-	
	Turbidity prior to sampling for metals								
1445	Well dry, pump off. Only Radium containers remain								
12/17/2021									
731	Pump on, resume sampling								
739	Pump off, well dry. ERM Radium container half full, will return								
1134	Pump on, resume sampling								
1141	Pump off, well dry. Filled remaing ERM containers, but only 1/4 of one Radium bottle for ICON. ICON not running Radium due to low sample volume								

**Table 9**  
**Groundwater Field Parameters**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

<b>Well ID</b>									
Date	12/15/2021								
DTW (ft btoc)	6.62								
Stickup (ft agl)	3.4								
TD (ft btoc)	50.88								
<b>Time</b>	<b>pH</b>	<b>SC</b> <b>[mS/cm]</b>	<b>Temp [C]</b>	<b>Turb</b> <b>[NTU]</b>	<b>TDS</b> <b>(ppm)</b>	<b>ORP [mV]</b>	<b>DO (mg/L)</b>	<b>Vol [Gal]</b>	
1023	Begin pumping								
1025	7.1	2.35	22.6	187	-	-124.8	1.64	0	
	Raise/lower tubing to surge/develop well, very turbid								
1028	7.1	2.25	21.7	OR	-	-184.5	0.28	0.5	
1034	7.08	2.3	21.8	OR	-	-176.4	0.45	1	
1039	7.07	2.31	22.5	601	-	-146.9	0.47	1.25	
1044	7.02	2.28	22.6	220	-	-120.9	0.39	1.5	
	Well dry, pump off								
1213	Pump on								
1215	7.05	2.29	22	80.2	-	-7.9	1.15	1.5	
1218	7.05	2.29	22.1	50.6	-	-38.5	0.55	2	
1222	7.04	2.3	22.3	30.3	-	-42.4	0.65	2.25	
1227	7.07	2.29	23	22.7	-	-42.2	0.59	2.5	
1228	Well dry, pump off								
1506	Pump on								
1507	7	2.28	21.9	34.9	-	7.8	1.1	2.5	
1512	7.01	2.28	22.1	21.5	-	-22.4	0.53	3	
1516	7.02	2.29	22.3	10.5	-	-23.4	0.59	3.25	
1521	7	2.28	23	11.9	-	-36.4	0.45	3.5	
	Well dry, pump off								
12/16/2021									
840	Water sample collected								
855	Well dry, pump off. Still need 1/2 of ICON's conventionals, All Metals, & an Radium								
1449	Pump on, continue sampling								
1451	-	-	-	32.8	-	-	-	-	
	Turbidity prior sampling for metals								
1512	Pump off, 1/2 of ERM Radium container and ICON Radium containers remain								
12/17/2021									
741	Pump on, resume sampling								
750	Pump off, sampling completed								

**Table 9**  
**Groundwater Field Parameters**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

<b>Well ID</b>									
<b>MW-10</b>									
Date	12/17/2021								
DTW (ft btoc)	8.21								
Stickup (ft agl)	3.3								
TD (ft btoc)	46.40								
<b>Time</b>	<b>pH</b>	<b>SC</b> <b>[mS/cm]</b>	<b>Temp [C]</b>	<b>Turb</b> <b>[NTU]</b>	<b>TDS</b> <b>(ppm)</b>	<b>ORP [mV]</b>	<b>DO (mg/L)</b>	<b>Vol [Gal]</b>	
929	Pump on								
930	7.59	1.6	21	OR	-	37.6	1.7	0	
934	Repeatedly raise/lower tubing to surge/develop well.								
936	7.51	1.53	20.9	OR	-	-222.6	0.58	0.5	
942	7.4	1.59	21	OR	-	-291.4	0.39	1	
950	6.99	2.13	21.2	OR	-	-248.7	0.28	1.5	
955	6.97	2.19	21.2	OR	-	-239	0.26	2	
1000	6.93	2.27	21.3	OR	-	-230.2	0.24	2.5	
1006	6.92	2.3	21.2	OR	-	-228.9	0.22	3	
1011	6.92	2.3	21.2	OR	-	-227.3	0.21	3.5	
1016	6.91	2.36	21.3	OR	-	-226.6	0.2	4	
1022	6.9	2.37	21.3	OR	-	-223.8	0.22	4.5	
1028	6.89	2.41	21.3	OR	-	-216.8	0.19	5	
1034	6.88	2.43	21.3	OR	-	-209.4	0.18	5.5	
1039	6.88	2.43	21.3	OR	-	-203.7	0.17	6	
1045	6.89	2.44	21.3	OR	-	-198.2	0.16	6.5	
1051	6.89	2.44	21.4	OR	-	-192	0.15	7	
1058	6.89	2.43	21.3	OR	-	-185	0.15	7.5	
1103	6.88	2.42	21.2	OR	-	-181.3	0.15	8	
1109	6.89	2.4	21.2	OR	-	-177	0.17	8.5	
1114	6.88	2.44	21.3	OR	-	-173.1	0.16	9	
1120	6.88	2.44	21.3	OR	-	-173	0.15	9.5	
1125	6.87	2.44	21.3	OR	-	-175.1	0.14	10	
Pump off, will return next week to continue developing & sample									
Water very turbid throughout but visibly improving gradually									
12/20/2021	DTW (ft btoc)	5.63							
	TD (ft btoc)	50.82							
1009	Pump on								
1010	6.76	2.3	16.7	305	-	226.1	2.26	10	
1014	6.86	2.43	17.8	434	-	164.1	1.11	10.5	
1019	6.85	2.44	18	OR	-	131.2	0.6	11	
1025	6.8	2.45	18.3	OR	-	110.1	0.44	11.5	
1031	6.87	2.45	18.2	OR	-	94.9	0.37	12	
1036	6.85	2.45	18	OR	-	83.5	0.33	12.5	
1042	6.85	2.45	17.8	OR	-	69.3	0.3	13	
1045	Sample collected								
ICON collecting metals through filter (dissolved metals)									
1129	Pump off, sampling completed								

**Table 9**  
**Groundwater Field Parameters**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

**Well ID**            **MW-11**  
Date                12/14/2021  
DTW (ft btoc)     6.85  
Stickup (ft agl)   3.28  
TD (ft btoc)       36.70

Time	pH	SC [mS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (mg/L)	Vol [Gal]
1506	pump on							
1508	6.71	4.61	23.6	28	-	55.3	1.12	0
1511	Raise/lower tubing repeatedly to surge/develop well							
1514	6.75	4.65	22.8	127	-	-98.3	1.05	0.5
1518	6.75	4.66	22.7	53.1	-	-99	1.19	1
1521	Bubbles in tubing, reduce flow rate							
1526	6.79	4.67	23.2	83.7	-	-96.3	1.16	1.5
1527	Well dry, pump off to recharge							
1542	Resume pumping at lower flow rate							
1550	6.72	4.76	23	81.7	-	-176.9	0.6	1.75
1557	6.73	4.78	23	67.2	-	-152.5	0.65	2
1600	Well dry, pump off, ~2.1 gal							
1620	Resume pumping							
1623	6.73	4.79	22.4	62.6	-	-151.7	0.82	2.25
1630	6.72	4.82	22.4	23.5	-	-179.7	0.48	2.5
1638	6.73	4.83	22.3	23.5	-	-152.6	0.64	2.75
1644	6.79	4.82	22.2	33.7	-	-123.4	1.24	3
1650	Pump Off, air in tubing continuously while sampling, on the verge of going dry at very low flow rate, will sample tomorrow							

12/15/2021

800	Begin collecting sample							
815	-	-	-	13.9	-	-	-	-
	Turbidity prior to sampling metals							
848	Well dry, will return to finish sampling 1/2 of an ERM Radium container and all ICON Radium containers							
1054	Resume sampling							
1107	Pump off, filled all containers							

**Well ID**            **SW-BO 2'**  
Date                12/16/2021  
DTW (ft btoc)     -  
Stickup (ft agl)   -  
TD (ft btoc)       -

Time	pH	SC [mS/cm]	Temp [C]	Turb [NTU]	TDS (ppm)	ORP [mV]	DO (mg/L)	Vol [Gal]
1216	Pump on							
1216	7.03	0.184	21.9	73.9	-	53.4	3.03	0
1219	7.07	0.182	21.7	3.07	-	81.5	4.13	0.25
1222	7.08	0.182	22.1	2.81	-	90.1	4.47	0.5
1225	7.1	0.182	22.3	1.99	-	92.9	4.39	0.72
1230	Sample collected							
1306	Pump off, sampling complete							

**Table 9**  
**Groundwater Field Parameters**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

<b>Well ID</b>									
Date	12/16/2021								
DTW (ft btoc)	-								
Stickup (ft agl)	-								
TD (ft btoc)	-								
<b>Time</b>	<b>pH</b>	<b>SC</b> <b>[mS/cm]</b>	<b>Temp [C]</b>	<b>Turb</b> <b>[NTU]</b>	<b>TDS</b> <b>(ppm)</b>	<b>ORP [mV]</b>	<b>DO (mg/L)</b>	<b>Vol [Gal]</b>	
1123	Begin pumping								
1124	7.18	0.225	18.5	460	-	57.4	1.33	0	
1127	6.93	0.189	17.7	24.3	-	9.9	0.74	0.25	
1129	6.89	0.188	17.4	17.4	-	7.4	0.77	0.5	
1133	6.89	0.187	17.6	20.8	-	-3.6	0.54	0.75	
1135	Sample collected								
1207	Pump off, sampling complete								



**Table 10**  
**Soil Geotechnical Data**  
*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Boring ID	Sample Date	Depth (Ft)	Laboratory Description (ASTM D2487)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Moisture Content (ASTM D2216) (%)	Dry Density (lbs/cubic ft)	Vertical Permeability (ASTM D5084) (cm/sec)
H-12R	11/17/2021	53-54	Gray SILTY SAND (SM)	0.0	76.1	17.1	6.8	14.8	NA	NA
H-12R	11/17/2021	74-76	Gray and Brown LEAN CLAY (CL) w/ Trace Sand	0.0	8.4	55.5	36.1	24.1	102.6	$3.2 \times 10^{-8}$
H-16R	11/15/2021	38.5-39	Brown and Gray LEAN CLAY (CL) w/ Trace Sand	0.0	7.3	81.7	11.0	26.7	NA	NA
H-16R	11/15/2021	50.5-51	Brown and Gray FAT CLAY (CH)	0.0	0.3	42.2	57.5	31.8	91.4	$1.1 \times 10^{-7}$
MW-8	12/14/2021	50-52	Gray and tan FAT CLAY (CH)	0.0	3.2	31	65.8	25.9	97.8	$3.2 \times 10^{-9}$

**Notes:**

Analyses performed by Ardaman & Associates, Inc., Baton Rouge, Louisiana

Particle size analysis by ASTM D422

NA - Not analyzed

Table 11  
Soil Screening Evaluation - Non-Industrial Direct Contact

Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.  
Hayes Oil and Gas Field  
Calcasieu and Jefferson Davis Parishes, Louisiana

Constituent (a)	Soilssni (b)	SoilSSGW (c)	Limiting SS (d)	Maximum Concentration in Soil (e)				
				Area 2	Area 4	Area 5	Area 6	Area 8
<b>Metals (mg/kg)</b>								
Arsenic	12	100	12	5.43	9.16	9.78	5.75	6.22
Barium (g)	550	2000 / SPLP	550	<b>2260</b>	<b>6110</b>	<b>5210</b>	<b>6030</b>	<b>5680</b>
Cadmium	3.9	20	3.9	0.469	0.598	0.731	<0.421 [0.415]	<0.407
Chromium	12000	100	100	21.9	16.8	24.3	48.9	14.4
Lead	400	100	100	26.7	45.5	28.6	41.8	10.5
Mercury	2.3	4	2.3	<0.108	0.132	<0.109	0.265	0.128
Selenium	39	20	20	<2.03	<3.44	<2.01	<3.37	-
Silver	39	100	39	<0.254	<0.24	<0.251	-	-
Strontium (f)	4700	44000	4700	90.5	457	101	214	31.9
Zinc	2300	2800	2300	99.6	84.7	65.4	52	34.1
<b>SPLP Metals (mg/L) (g)</b>								
SPLP Barium	NA	40	40	0.206	1.83	12.4	11	2.41
<b>TPH Fractions (mg/kg) (h)</b>								
Aliphatic C6-C8	1200	10000	1200	-	42.2	38.8	-	-
Aliphatic >C8-C10	120	5300	120	-	<b>129</b>	79.3	-	-
Aliphatic >C10-C12	230	10000	230	-	35.4	11	-	-
Aliphatic >C12-C16	370	10000	370	-	173	59.2	-	-
Aliphatic >C16-C35	7100	10000	7100	-	187	44.7	-	-
Aromatic >C8-C10	65	65	65	-	34	<28.9	-	-
Aromatic >C10-C12	120	100	100	-	<6	<6	-	-
Aromatic >C12-C16	180	200	180	-	19.6	10.3	-	-
Aromatic >C16-C21	150	2100	150	-	9.95	<6	-	-
Aromatic >C21-C35	180	10000	180	-	25.8	<6	-	-
<b>PAHs (mg/kg)</b>								
2-Methylnaphthalene	22	1.7	1.7	-	0.0927	-	-	-
Acenaphthene	370	220	220	-	0.0774	-	-	-
Acenaphthylene	350	88	88	-	<0.0667	-	-	-
Anthracene	2200	120	120	-	<0.0667	-	-	-
Benzo(a)anthracene	0.62	330	0.62	-	<0.0667	-	-	-
Benzo(a)pyrene	0.33	23	0.33	-	<0.0667	-	-	-
Benzo(b)fluoranthene	0.62	220	0.62	-	<0.0667	-	-	-
Benzo(k)fluoranthene	6.2	120	6.2	-	<0.0667	-	-	-
Chrysene	62	76	62	-	<0.0667	-	-	-
Dibenz(ah)anthracene	0.33	540	0.33	-	<0.0667	-	-	-
Fluoranthene	220	1200	220	-	<0.0667	-	-	-
Fluorene	280	230	230	-	<0.0667	-	-	-
Indeno(123-cd)pyrene	0.62	9.2	0.62	-	<0.0667	-	-	-

Table 11  
**Soil Screening Evaluation - Non-Industrial Direct Contact**

*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Constituent (a)	Soilssni (b)	SoilSSGW (c)	Limiting SS (d)	Maximum Concentration in Soil (e)				
				Area 2	Area 4	Area 5	Area 6	Area 8
Naphthalene	6.2	1.5	1.5	-	<0.0667	-	-	-
Phenanthrene	2100	660	660	-	<0.0667	-	-	-
Pyrene	230	1100	230	-	<0.0667	-	-	-

**Notes:**

Concentrations reported for soil as received (mg/kg wet weight).

- Not analyzed in the respective area

< - Not detected at the detection limit shown

<# [#] - Maximum detection limit exceeded maximum concentration. Maximum reported concentration shown in brackets.

TPH - Total Petroleum Hydrocarbons

PAHs - Polycyclic Aromatic Hydrocarbons

BTEX - Benzene, Toluene, Ethylbenzene, and Xylene

A **bold** and shaded value indicates that the maximum reported concentration exceeds the Soilssni for the respective constituent and is subject to further risk evaluation under a higher Management Option.

- (a) Constituents analyzed in soil samples collected from the site by ERM and ICON. The 14-16 ft bgs interval was the deepest interval sampled for constituents useful for RECAP evaluation and was included as surface soil for the purpose of this evaluation.
- (b) The non-industrial direct contact RECAP Screening Standard from Table 1 of RECAP (2003), unless otherwise noted.
- (c) The RECAP Screening Standard for protection of groundwater from Table 1 of RECAP (2003), unless otherwise noted.
- (d) The limiting Screening Standard (LSS) for soil is the lower of the Soilssni and Soilssgw.
- (e) The maximum reported concentration in surface soil samples collected from the site, including ERM and ICON splits.
- (f) Value not provided in RECAP; the risk-based value was calculated in accordance with Appendix H of RECAP (2003).
- (g) Samples were collected for leachate (SPLP) analysis in each area at locations where barium was reported at the high end of the concentration range, and above the default RECAP Screening Standard for the protection of ground water (Soilssgw). Where split sample material was not available for leachate testing, ERM replicated the locations to the extent possible for SPLP testing. Leachate analysis provides a site-specific evaluation and demonstrates concentrations are below the leachate standard.
- (h) TPH analysis was performed using two analytical methods: (1) ICON samples were analyzed using the hydrocarbon mixture method (e.g., TPH-DRO, TPH-ORO), and (2) ERM samples were analyzed using the more informative hydrocarbon fractioning method (i.e., aliphatic and aromatic fractions). TPH fraction data are available for all sample locations with TPH mixture data, and the TPH fraction data are used in the risk assessment in accordance with RECAP Appendix D.

Table 12  
**MO-2 Soil Evaluation - Non-Industrial Direct Contact**

*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Constituent (a)	MO-2 Soilni (b)	Target Organs (c)	Additiv. Divisor (d)	Final MO-2 Soilni (e)	Soilsat (f)	MO-2 SoilGW-3NDW (g)	Limiting MO-2 RS (h)	AOIC (i)				
								Area 2	Area 4	Area 5	Area 6	Area 8
<b>Metals (mg/kg)</b>												
Barium (j)	16000	Kidney	1	16000	NA	SPLP	16000	2260	6110	5210	6030	5680
<b>TPH Fractions (mg/kg)</b>												
Aliphatic >C8-C10	1200	Liver, Hemat.	1	1200	NA	10000	1200	-	129	79.3	-	-

Notes:

Concentrations reported for soil as received (mg/kg wet weight).

MO-2 - Management Option 2 under RECAP (2003)

- Not analyzed in the respective area

NA - Not applicable

Grey font - Below Screening Standard

TPH - Total Petroleum Hydrocarbons

Hemat. - Hematological

- (a) Constituents with maximum reported concentrations above the Soilss in surface soil (0-15 ft bgs) samples were included for further evaluation under MO-2.
- (b) RECAP standards for soil protective of non-industrial (Soilni) land use from Table 2 of RECAP (2003) unless otherwise noted.
- (c) Target Organ for assessing additive effects for noncarcinogenic constituents, obtained from Appendices D and G of RECAP (2003).
- (d) Additivity divisor for noncarcinogenic effects on the same target organ/system.
- (e) Final MO-2 Soilni = Soilni divided by additivity divisor
- (f) Soil saturation limit from Table 2 of RECAP (2003); not applicable for these constituents.
- (g) SoilGW3NDW - RECAP Standard for soil protective of Class 3 Non-Drinking water with no dilution factor applied, from Table 2 of RECAP. Concentrations in soil were demonstrated to comply with groundwater protection requirements in the screening evaluation (Table 11). However, the soil-to-groundwater pathway is shown in this MO-2 soil evaluation for completeness of information.
- (h) Limiting MO-2 RECAP Standard (RS) is the lowest of the final MO-2 Soilni, SoilGW3NDW, and Soilsat.
- (i) The Area of Investigation Concentration (AOIC) is the maximum reported concentration in surface soil samples (0-15 ft bgs) collected from the area, including ERM and ICON splits.
- (j) Under MO-2 of RECAP, updated EPA toxicity values may be used in the development of RECAP Standards. The Soilni for barium was calculated in accordance with Appendix H of RECAP (2003), using default exposure parameters provided in RECAP with the current EPA RfDo for barium (0.2 mg/kg-day).

Table 13  
**Groundwater Screening Evaluation**

*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Constituents (a)	GWss (b)	SMCL (c)	Maximum Groundwater Concentration (d)			
			Area 2	Area 4	Area 5	Area 6
<b>Metals - Total</b>						
Arsenic	0.01	-	<0.1	<0.01 [0.0042]	<0.01 [0.003]	<0.0025 [0.0011]
Barium	2	-	<b>2.27</b>	0.14	0.15	0.0507
Cadmium	0.005	-	<0.05	<b>0.0075</b>	<b>0.0073</b>	<0.005
Calcium (g)	-	-	3060	3120	857	191
Chromium	0.1	-	<0.1 [0.009]	<0.02 [0.006]	0.016	<0.01
Iron (h)	-	0.3	<b>&lt;10 [6.93]</b>	<b>4.6</b>	<b>12</b>	<b>0.417</b>
Lead	0.015	-	<0.1 [0.0033]	<0.015 [0.0036]	<0.01 [0.0087]	<0.01
Magnesium (g)	-	-	1150	1030	415	86.9
Manganese (h)	-	0.05	<b>17.4</b>	<b>12.6</b>	<b>5.66</b>	<b>1.35</b>
Mercury	0.002	-	<0.0002	<0.0002	<0.0002	<0.0002
Potassium (g)	-	-	58.7	22.4	11	5.94
Sodium (g)	-	-	38300	3850	813	262
Strontium (f)	2.2	-	<b>49.2</b>	<b>28.4</b>	<b>4.5</b>	1.1
Zinc	1.1	-	<1.1 [0.016]	<0.4 [0.022]	<0.1 [0.04]	<0.02
<b>Metals-Dissolved</b>						
Arsenic, diss	0.01	-	<0.025	<0.01 [0.0012]	<0.005 [0.001]	<0.001
Barium, diss	2	-	<b>2.13</b>	0.1	0.14	0.042
Cadmium, diss	0.005	-	<0.025	<0.005 [0.0015]	<0.005	<0.001
Chromium, diss	0.1	-	<0.1	<0.02	<0.005	<0.001
Iron, diss (h)	-	0.3	<b>&lt;10 [6.07]</b>	<b>&lt;2 [0.182]</b>	<b>&lt;0.5 [0.39]</b>	<0.1
Lead, diss	0.015	-	<0.025	<0.015	<0.005	<0.001
Manganese, diss (h)	-	0.05	<b>16.2</b>	<b>9.3</b>	<b>5.04</b>	<b>1.28</b>
Mercury, diss	0.002	-	<0.0002	<0.0002	<0.0002	<0.0002
Strontium, diss (f)	2.2	-	<b>44.1</b>	<b>25.6</b>	<b>4.3</b>	0.95
Zinc, diss	1.1	-	<1.1	<0.4	<0.1	<0.02
<b>BTEX Compounds</b>						
Benzene	0.005	-	<b>0.089</b>	<0.005	<0.005	<0.005
Ethylbenzene	0.7	-	<0.005	<0.005	<0.005	<0.005
Toluene	1	-	0.012	<0.01	<0.01	<0.01
Xylene (total)	10	-	<0.05	<0.05	<0.05	<0.05
<b>TPH Fractions (i)</b>						
Aliphatic C6-C8	3.2	-	0.122	<0.03	<0.03	<0.03
Aliphatic >C8-C10	0.15	-	<0.03	<0.02	<0.03	<0.02
Aliphatic >C10-C12	0.15	-	<0.13	<0.136	<0.136	<0.1
Aliphatic >C12-C16	0.15	-	<0.13	<0.136	<0.136	<0.1
Aliphatic >C16-C35	7.3	-	0.254	<0.227	<0.227	<0.15
Aromatic >C8-C10	0.15	-	<0.03	<0.03	<0.03	<0.03
Aromatic >C10-C12	0.15	-	<0.13	<0.136	<0.136	<0.1
Aromatic >C12-C16	0.15	-	<0.13	<0.136	<0.136	<0.1
Aromatic >C16-C21	0.15	-	<0.13	<0.136	<0.136	<0.1
Aromatic >C21-C35	0.15	-	<b>&lt;0.152</b>	<b>&lt;0.159</b>	<b>&lt;0.159</b>	<0.1
<b>Water Quality Parameters</b>						
Chloride	-	250	<b>45800</b>	<b>13000</b>	<b>3960</b>	<b>583</b>
Total Dissolved Solids	-	500	<b>71900</b>	<b>24900</b>	<b>7600</b>	<b>1540</b>

Table 13  
**Groundwater Screening Evaluation**

*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Notes:

Units in mg/L.

- Standard not applicable

TPH - Total Petroleum Hydrocarbons

BTEX - Benzene, Toluene, Ethylbenzene, and Xylene

< - Not detected at the detection limit shown

<# [#] - Reporting limit exceeded maximum concentration. Maximum reported concentration shown in brackets.

A **bold** value with shading indicates that the maximum reported concentration exceeds the GWss and is identified as subject to further risk evaluation under a higher Management Option.

A **bold** value with no shading indicates that the maximum reported concentration exceeds the GWss or SMCL but is not identified for further risk evaluation under a higher Management Option.

(a) Constituents analyzed in groundwater samples collected from the site by ERM and ICON.

(b) GWss = RECAP Screening Standard from Table 1 of RECAP (2003).

(c) EPA Secondary Maximum Contaminant Level (SMCL), a non-enforceable guideline for public water systems addressing undesirable aesthetic effects such as taste, color, and odor.

(d) Maximum reported concentrations in groundwater samples collected in each study area. Area 9 at the eastern perimeter of the Property is indicative of natural water quality.

(e) Cadmium was reported just above the screening standard in the total metals analysis and below the standard in the filtered (dissolved) sample analysis and in all other samples collected across the site. Cadmium is not identified as an E&P-related constituent of concern in groundwater (or in soil).

(f) GWss not provided in RECAP; the risk-based value was calculated in accordance with Appendix H of RECAP (2003).

(g) Essential elements have no RECAP standards or toxicity factors (i.e. calcium, magnesium, potassium, sodium), and are not addressed in risk evaluation.

(h) Iron and manganese are naturally elevated above the SMCL (used as a screening standard) in groundwater in this site location as documented in independent studies by the LDEQ and in unimpacted wells on the property.

(i) TPH fraction data are available for all locations with TPH mixture data and are used in the risk assessment in accordance with Appendix D of RECAP (2003).

Table 14  
**Example MO-1 Groundwater Evaluation (a)**  
**Groundwater-to-Surface Water**

*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Constituents of Concern (COC) (b)	Initial GW3NDW (c)	DF3 (d)	Final MO-1 GW3NDW (e)	Water sol (f)	Limiting MO-1 RS (g)	Groundwater Compliance Concentrations (h)							
						Area 2		Area 4		Area 5		Area 6	
						Total	Diss	Total	Diss	Total	Diss	Total	Diss
<b>Metals</b>													
Barium	45	440	19800	-	19800	2.27	2.13	0.14	0.1	0.15	0.14	0.0507	0.042
Cadmium (i)	0.01	440	4.4	-	4.4	<0.05	<0.025	0.0075	<0.005 [0.0015]	0.0073	<0.005	<0.005	<0.001
Strontium (j)	33	440	14520	-	14520	49.2	44.1	28.4	25.6	4.5	4.3	1.1	0.95
<b>BTEX</b>													
Benzene	0.013	440	5.72	1800	5.7	0.089	-	<0.005	-	<0.005	-	<0.005	-
<b>Water Quality</b>													
Chloride	90	440	39600	-	39600	45800 / 39200 (k)	-	13000	-	3960	-	583	-
TDS	400	440	176000	-	176000	71900	-	24900	-	7600	-	1540	-

Notes:

Units in mg/L

- Not Applicable or not analyzed

MO-1 - Management Option 1.

Grey font - Below Screening Standard

< - Not detected at the detection limit shown

<# [#] - Reporting limit exceeded maximum concentration. Maximum reported concentration shown in brackets.

(a) The example assessment assumes that a hypothetical discharge occurs from shallow groundwater at the maximum distance included in the RECAP default MO-1 model, 2000 feet (because no discharge is occurring at a shorter distance). The LDEQ-designated uses of subsegment 050601 are primary and secondary contact recreation, fish and wildlife propagation, and agriculture per the Louisiana Surface Water Quality Regulations (LAC 33:IX.1123). Because the subsegment is not a drinking water resource, GW3 non-drinking water (GW3NDW) is the appropriate classification for development of RECAP standards.

(b) Constituents shown include those with constituent concentrations above the default GWSS identified for site-specific assessment. Note that cadmium was not identified as an E&P-related constituent of concern; it is included in this example MO-1 calculation for demonstration purposes.

(c) Initial GW3NDW = MO-1 RECAP Standard (RS) for Class 3 Non-Drinking water with no dilution factor applied, from Table 3 of RECAP.

(d) DF3 - MO-1 default longitudinal Dilution Attenuation Factor for Class 3 groundwater, obtained from Appendix H of RECAP (2003) as a function of x and Sd: x is >2,000 feet and Sd is <5 feet based on the average zone thickness across the site. Note that the POC refers to the location of the maximum concentration for COCs in each area. The location may differ for individual COCs within an area, however, the value of x for risk assessment purposes remains the same (i.e., >2000 ft).

(e) The final GW3NDW is the initial GW3NDW multiplied by the DF3.

(f) Water solubility from Table 3 of RECAP 2003.

(g) The limiting MO-1 RS is the lower of the Final GW3NDW and Water sol.

(h) Maximum reported concentration in monitoring wells in each study area.

(i) Cadmium was not identified as an E&P-related constituent of concern but is included in the MO-1 evaluation for informational purposes.

(j) Standard not provided in RECAP; the risk-based value was calculated in accordance with Appendix H of RECAP (2003).

(k) One of two split samples collected at monitor well H-12 in Area 2 included chloride reported above the example MO-1 value. The concentration in the split sample and all remaining concentrations surrounding H-12, as well as all other areas of the Property, were below the example MO-1 value. Examination of the empirical data in Area 2 demonstrates that the chloride concentration declines over an order of magnitude in 400 feet downgradient (north). No adverse impact to receiving surface water is estimated based on the following factors: depth to groundwater, absence of connection to surface water, distance to a downgradient surface water body, and recognized concentration gradient with distance.

Table 15  
**Example MO-1 Groundwater Evaluation (a)**  
**Groundwater-to-Indoor and Outdoor Air**

*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

<b>Constituents (a)</b>	<b>GWairni (b)</b>	<b>GWesni (b)</b>	<b>Water sol (c)</b>	<b>Limiting MO-1 RS (d)</b>	<b>Compliance Concentration Area 2 (e)</b>
<b>BTEX</b>					
Benzene	390	2.9	1800	2.9	0.089

Notes:

Units in mg/L

MO-1 - Management Option 1.

- (a) The example assessment assumes that the volatile constituent benzene reported above GWss in groundwater could volatilize through the overlying soil column to outdoor or (hypothetical) indoor air. Water-bearing zones deeper than 15 feet bgs do not require quantitative analysis for these pathways, and this example MO-1 calculation is provided for demonstration purposes.
- (b) MO-1 RECAP Standards for groundwater protective of outdoor air (airni) and vapor intrusion to enclosed structures (esni) for non-industrial (i.e., residential) land use, obtained from Table 3 of RECAP (2003).
- (c) Water solubility from Table 3 of RECAP (2003).
- (d) The limiting MO-1 RS is the lower of the GWairni, GWesni, and water solubility.
- (e) Maximum reported groundwater concentration in Area 2.



Table 16  
**Surface Water Screening Evaluation**

*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Constituents (a)	LA Water Quality Criteria (b)	GW3-NDW (c)	Area 2 Surface Water Concentrations			
			SW-BO 2'		SW-BO 13'	
			ERM	ICON	ERM	ICON
<b>Metals - Total</b>						
Arsenic	NS	0.05	<0.0010	<0.00250	<0.0010	<0.00250
Barium	NS	45	0.86	0.742	0.952	0.887
Cadmium	NS	0.01	<0.0010	<0.00500	<0.0010	<0.00500
Calcium (d)	NS	NS	13.4	11.8	13.5	11.9
Chromium	NS	960	<0.001	<0.0100	<0.001	<0.0100
Iron	NS	NS	0.565	0.601	7.85	7.66
Lead	NS	0.05	<0.0010	<0.0010	<0.0010	<0.0100
Magnesium (d)	NS	NS	1.49	1.36	1.52	1.35
Manganese	NS	NS	0.104	0.109	0.716	0.744
Mercury	NS	0.002	<0.00020	<0.000200	<0.00020	<0.000200
Potassium (d)	NS	NS	3.29	<5.00	3.17	<5.00
Sodium (d)	NS	NS	23.8	23.2	23.8	21.3
Strontium (e)	NS	33	0.111	0.106	0.109	0.108
Zinc	NS	8	<0.010	<0.0100	<0.010	<0.0100
<b>Metals-Dissolved</b>						
Arsenic, diss	NS	0.05	<0.0010	-	<0.0010	-
Barium, diss	NS	45	0.832	-	0.86	-
Cadmium, diss	NS	0.01	<0.0010	-	<0.0010	-
Calcium, diss (d)	NS	NS	-	-	-	-
Chromium, diss	NS	960	<0.001	-	<0.0010	-
Iron, diss	NS	NS	0.151	-	1.67	-
Lead, diss	NS	0.05	<0.0010	-	<0.0010	-
Magnesium, diss (d)	NS	NS	-	-	-	-
Manganese, diss	NS	NS	0.063	-	0.681	-
Mercury, diss	NS	0.002	-	-	-	-
Potassium, diss (d)	NS	NS	-	-	-	-
Sodium, diss (d)	NS	NS	-	-	-	-
Strontium, diss (e)	NS	33	0.115	-	0.107	-
Zinc, diss	NS	8	<0.010	-	<0.010	-
<b>BTEX Compounds</b>						
Benzene	0.00659	0.013	<0.001	<0.00500	<0.001	<0.00500
Ethylbenzene	0.834	8.1	<0.001	<0.00500	<0.001	<0.00500
Toluene	46.2	46	<0.002	<0.0100	<0.002	<0.0100
Xylene (total)	NS	10	<0.001	<0.0500	<0.001	<0.0500
<b>TPH Fractions</b>						
Aliphatic C6-C8	NS	3900	<0.005	-	<0.005	-
Aliphatic >C8-C10	NS	79	<0.013	-	<0.013	-
Aliphatic >C10-C12	NS	79	<0.136	-	<0.143	-
Aliphatic >C12-C16	NS	79	<0.136	-	<0.143	-
Aliphatic >C16-C35	NS	1600	<0.227	-	<0.238	-
Aromatic >C8-C10	NS	31	<0.005	-	<0.005	-
Aromatic >C10-C12	NS	31	<0.136	-	<0.143	-
Aromatic >C12-C16	NS	31	<0.136	-	<0.143	-
Aromatic >C16-C21	NS	24	<0.136	-	<0.143	-
Aromatic >C21-C35	NS	24	<0.159	-	<0.167	-
<b>Water Quality Parameters</b>						
Chloride (f)	90	NS	23.2	23	23.3	23.2
Total Dissolved Solids (f)	400	NS	145	160	142	130

Table 16  
**Surface Water Screening Evaluation**

*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

Notes:

Units in mg/L

- Not analyzed

< - Not detected at the detection limit shown

NS - Standard not available

TPH - Total Petroleum Hydrocarbons

BTEX - Benzene, Toluene, Ethylbenzene, and Xylene

diss. - dissolved

- (a) Constituents analyzed in surface water samples collected on 12/16/2021 from the surface water feature in the known blowout area (i.e., Area 2) on site by ERM and ICON.
- (b) Louisiana Water Quality Criteria are numeric standards for surface water that are protective of human health, obtained from Table 1 of LAC 33:IX.1113, unless otherwise noted. Criteria shown in this table are for water bodies not designated as drinking water supplies and are developed to be protective of primary and secondary contact recreation and to prevent contamination of fish and aquatic life consumed by humans. Louisiana Water Quality Criteria for water bodies not designated as drinking water supplies are not available for metals.
- (c) Default Ground Water 3 Non-Drinking Water (GW3NDW) standards obtained from Table 3 of RECAP (2003) unless otherwise noted, protective of surface water for primary and secondary contact recreation, including fish ingestion. Pathways include incidental ingestion of surface water and consumption of fish caught from the surface water.
- (d) Essential elements that are generally not considered toxic to humans (i.e. calcium, iron, magnesium, manganese, potassium, and sodium) are not included in the evaluation of surface water.
- (e) GW3NDW not provided in RECAP; the risk-based value was calculated in accordance with Appendix H of RECAP (2003).
- (f) The criteria for chloride and total dissolved solids are specific to the LDEQ subsegment applicable to this site (050601, Lacassine Bayou – from headwaters to Grand Lake) per LAC 33:IX.1123.

**Table 17**  
**Contingent NORM-Impacted Pipe Removal Cost Estimate**

*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

<u>Scope Assumptions</u>	<u>Quantity</u>	<u>Units</u>	<u>Basis</u>
NORM pipe present	2	lengths	Expert Report of Dr. John Frazier
Time required for pipe removal	1	day	ERM Estimate

	<u>Unit Cost</u>	<u>Units</u>	<u>Quantity</u>	<u>Cost</u>	<u>Cost Basis</u>
<u>Project Initiation</u>					
Contractor Field NORM Assessment, Regulatory Reporting, and Authorizations (1 day)	\$3,300	lump	1	\$3,300	Diversified 2/25/2022 Quote
ERM Oversight	\$1,500	day	1	\$1,500	ERM Estimate
<i>Project Initiation Subtotal</i>				<u>\$4,800</u>	
<u>Transportation and Disposal</u>					
Norm Pipe Removal and Release Survey (2 days)	\$5,500	lump	1	\$5,500	Diversified 2/25/2022 Quote
ERM Contractor Oversight (Labor and Expenses)	\$1,500	day	2	\$3,000	ERM Estimate
<i>Offsite Disposal Subtotal</i>				<u>\$8,500</u>	
<u>Project Management and Reporting</u>					
Contractor Release Reporting	\$2,200	lump	1	\$2,200	Diversified 9/15/21 Quote
Closure Reporting	\$1,000	lump	1	\$1,000	ERM Estimate
<i>Project Management and Reporting Subtotal</i>				<u>\$3,200</u>	
10% Contingency				\$1,650	
			<b>Total</b>	<b>\$18,150</b>	

**Table 18**  
**Contingent SPLP Chloride Sampling Cost Estimate**

*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

<b>Contingent SPLP Chloride Sampling</b>	<b>Cost</b>	<b>Unit</b>	<b>Quantity</b>	<b>Quarters</b>	<b>Total</b>	<b>Cost Basis</b>
Conduct Private Utility Locate	\$0	Lump	1	NA	\$0	Assume performed concurrently with monitoring well installation (see Table 20)
Geoprobe Drill Rig and Crew (1 Days)	\$2,833	Lump	1	NA	\$2,833	WHE 2/21/2022 Cost Estimate
Lab Analysis - SPLP Chloride	\$100	Sample	2	NA	\$200	ERM Estimate
ERM 2-man field crew, truck, and sampling equipment	\$2,500	day	1	NA	\$2,500	ERM Estimate
<i>Contingent SPLP Chloride Sampling Subtotal</i>					<u>\$5,533</u>	
				<b>Total</b>	<b>\$5,533</b>	

Notes:

Assumes that work would be performed concurrently with monitoring well installation (see Table 20) and would require one additional day of work.

**Table 19**  
**Proposed Delineation of Barium in Soil Cost Estimate**

*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

<b><u>Barium Delineation Soil Sampling</u></b>	<b><u>Cost</u></b>	<b><u>Unit</u></b>	<b><u>Quantity</u></b>	<b><u>Total</u></b>	<b><u>Cost Basis</u></b>
ERM 2-man field crew, truck, and sampling equipment (includes Mob/Demob)	\$2,500	day	3	\$7,500	ERM Estimate
Lab Analysis - Barium and percent moisture	\$25	Sample	23	\$575	ERM Estimate
Lab Analysis - SPLP barium	\$100	Sample	1	\$100	ERM Estimate
<i>Barium Delineation Soil Subtotal</i>				<u>\$8,175</u>	
<b><u>Project Management and Reporting</u></b>	<b><u>Cost</u></b>	<b><u>Unit</u></b>	<b><u>Quantity</u></b>	<b><u>Total</u></b>	<b><u>Cost Basis</u></b>
Project Management	\$1,000	lump	1	\$1,000	ERM Estimate
Data Evaluation and Reporting	\$2,000	lump	1	\$2,000	ERM Estimate
<i>Project Management and Reporting Subtotal</i>				<u>\$3,000</u>	
			<b>Total</b>	<b>\$11,175</b>	

**Table 20**  
**Proposed Shallow Groundwater Delineation Cost Estimate**

*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

<u>Delineation Well Installation and Sampling</u>	<u>Cost</u>	<u>Unit</u>	<u>Quantity</u>	<u>Quarters</u>	<u>Total</u>	<u>Cost Basis</u>
Conduct Private Utility Locate	\$2,000	Lump	1	NA	\$2,000	ERM Estimate
Geoprobe Drill Rig, Crew, Supplies, and Well Materials (2 Days)	\$8,058	Lump	1	NA	\$8,058	WHE 2/21/2022 Cost Estimate
Lab Analysis - total and dissolved metals, chloride, sulfate, alkalinity, TDS, BTEX, TPH fractions, and radium 226/228	\$800	Sample	1	NA	\$800	ERM Estimate
ERM 2-man field crew, truck, and sampling equipment	\$2,500	day	3	NA	\$7,500	ERM Estimate
<i>Delineation Well Installation and Sampling Subtotal</i>					<u>\$18,358</u>	
				<b>Total</b>	<b>\$18,358</b>	

Notes:

Project management and reporting costs included in Proposed Shallow Groundwater Monitoring Plan Cost Estimate Table.

**Table 21**  
**Proposed Shallow Groundwater Monitoring Plan Cost Estimate**

*Henning Management, L.L.C. v. Chevron U.S.A. Inc., et al.*  
*Hayes Oil and Gas Field*  
*Calcasieu and Jefferson Davis Parishes, Louisiana*

<u>Monitoring Well Resampling - 2 Wells (H-9 and H-12)</u>	<u>Cost</u>	<u>Unit</u>	<u>Quantity</u>	<u>Quarters</u>	<u>Total</u>	<u>Cost Basis</u>
ERM 2-man field crew, truck, and sampling equipment	\$2,500	day	2	1	\$5,000	Assume sample 2 wells in one day during first sampling event ERM Estimate
Lab Analysis - Chloride, TDS, Benzene, Total and Dissolved Barium	\$100	Sample	2	1	\$200	
<i>Monitoring Well Resampling Subtotal</i>					<u>\$5,200</u>	
<u>Monitoring Well Sampling - 4 Wells</u>	<u>Cost</u>	<u>Unit</u>	<u>Quantity</u>	<u>Quarters</u>	<u>Total</u>	<u>Cost Basis</u>
ERM 2-man field crew, truck, and sampling equipment	\$2,500	day	2	12	\$60,000	Assume sample 4 wells per day & mob/demob ERM Estimate
Lab Analysis - Chloride, TDS, Benzene, Total and Dissolved Barium	\$100	Sample	4	12	\$4,800	
Purge water handling & disposal	\$2,000	Lump	1	1	<u>\$2,000</u>	
<i>Monitoring Well Sampling Subtotal</i>					<u>\$66,800</u>	ERM Estimate
<u>Project Management and Reporting</u>				<u>Years</u>		
Project Management	\$5,000	Year	1	3	\$15,000	ERM Estimate
Data Evaluation and Reporting	\$10,000	Year	1	3	<u>\$30,000</u>	ERM Estimate
<i>Project Management and Reporting Subtotal</i>					<u>\$45,000</u>	
<u>Monitoring Well Plugging and Abandonment</u>	<u>Cost</u>	<u>Unit</u>	<u>Quantity</u>	<u>Quarters</u>	<u>Total</u>	<u>Cost Basis</u>
ERM 1-man field crew, truck, and equipment	\$1,500	day	3	1	\$4,500	ERM Estimate WHE 2/21/2022 Cost Estimate
Geoprobe Drill Rig, Crew, and Supplies (2 days)	\$6,903	Lump	1	1	<u>\$6,903</u>	
<i>Monitoring Well Plugging and Abandonment</i>					<u>\$11,403</u>	
				<b>Total</b>	<b>\$128,403</b>	
<u>Additional Cost for Quarterly Monitoring of H-9 and H-12, If Required</u>	<u>Cost</u>	<u>Unit</u>	<u>Quantity</u>	<u>Quarters</u>	<u>Total</u>	<u>Cost Basis</u>
ERM 2-man field crew, truck, and sampling equipment	\$2,500	day	1	11	\$27,500	Assume one additional day each sampling event ERM Estimate
Lab Analysis - Chloride and Benzene	\$100	Sample	2	11	<u>\$2,200</u>	
<i>Additional Cost for Quarterly Monitoring of H-9 and H-12 subtotal</i>					<u>\$29,700</u>	

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