

Table 4A
Groundwater Analytical Data
H. C. Drew Estate vs Neumin Production Company and Stokes Spiehler, Inc.
North Choupique Field
Calcasieu Parish, Louisiana

Parameters	Field Sample ID	TW-1	TW-2	TW #3	TW #4	TW #5	TW #6	SE-SB 01	SE-SB 02	SE-SB 03	SE-SB 04	SE-SB 05		
	Lab Sample ID	TW-1	TW-2	100	110	105	TW #6	SE-SB 01	SE-SB 02	SE-SB 03	SE-SB 04	SE-SB 05		
	Sample Date:	6/7/2016	6/7/2016	12/2/2016	12/2/2016	12/2/2016	2/9/2018	9/24/2018	9/24/2018	9/24/2018	9/25/2018	9/25/2018		
	Screened Depth Interval (ft BGS):	-	-	10-15	10-15	10-15	10-20	9.5-14.5	8-13	8-13	8-13	10-15		
	Units	GW _{SS}	GW _{3NDW}	Acadian	Acadian	Acadian	Acadian	Acadian	Acadian	Southland	Southland	Southland	Southland	Southland
Total Metals														
Arsenic	mg/L	0.01	0.05	NA	NA	<0.100	0.0836	<0.050	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.01	NA	NA	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA
Calcium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	960	NA	NA	0.112	0.299	0.139	<0.01	NA	NA	NA	NA	NA
Iron ⁽¹⁾	mg/L	0.3	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.05	NA	NA	0.124	0.115	0.0592	NA	NA	NA	NA	NA	NA
Magnesium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese ⁽¹⁾	mg/L	0.05	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/L	0.002	0.002	NA	NA	<0.0002	<0.0002	<0.0002	NA	NA	NA	NA	NA	NA
Potassium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/L	0.05	0.05	NA	NA	<0.1	<0.01	<0.05	NA	NA	NA	NA	NA	NA
Silver	mg/L	0.018	0.54	NA	NA	<0.1	<0.01	<0.05	NA	NA	NA	NA	NA	NA
Sodium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Strontium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/L	1.1	8	NA	NA	0.255	0.336	0.219	0.023	NA	NA	NA	NA	NA
Dissolved Metals														
Arsenic	mg/L	0.01	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron ⁽¹⁾	mg/L	0.3	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese ⁽¹⁾	mg/L	0.05	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/L	0.002	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Strontium	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/L	1.1	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry														
Chloride ⁽¹⁾	mg/L	250	250	NA	NA	7,200	1,650	1,280	144	118	155	283	367	1,330
Sulfate	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Specific Conductivity	umhos/cm	NS	NS	2,720	2,950	5,560	2,020	1,470	NA	NA	NA	NA	NA	NA
pH	su	NS	NS	NA	NA	6.74	7.22	7.17	6.69	NA	NA	NA	NA	NA
Chemical Oxygen Demand	mg/L	NS	NS	NA	NA	NA	NA	NA	18.0	NA	NA	NA	NA	NA
Total Dissolved Solids (TDS) ⁽¹⁾	mg/L	500	500	NA	NA	NA	NA	NA	894	NA	NA	NA	NA	NA
Total Suspended Solids	mg/L	NS	NS	NA	NA	NA	NA	NA	508	NA	NA	NA	NA	NA
Alkalinity														
Bicarbonate Alkalinity	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbonate Alkalinity	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydroxide Alkalinity	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenolphthalein Alkalinity	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Alkalinity	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BTEX Compounds														
Benzene	mg/L	0.005	0.013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	mg/L	0.7	8.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	mg/L	1	46	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene (total)	mg/L	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrocarbon Fractions														
Aliphatic C6-C8	mg/L	3.2	3,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aliphatic >C8-C10	mg/L	0.15	79	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aliphatic >C10-C12	mg/L	0.15	79	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aliphatic >C12-C16	mg/L	0.15	79	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aliphatic >C16-C35	mg/L	7.3	1,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aromatic >C8-C10	mg/L	0.15	31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unadjusted >C10-C12 Aromatics	mg/L	0.15	31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unadjusted >C12-C16 Aromatics	mg/L	0.15	31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unadjusted >C16-C21 Aromatics	mg/L	0.15	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aromatic >C21-C35	mg/L	0.15	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH - Diesel Range	mg/L	0.15	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH - Oil Range	mg/L	0.15	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEM Oil & Grease	mg/L	NS	NS	NA	NA	<2.1	<2.1	<2.1	<4.1	NA	NA	NA	NA	NA

Notes:
 Bolded values were detected in the sample
 Highlight indicates exceedance of corresponding regulatory limit
 GW_{SS} - RECAP Groundwater Screening Standard
 GW_{3NDW} - RECAP Class 3 Non-Drinking Water Standard w/o DAF
 < - Not detected at or above the reporting limit shown
 NA - Not analyzed; NS - No Standard
⁽¹⁾ - Listed limit is EPA SMCL

Table 4A
Groundwater Analytical Data
H. C. Drew Estate vs Neumin Production Company and Stokes Spiehler, Inc.
North Choupique Field
Calcasieu Parish, Louisiana

Parameters	Field Sample ID			SE-SB 06	MW-1		MW-2		MW-3		MW-4	
	Lab Sample ID			SE-SB 06	MW-1		MW-2		MW-3		MW-4	
	Sample Date:			9/25/2018	9/9/2021		9/9/2021		9/9/2021		9/9/2021	
	Screened Depth Interval (ft BGS):			8-13	8-13'		8-13'		8-13'		9-14'	
	Units	GW _{SS}	GW _{3NDW}	Southland	ERM	Southland	ERM	Southland	ERM	Southland	ERM	Southland
Total Metals												
Arsenic	mg/L	0.01	0.05	NA	<0.0010	<0.0100	<0.0010	<0.0100	<0.0010	<0.0100	0.0020	<0.0100
Barium	mg/L	2	45	NA	0.063	0.0497	0.018	0.0140	0.079	0.178	0.15	0.117
Cadmium	mg/L	0.005	0.01	NA	<0.0010	<0.00500	<0.0010	<0.00500	<0.0010	<0.00500	<0.00100	<0.00500
Calcium	mg/L	NS	NS	NA	60.7	NA	97.0	NA	50.9	NA	76.6	NA
Chromium	mg/L	0.1	960	NA	<0.0010	<0.0100	<0.0010	<0.0100	0.0022	0.0249	0.0020	<0.0100
Iron ⁽¹⁾	mg/L	0.3	0.3	NA	0.12	0.0730	<0.10	0.139	0.97	11.5	1.79	0.628
Lead	mg/L	0.015	0.05	NA	<0.001	<0.0100	<0.0010	<0.0100	<0.0010	<0.0100	0.0015	<0.0100
Magnesium	mg/L	NS	NS	NA	23.5	NA	37.7	NA	17.9	NA	29.8	NA
Manganese ⁽¹⁾	mg/L	0.05	0.05	NA	0.46	0.286	0.088	0.0721	0.40	0.762	5.74	5.56
Mercury	mg/L	0.002	0.002	NA	<0.00020	<0.000200	<0.00020	<0.000200	<0.00020	<0.000200	<0.00020	<0.000200
Potassium	mg/L	NS	NS	NA	1.29	NA	1.21	NA	1.24	NA	1.76	NA
Selenium	mg/L	0.05	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/L	0.018	0.54	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/L	NS	NS	NA	98.8	88.2	126	109	52.1	50.2	231	205
Strontium	mg/L	NS	NS	NA	0.46	0.448	0.60	0.561	0.31	0.329	0.61	0.594
Zinc	mg/L	1.1	8	NA	<0.020	<0.0100	<0.020	<0.0100	0.020	0.0239	0.032	<0.0100
Dissolved Metals												
Arsenic	mg/L	0.01	0.05	NA	<0.0010	NA	<0.010	NA	<0.0010	NA	<0.0010	NA
Barium	mg/L	2	45	NA	0.056	NA	0.018	NA	0.076	NA	0.11	NA
Cadmium	mg/L	0.005	0.01	NA	<0.0010	NA	<0.0050	NA	<0.0010	NA	<0.0010	NA
Chromium	mg/L	0.1	0.05	NA	<0.0010	NA	<0.010	NA	<0.0010	NA	<0.0010	NA
Iron ⁽¹⁾	mg/L	0.3	0.3	NA	<0.10	NA	<1.00	NA	<0.10	NA	<0.10	NA
Lead	mg/L	0.015	0.05	NA	<0.0010	NA	<0.010	NA	<0.0010	NA	<0.0010	NA
Manganese ⁽¹⁾	mg/L	0.05	0.05	NA	0.37	NA	0.092	NA	0.55	NA	5.07	NA
Mercury	mg/L	0.002	0.002	NA	<0.00020	NA	<0.00020	NA	<0.00020	NA	<0.00020	NA
Strontium	mg/L	NS	NS	NA	0.46	NA	0.64	NA	0.31	NA	0.60	NA
Zinc	mg/L	1.1	8	NA	<0.020	NA	<0.20	NA	<0.020	NA	0.026	NA
General Chemistry												
Chloride ⁽¹⁾	mg/L	250	250	141	156	111	123	91.9	57.8	42.4	316	243
Sulfate	mg/L	NS	NS	NA	175	177	256	269	68.4	68.0	104	106
Specific Conductivity	umhos/cm	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	su	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemical Oxygen Demand	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids (TDS) ⁽¹⁾	mg/L	500	500	NA	500	566	703	771	272	369	834	905
Total Suspended Solids	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity												
Bicarbonate Alkalinity	mg/L	NS	NS	NA	92.4	87.5	228	205	172	170	315	288
Carbonate Alkalinity	mg/L	NS	NS	NA	<1.0	<10.0	<1.0	<10.0	<1.0	<10.0	<1.0	<10.0
Hydroxide Alkalinity	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenolphthalein Alkalinity	mg/L	NS	NS	NA	NA	<10.0	NA	<10.0	NA	<10.0	NA	<10.0
Total Alkalinity	mg/L	NS	NS	NA	NA	87.5	NA	205	NA	170	NA	288
BTEX Compounds												
Benzene	mg/L	0.005	0.013	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Ethylbenzene	mg/L	0.7	8.1	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Toluene	mg/L	1	46	NA	<0.00500	<0.0100	<0.00500	<0.0100	<0.00500	<0.0100	<0.00500	<0.0100
m,p-Xylene	mg/L	NS	NS	NA	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100
o-Xylene	mg/L	NS	NS	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
Xylene (total)	mg/L	10	10	NA	<0.015	<0.0500	<0.015	<0.0500	<0.015	<0.0500	<0.015	<0.0500
Hydrocarbon Fractions												
Aliphatic C6-C8	mg/L	3.2	3,900	NA	<0.030	NA	<0.030	NA	<0.030	NA	<0.030	NA
Aliphatic >C8-C10	mg/L	0.15	79	NA	<0.020	NA	<0.020	NA	<0.020	NA	<0.020	NA
Aliphatic >C10-C12	mg/L	0.15	79	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA
Aliphatic >C12-C16	mg/L	0.15	79	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA
Aliphatic >C16-C35	mg/L	7.3	1,600	NA	<0.150	NA	<0.150	NA	<0.150	NA	<0.150	NA
Aromatic >C8-C10	mg/L	0.15	31	NA	<0.030	NA	<0.030	NA	<0.030	NA	<0.030	NA
Unadjusted >C10-C12 Aromatics	mg/L	0.15	31	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA
Unadjusted >C12-C16 Aromatics	mg/L	0.15	31	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA
Unadjusted >C16-C21 Aromatics	mg/L	0.15	24	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA
Aromatic >C21-C35	mg/L	0.15	24	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA
TPH - Diesel Range	mg/L	0.15	24	NA	NA	<0.134	NA	<0.134	NA	0.137	NA	0.388
TPH - Oil Range	mg/L	0.15	24	NA	NA	<0.124	NA	<0.123	NA	<0.126	NA	0.179
HEM Oil & Grease	mg/L	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
 Bolded values were detected in the sample
 Highlight indicates exceedance of corresponding regulatory limit
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 GW_{3NDW} - RECAP Class 3 Non-Drinking Water Standard w/o DAF
 < - Not detected at or above the reporting limit shown
 NA - Not analyzed; NS - No Standard
⁽¹⁾ - Listed limit is EPA SMCL

Table 4A
Groundwater Analytical Data
H. C. Drew Estate vs Neumin Production Company and Stokes Spiehler, Inc.
North Choupique Field
Calcasieu Parish, Louisiana

Parameters	Field Sample ID			SE-SB35		SE-SB36	
	Lab Sample ID			SE-SB35		SB-SE36	
	Sample Date:			11/18/2021		11/18/2021	
	Screened Depth Interval (ft BGS):			10-15'		5-15'	
	Units	GW _{SS}	GW _{3NDW}	ERM	Southland	ERM	Southland
Total Metals							
Arsenic	mg/L	0.01	0.05	<0.0010	<0.0100	0.0025	0.0152
Barium	mg/L	2	45	0.070	0.0599	0.247	0.149
Cadmium	mg/L	0.005	0.01	<0.0010	<0.00500	<0.0010	<0.00500
Calcium	mg/L	NS	NS	67.4	NA	28.3	NA
Chromium	mg/L	0.1	960	<0.001	<0.0100	0.012	0.0231
Iron ⁽¹⁾	mg/L	0.3	0.3	0.170	0.138	3.51	20.2
Lead	mg/L	0.015	0.05	<0.0010	<0.0100	0.0131	<0.0100
Magnesium	mg/L	NS	NS	28.9	NA	52.5	NA
Manganese ⁽¹⁾	mg/L	0.05	0.05	0.154	0.0779	1.63	0.857
Mercury	mg/L	0.002	0.002	<0.00020	0.00140	<0.00020	0.00224
Potassium	mg/L	NS	NS	<2.00	NA	9.98	NA
Selenium	mg/L	0.05	0.05	NA	NA	NA	NA
Silver	mg/L	0.018	0.54	NA	NA	NA	NA
Sodium	mg/L	NS	NS	73.4	84.7	91.3	93.3
Strontium	mg/L	NS	NS	0.583	0.555	0.676	0.563
Zinc	mg/L	1.1	8	<0.010	<0.0100	0.029	0.0493
Dissolved Metals							
Arsenic	mg/L	0.01	0.05	<0.0010	NA	<0.0010	NA
Barium	mg/L	2	45	0.062	NA	0.052	NA
Cadmium	mg/L	0.005	0.01	<0.0010	NA	<0.0010	NA
Chromium	mg/L	0.1	0.05	<0.00100	NA	<0.00100	NA
Iron ⁽¹⁾	mg/L	0.3	0.3	<0.100	NA	<0.100	NA
Lead	mg/L	0.015	0.05	<0.00100	NA	<0.00100	NA
Manganese ⁽¹⁾	mg/L	0.05	0.05	0.109	NA	0.389	NA
Mercury	mg/L	0.002	0.002	<0.00020	NA	<0.00020	NA
Strontium	mg/L	NS	NS	0.583	NA	0.546	NA
Zinc	mg/L	1.1	8	<0.010	NA	NA	NA
General Chemistry							
Chloride ⁽¹⁾	mg/L	250	250	91.7	84.1	56.8	49.1
Sulfate	mg/L	NS	NS	179	NA	151	NA
Specific Conductivity	umhos/cm	NS	NS	NA	1150	NA	1220
pH	su	NS	NS	NA	NA	NA	NA
Chemical Oxygen Demand	mg/L	NS	NS	NA	NA	NA	NA
Total Dissolved Solids (TDS) ⁽¹⁾	mg/L	500	500	629	656	609	670
Total Suspended Solids	mg/L	NS	NS	NA	NA	NA	NA
Alkalinity							
Bicarbonate Alkalinity	mg/L	NS	NS	194	NA	288	NA
Carbonate Alkalinity	mg/L	NS	NS	<10	NA	<10	NA
Hydroxide Alkalinity	mg/L	NS	NS	<10	NA	<10	NA
Phenolphthalein Alkalinity	mg/L	NS	NS	NA	NA	NA	NA
Total Alkalinity	mg/L	NS	NS	194	NA	288	NA
BTEX Compounds							
Benzene	mg/L	0.005	0.013	<0.001	NA	<0.001	NA
Ethylbenzene	mg/L	0.7	8.1	<0.001	NA	<0.001	NA
Toluene	mg/L	1	46	<0.002	NA	<0.002	NA
m,p-Xylene	mg/L	NS	NS	<0.002	NA	<0.002	NA
o-Xylene	mg/L	NS	NS	<0.001	NA	<0.001	NA
Xylene (total)	mg/L	10	10	<0.001	NA	<0.001	NA
Hydrocarbon Fractions							
Aliphatic C6-C8	mg/L	3.2	3,900	<0.005	NA	<0.005	NA
Aliphatic >C8-C10	mg/L	0.15	79	<0.0130	NA	<0.0130	NA
Aliphatic >C10-C12	mg/L	0.15	79	<0.136	NA	<0.130	NA
Aliphatic >C12-C16	mg/L	0.15	79	<0.136	NA	<0.130	NA
Aliphatic >C16-C35	mg/L	7.3	1,600	0.265	NA	0.287	NA
Aromatic >C8-C10	mg/L	0.15	31	<0.00500	NA	<0.00500	NA
Unadjusted >C10-C12 Aromatics	mg/L	0.15	31	<0.136	NA	<0.130	NA
Unadjusted >C12-C16 Aromatics	mg/L	0.15	31	<0.136	NA	<0.130	NA
Unadjusted >C16-C21 Aromatics	mg/L	0.15	24	<0.136	NA	<0.130	NA
Aromatic >C21-C35	mg/L	0.15	24	<0.159	NA	<0.152	NA
TPH - Diesel Range	mg/L	0.15	24	NA	<0.143	NA	<0.138
TPH - Oil Range	mg/L	0.15	24	NA	<0.123	NA	<0.118
HEM Oil & Grease	mg/L	NS	NS	NA	NA	NA	NA

Notes:
 Bolded values were detected in the sample
 Highlight indicates exceedance of corresponding regulatory limit
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