

Report To: Commercial Maintenance Services 145 Rambling Road Ville Platte, LA 70586 Attn: Mr. James Shiver	Report Date: 09/15/15 Lab Number: LFX-0066 and LFX-0067 Description of Services: Soil Analysis Sample Identification: Neumin Production H.C. Drew Manual Estate 15 #1 Sample Matrix: Soil
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Case Narrative

On, 09/03/15, two samples were submitted for analysis. These samples were analyzed according to LADNR Laboratory Procedures for Analysis of Exploration & Production Waste. Results for these samples can be found on the following pages.

Should you have any questions concerning your results, please do not hesitate to contact us.

The results of these analyses are only representative of the sample(s) submitted for analysis

Thank you for allowing Petroleum Laboratories to be of service to you.

Total Number of pages in this report: 6

Attest: Karen F. Ray

LELAP Certification Number: 01968

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 09/15/15
Lab No: LFX-0066
Regulatory
Field: Neumim Production
H.C. Drew Manual Estate 15 #1 Serial 22507
North Chopique Field
Calcasieu Parish

Attention: Mr. James Shiver

LELAP Certificate #01968

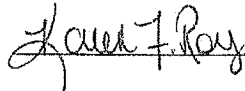
Soil Analysis

Location: Tank Battery Area 1ft.depth
Sampled: 09/02/15 by J. Shiver

Parameters - units	Results	Limitations	Method	Analyst / Date
pH - s.u.	7.490	6.0 - 9.0	SW 846 9045C	WM 09/04/15
Total Metals Content - mg/kg				
Arsenic	1.13	10	SW 846 6010B	WM 09/09/15
Barium, true total	141	20,000* 40,000**	LADNR ¹	WM 09/14/15
Cadmium	<0.150	10	SW 846 6010B	WM 09/09/15
Chromium	5.98	500	SW 846 6010B	WM 09/09/15
Copper	2.02	---	SW 846 6010B	WM 09/09/15
Lead	9.89	500	SW 846 6010B	WM 09/09/15
Mercury	0.0177	10	SW 846 7471A	SR 09/10/15
Molybdenum	<0.150	---	SW 846 6010B	WM 09/09/15
Nickel	2.54	---	SW 846 6010B	WM 09/09/15
Selenium	0.407	10	SW 846 6010B	WM 09/09/15
Silver	0.233	200	SW 846 6010B	WM 09/09/15
Zinc	7.08	500	SW 846 6010B	WM 09/09/15
Oil & Grease - % dry weight	<0.0188	1.0	SW 846 9071B	WM 09/04/15
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) - mmhos/cm	4	8* 4**	LADNR ¹	SR 09/09/15
SAR (sodium adsorption ratio)	19	14* 12**	LADNR ¹	WM 09/09/15
ESP (exchangeable sodium percentage)	19	25* 15**	LADNR ¹	WM 09/09/15
CEC (cation exchange capacity) - meq/100g	20	---	LADNR ¹	WM 09/09/15

¹Submerged Wetland Area; Elevated Wetland Area
²Upland Area

LADNR Lab Procedures for Analysis of E & P Waste.

Attest: 

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 09/15/15

Lab No: LFX-0067
Regulatory

Field: Neumim Production
H.C. Drew Manual Estate 15 #1 Serial 22507
North Chopique Field
Calcasieu Parish

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: Production Area 1ft.depth
Sampled: 09/02/15 by J. Shiver

Parameters - units	Results	Limitations	Method	Analyst / Date
pH - s.u.	7.580	6.0 - 9.0	SW 846 9045C	WM 09/04/15
Total Metals Content - mg/kg				
Arsenic	1.39	10	SW 846 6010B	WM 09/09/15
Barium, true total	221	20,000* 40,000**	LADNR ¹	WM 09/14/15
Cadmium	<0.150	10	SW 846 6010B	WM 09/09/15
Chromium	4.91	500	SW 846 6010B	WM 09/09/15
Copper	1.30	---	SW 846 6010B	WM 09/09/15
Lead	9.69	500	SW 846 6010B	WM 09/09/15
Mercury	0.0149	10	SW 846 7471A	SR 09/10/15
Molybdenum	<0.150	---	SW 846 6010B	WM 09/09/15
Nickel	2.27	---	SW 846 6010B	WM 09/09/15
Selenium	0.488	10	SW 846 6010B	WM 09/09/15
Silver	<0.150	200	SW 846 6010B	WM 09/09/15
Zinc	6.60	500	SW 846 6010B	WM 09/09/15
Oil & Grease - % dry weight	0.1757	1.0	SW 846 9071B	WM 09/04/15
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) - mmhos/cm	6	8* 4**	LADNR ¹	SR 09/09/15
SAR (sodium adsorption ratio)	16	14* 12**	LADNR ¹	WM 09/09/15
ESP (exchangeable sodium percentage)	16	25* 15**	LADNR ¹	WM 09/09/15
CEC (cation exchange capacity) - meq/100g	20	---	LADNR ¹	WM 09/09/15

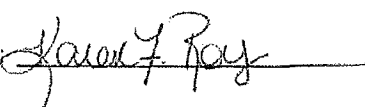
*Submerged Wetland Area; Elevated Wetland Area
**Upland Area

LADNR Lab Procedures for Analysis of E & P Waste.

**Commercial Maintenance Services
Neumin Production
H.C. Drew Manual Estate 15 #1
09/02/15**

Quality Assurance / Quality Control Data

Parameter - units	Certified Value	Obtained Value	% Recovery	Acceptance Limits
pH - s.u.	8.99	9.122	101	90 - 110
Arsenic - mg/kg	123	81.1	66	50 - 110
Barium - mg/kg	1.00	1.06	106	90 - 110
Cadmium - mg/kg	78.6	58.8	75	60 - 110
Chromium - mg/kg	149	115	77	60 - 111
Copper - mg/kg	122	94.2	77	62 - 110
Lead - mg/kg	200	158	79	66 - 111
Mercury - mg/kg	10.4	9.6049	92	85 - 115
Molybdenum - mg/kg	86.4	67.4	78	56 - 110
Nickel - mg/kg	116	86.8	75	58 - 110
Selenium - mg/kg	147	115	78	56 - 113
Silver - mg/kg	56.5	43.6	77	58 - 116
Zinc - mg/kg	259	199	77	59 - 110
Oil & Grease - mg/kg	1190	708	59	37 - 139
Electrical Conductivity - μ mhos/cm	10.0	10.0	100	90 - 110
Calcium - mg/l	1.00	1.02	102	90 - 110
Magnesium - mg/l	0.999	1.03	103	90 - 110
Sodium - mg/l	1.01	1.01	100	90 - 110

Attest: 

Sample Receipt Checklist

PLI Lab No:	LFX-0066 and LFX-0067		Received By:	S.G.T.		
Date / Time Received:	09/03/15 / 1050hrs.		Sample Matrix:	Soil		
Sample Arrived at Lab by: Sample Dropped off by Customer			Chilled: Yes			
Shipping container and/or bottles in good condition?						Yes
Custody seals intact on shipping container?						NA
Custody seals intact on sample bottles?						NA
Chain of Custody form used?						Yes
Chain of Custody agrees with sample identification?						Yes
Chain of Custody has proper signatures upon receipt of samples?						Yes
Samples in proper containers and proper preservatives used?						Yes
Sufficient sample for analysis requested?						Yes
Samples received within holding time?						Yes
Bottle #	Sample ID	Analysis Requested	Temp °C	pH s.u.	Preservative Used	Lot Number
01	LFX-0066 and LFX-0067	29-B Parameters	8.4	N/A	None	---
Special Instructions:						

Report To: Commercial Maintenance Services 145 Rambling Road Ville Platte, LA 70586 Attn: Mr. James Shiver	Report Date: 09/25/15 Lab Number: LFX-0232 and LFX-0233 Description of Services: Soil Analysis Sample Identification: Neumin Production H.C. Drew Manual Estate 15 #1 Sample Matrix: Soil
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Case Narrative

On, 09/03/15, two samples were submitted for analysis. These samples were analyzed according to LADNR Laboratory Procedures for Analysis of Exploration & Production Waste. Results for these samples can be found on the following pages.

Should you have any questions concerning your results, please do not hesitate to contact us.

The results of these analyses are only representative of the sample(s) submitted for analysis

Thank you for allowing Petroleum Laboratories to be of service to you.

Total Number of pages in this report: 6

Attest: David F. Roy

LELAP Certification Number: 01968

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 09/25/15

Lab No: LFX-0232
Regulatory

Field: Neumim Production
H.C. Drew Manual Estate 15 #1 Serial 22507
North Chopique Field
Calcasieu Parish

Attention: Mr. James Shiver

LELAP Certificate #01968

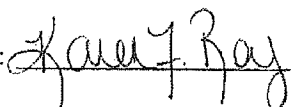
Soil Analysis

Location: Soil Production Area @ 2ft. Depth
Sampled: 09/02/15 by J. Shiver

Parameters - units	Results	Limitations	Method	Analyst / Date
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) -- mmhos/cm	9	8" 4"	LADNR1	SGT 09/22/15
SAR (sodium adsorption ratio)	15	14" 12"	LADNR1	WM 09/22/15
ESP (exchangeable sodium percentage)	17	25" 15"	LADNR1	WM 09/22/15
Soluble Anions & Cations - meq/L				
Calcium	8.7	---	LADNR1	WM 09/22/15
Magnesium	3.6	---	LADNR1	WM 09/22/15
Sodium	36.6	---	LADNR1	WM 09/22/15

*Submerged Wetland Area; Elevated Wetland Area
**Upland Area

LADNR Lab Procedures for Analysis of E & P Waste.

Attest: 



PETROLEUM LABORATORIES, INC.

333 East Kaliste Saloom Road
Lafayette, Louisiana 70508
337-234-7414

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 09/25/15

Lab No: LFX-0233
Regulatory

Field: Neumim Production
H.C. Drew Manual Estate 15 #1 Serial 22507
North Chopique Field
Calcasieu Parish

Attention: Mr. James Shiver

LELAP Certificate #01968

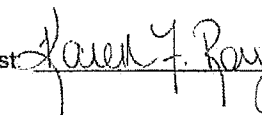
Soil Analysis

Location: Soil Tank Battery Area @ 2ft. Depth
Sampled: 09/02/15 by J. Shiver

Parameters - units	Results	Limitations	Method	Analyst / Date
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) – mmhos/cm	3	8' 4**	LADNR ¹	SGT 09/22/15
SAR (sodium adsorption ratio)	9	14' 12**	LADNR ¹	WM 09/22/15
ESP (exchangeable sodium percentage)	11	25' 15**	LADNR ¹	WM 09/22/15
Soluble Anions & Cations – meq/L				
Calcium	2.9	---	LADNR1	WM 09/22/15
Magnesium	1.1	---	LADNR1	WM 09/22/15
Sodium	13.3	---	LADNR1	WM 09/22/15

¹Submerged Wetland Area; Elevated Wetland Area
^{**}Upland Area

LADNR Lab Procedures for Analysis of E & P Waste.

Attest: 

**Commercial Maintenance Services
Neumin Production
H.C. Drew Manual Estate 15 #1
09/02/15**

Quality Assurance / Quality Control Data

Parameter - units	Certified Value	Obtained Value	% Recovery	Acceptance Limits
Electrical Conductivity – μ mhos/cm	10.0	10.06	101	90 – 110
Calcium – mg/l	1.00	1.03	103	90 – 110
Magnesium – mg/l	0.999	1.07	107	90 – 110
Sodium – mg/l	1.01	1.07	106	90 – 110

Attest: *Karen J. Roy*

Sample Receipt Checklist

PLI Lab No:		LFX-0232 and LFX-0233		Received By:		S.G.T.	
Date / Time Received:		09/03/15 / 1050hrs.		Sample Matrix:		Soil	
Sample Arrived at Lab by: Sample Dropped off by Customer				Chilled: Yes			
Shipping container and/or bottles in good condition?						Yes	
Custody seals intact on shipping container?						NA	
Custody seals intact on sample bottles?						NA	
Chain of Custody form used?						Yes	
Chain of Custody agrees with sample identification?						Yes	
Chain of Custody has proper signatures upon receipt of samples?						Yes	
Samples in proper containers and proper preservatives used?						Yes	
Sufficient sample for analysis requested?						Yes	
Samples received within holding time?						Yes	
Bottle #	Sample ID	Analysis Requested	Temp °C	pH s.u.	Preservative Used	Lot Number	
01	LFX-0232 and LFX-0233	29-B Parameters	2.6	N/A	None	---	
Special Instructions:							



**PETROLEUM
LABORATORIES, INC.**

333 East Kaliste Saloom Road
Lafayette, Louisiana 70508
337-234-7414

Report To:	Report Date: 09/30/15
Commercial Maintenance Services 145 Rambling Road Ville Platte, LA 70586	Lab Number: LFX-0284 thru LFX-0287
Attn: Mr. James Shiver	Description of Services: Soil Analysis
	Sample Identification: Neumin Production H.C. Drew Manual Estate 15 #1
	Sample Matrix: Soil

Case Narrative

On, 09/24/15, four samples were submitted for analysis. These samples were analyzed according to LADNR Laboratory Procedures for Analysis of Exploration & Production Waste. Results for these samples can be found on the following pages.

A portion of each sample was subcontracted to Petroleum Laboratories, Inc. (Houma, LA). LELAP Certificate No.: 01969.

Should you have any questions concerning your results, please do not hesitate to contact us.

The results of these analyses are only representative of the sample(s) submitted for analysis

Thank you for allowing Petroleum Laboratories to be of service to you.

Total Number of pages in this report: 8

Attest: 

LELAP Certification Number: 01968

PETROLEUM LABORATORIES, INC.

333 East Kaliste Saloom Road
Lafayette, Louisiana 70508
337-234-7414

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 09/30/15

Lab No: LFX-0284
Regulatory

Field: Neumim Production
H.C. Drew Manual Estate 15 #1
Serial 225207 North Chopique Field
Calcasieu Parish

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: Dirt Area #2, 3ft. depth
Sampled: 09/24/15 by J. Shiver

Parameters - units	Results	Limitations	Method	Analyst / Date
EC (electrical conductivity) – mmhos/cm	13	8' 4"	LADNR1	SR 09/29/15
SAR (sodium adsorption ratio)	10	14' 12"	LADNR1	WM 09/29/15
ESP (exchangeable sodium percentage)	12	25' 15"	LADNR1	WM 09/29/15
Soluble Anions & Cations – meq/L				
Calcium	21.5	---	LADNR1	WM 09/29/15
Magnesium	8.4	---	LADNR1	WM 09/29/15
Sodium	40.2	---	LADNR1	WM 09/29/15

*Submerged Wetland Area; Elevated Wetland Area
**Upland Area

LADNR Lab Procedures for Analysis of E & P Waste.

Attest: 

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 09/30/15

Lab No: LFX-0285
Regulatory

Field: Neumim Production
H.C. Drew Manual Estate 15 #1
Serial 225207 North Chopique Field
Calcasieu Parish

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: Dirt Area #3, 1ft. Depth
Sampled: 09/24/15 by J. Shiver

Parameters - units	Results	Limitations	Method	Analyst / Date
pH - s.u.	7.138	6.0 - 9.0	SW 846 9045C	SR 09/25/15
Total Metals Content - mg/kg				
Arsenic	1.07	10	SW 846 6010B	WM 09/28/15
Barium, true total ²	135	20,000* 40,000**	LADNR ¹	BO 09/30/15
Cadmium	<0.150	10	SW 846 6010B	WM 09/28/15
Chromium	5.99	500	SW 846 6010B	WM 09/28/15
Copper	2.24	---	SW 846 6010B	WM 09/28/15
Lead	10.1	500	SW 846 6010B	WM 09/28/15
Mercury	0.0151	10	SW 846 7471A	SR 09/28/15
Molybdenum	0.200	---	SW 846 6010B	WM 09/28/15
Nickel	2.17	---	SW 846 6010B	WM 09/28/15
Selenium	0.549	10	SW 846 6010B	WM 09/28/15
Silver	0.306	200	SW 846 6010B	WM 09/28/15
Zinc	6.65	500	SW 846 6010B	WM 09/28/15
Oil & Grease - % dry weight	<0.0188	1.0	SW 846 9071B	WM 09/25/15
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) - mmhos/cm	2	8* 4**	LADNR ¹	SR 09/29/15
SAR (sodium adsorption ratio)	3	14* 12**	LADNR ¹	WM 09/29/15
ESP (exchangeable sodium percentage)	3	25* 15**	LADNR ¹	WM 09/29/15
CEC (cation exchange capacity) - meq/100g	27	---	LADNR ¹	WM 09/29/15

*Submerged Wetland Area; Elevated Wetland Area
**Upland Area

¹LADNR Lab Procedures for Analysis of E & P Waste.

²Subcontracted to Petroleum Laboratories, Inc. (Houma, LA). LELAP Certificate No.: 01969.

Attest:



Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 09/30/15

Lab No: LFX-0286
Regulatory

Field: Neumim Production
H.C. Drew Manual Estate 15 #1
Serial 225207 North Chopique Field
Calcasieu Parish

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: Dirt Area #4, 1ft. Depth
Sampled: 09/24/15 by J. Shiver

Parameters - units	Results	Limitations	Method	Analyst / Date
pH - s.u.	6.990	6.0 - 9.0	SW 846 9045C	SR 09/25/15
Total Metals Content - mg/kg				
Arsenic	1.25	10	SW 846 6010B	WM 09/28/15
Barium, true total ²	423	20,000* 40,000**	LADNR ¹	BO 09/30/15
Cadmium	<0.150	10	SW 846 6010B	WM 09/28/15
Chromium	4.75	500	SW 846 6010B	WM 09/28/15
Copper	1.30	---	SW 846 6010B	WM 09/28/15
Lead	9.08	500	SW 846 6010B	WM 09/28/15
Mercury	0.0108	10	SW 846 7471A	SR 09/28/15
Molybdenum	0.166	---	SW 846 6010B	WM 09/28/15
Nickel	2.79	---	SW 846 6010B	WM 09/28/15
Selenium	0.391	10	SW 846 6010B	WM 09/28/15
Silver	0.197	200	SW 846 6010B	WM 09/28/15
Zinc	5.83	500	SW 846 6010B	WM 09/28/15
Oil & Grease - % dry weight	<0.0188	1.0	SW 846 9071B	WM 09/25/15
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) - mmhos/cm	2	8* 4**	LADNR ¹	SR 09/28/15
SAR (sodium adsorption ratio)	4	14* 12**	LADNR ¹	WM 09/29/15
ESP (exchangeable sodium percentage)	4	25* 15**	LADNR ¹	WM 09/29/15
CEC (cation exchange capacity) - meq/100g	23	---	LADNR ¹	WM 09/29/15

*Submerged Wetland Area; Elevated Wetland Area
**Upland Area

¹LADNR Lab Procedures for Analysis of E & P Waste.

²Subcontracted to Petroleum Laboratories, Inc. (Houma, LA). LELAP Certificate No.: 01969.

Attest:

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 09/30/15

Lab No: LFX-0287
Regulatory

Field: Neumim Production
H.C. Drew Manual Estate 15 #1
Serial 225207 North Chopique Field
Calcasieu Parish

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: Dirt Area #5, 1ft. Depth
Sampled: 09/24/15 by J. Shiver

Parameters - units	Results	Limitations	Method	Analyst / Date
pH - s.u.	6.339	6.0 - 9.0	SW 846 9045C	SR 09/25/15
Total Metals Content - mg/kg				
Arsenic	0.807	10	SW 846 6010B	WM 09/28/15
Barium, true total	60	20,000* 40,000**	LADNR ¹	BO 09/30/15
Cadmium	<0.150	10	SW 846 6010B	WM 09/28/15
Chromium	4.71	500	SW 846 6010B	WM 09/28/15
Copper	1.10	---	SW 846 6010B	WM 09/28/15
Lead	8.22	500	SW 846 6010B	WM 09/28/15
Mercury	0.0103	10	SW 846 7471A	SR 09/28/15
Molybdenum	<0.150	---	SW 846 6010B	WM 09/28/15
Nickel	1.46	---	SW 846 6010B	WM 09/28/15
Selenium	0.433	10	SW 846 6010B	WM 09/28/15
Silver	0.156	200	SW 846 6010B	WM 09/28/15
Zinc	4.62	500	SW 846 6010B	WM 09/28/15
Oil & Grease - % dry weight	<0.0188	1.0	SW 846 9071B	WM 09/25/15
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) - mmhos/cm	1	8* 4**	LADNR ¹	SR 09/28/15
SAR (sodium adsorption ratio)	1	14* 12**	LADNR ¹	WM 09/29/15
ESP (exchangeable sodium percentage)	1	25* 15**	LADNR ¹	WM 09/29/15
CEC (cation exchange capacity) - meq/100g	19	---	LADNR ¹	WM 09/29/15

*Submerged Wetland Area; Elevated Wetland Area
**Upland Area

¹LADNR Lab Procedures for Analysis of E & P Waste.

²Subcontracted to Petroleum Laboratories, Inc. (Houma, LA). LELAP Certificate No.: 01969.

**Commercial Maintenance Services
Neumin Production
H.C. Drew Manual Estate 15 #1
09/24/15**

Quality Assurance / Quality Control Data

Parameter - units	Certified Value	Obtained Value	% Recovery	Acceptance Limits
pH - s.u.	11.0	10.5	95	90 - 110
Arsenic - mg/kg	123	82.8	67	60 - 110
Barium - mg/kg	196	184	94	70 - 130
Cadmium - mg/kg	78.6	62.3	79	60 - 110
Chromium - mg/kg	149	120	81	60 - 111
Copper - mg/kg	122	96.5	79	62 - 110
Lead - mg/kg	200	178	87	66 - 111
Mercury - mg/kg	10.4	10.6	102	85 - 115
Molybdenum - mg/kg	86.4	70.3	81	56 - 110
Nickel - mg/kg	116	91.7	79	58 - 110
Selenium - mg/kg	147	125	85	56 - 113
Silver - mg/kg	56.5	45.8	81	58 - 116
Zinc - mg/kg	259	209	81	59 - 110
Oil & Grease - mg/kg	919	809	88	37 - 139
Electrical Conductivity - μ mhos/cm	10.0	9.87	99	90 - 110
Calcium - mg/l	1.00	1.05	105	90 - 110
Magnesium - mg/l	1.00	1.10	110	90 - 110
Sodium - mg/l	1.02	1.10	108	90 - 110

Attest: 



PETROLEUM LABORATORIES, INC.

333 East Kaliste Saloom Road
Lafayette, Louisiana 70508
337-234-7414

Sample Receipt Checklist

PLI Lab No: LFX-0284 thru LFX-0287		Received By: K.R.				
Date / Time Received: 09/24/15 / 1420hrs.		Sample Matrix: Soil				
Sample Arrived at Lab by: Sample Dropped off by Customer		Chilled: Yes				
Shipping container and/or bottles in good condition?			Yes			
Custody seals intact on shipping container?			NA			
Custody seals intact on sample bottles?			NA			
Chain of Custody form used?			Yes			
Chain of Custody agrees with sample identification?			Yes			
Chain of Custody has proper signatures upon receipt of samples?			Yes			
Samples in proper containers and proper preservatives used?			Yes			
Sufficient sample for analysis requested?			Yes			
Samples received within holding time?			Yes			
Bottle #	Sample ID	Analysis Requested	Temp °C	pH s.u.	Preservative Used	Lot Number
01	LFX-0284 thru LFX-0287	29-B Parameters	11.0	N/A	None	---
Special Instructions:						



PETROLEUM LABORATORIES, INC.

333 East Kaliste Saloom Road
Lafayette, Louisiana 70508
337-234-7414

Report To:	Report Date: 10/23/15
Commercial Maintenance Services 145 Rambling Road Ville Platte, LA 70586	Lab Number: LFY-0095, LFY-0096, LFY-0097 LFY-0150, LFY-0196
Attn: Mr. James Shiver	Description of Services: Soil Analysis
	Sample Identification: Neumin Production H.C. Drew Manual Estate 15 #1
	Sample Matrix: Soil

Case Narrative

On, 10/07/15, five samples were submitted for analysis. These samples were analyzed according to LADNR Laboratory Procedures for Analysis of Exploration & Production Waste. Results for these samples can be found on the following pages.

Should you have any questions concerning your results, please do not hesitate to contact us.

The results of these analyses are only representative of the sample(s) submitted for analysis

Thank you for allowing Petroleum Laboratories to be of service to you.

Total Number of pages in this report: 9

Attest: *Karen F. Roy*

LELAP Certification Number: 01968

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 10/23/15 Lab No: LFY-0095
Regulatory
Field: Nemium Production
H.C.Drew Manuel Estate 15 #1
Calcasieu Parish Serial #225207

Attention: Mr. James Shiver

LELAP Certificate #01968

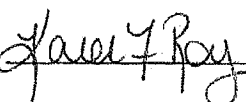
Soil Analysis

Location: Soil Production Area 4ft. depth
Sampled: 10/07/15 by J. Shiver

Parameters - units	Results	Limitations	Method	Analyst / Date
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) – mmhos/cm	4	8* 4**	LADNR ¹	WM 10/09/15
SAR (sodium adsorption ratio)	16	14* 12**	LADNR ¹	WM 10/09/15
ESP (exchangeable sodium percentage)	18	25* 15**	LADNR ¹	WM 10/09/15
Soluble Anions & Cations – meq/L				
Calcium	3.0	---	LADNR1	WM 10/09/15
Magnesium	1.3	---	LADNR1	WM 10/09/15
Sodium	23.5	---	LADNR1	WM 10/09/15

*Submerged Wetland Area; Elevated Wetland Area
**Upland Area

¹LADNR Lab Procedures for Analysis of E & P Waste.

Attest: 



PETROLEUM LABORATORIES, INC.

333 East Kaliste Saloom Road
Lafayette, Louisiana 70508
337-234-7414

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 10/23/15

Lab No: LFY-0096
Regulatory

Field: Nemium Production
H.C.Drew Manuel Estate 15 #1
Calcasieu Parish Serial #225207

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: Soil Tank Battery 3ft. depth
Sampled: 10/07/15 by J. Shiver

Parameters - units	Results	Limitations	Method	Analyst / Date
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) – mmhos/cm	2	8' 4"	LADNR ¹	WM 10/09/15
SAR (sodium adsorption ratio)	7	14' 12"	LADNR ¹	WM 10/09/15
ESP (exchangeable sodium percentage)	9	25' 15"	LADNR ¹	WM 10/09/15
Soluble Anions & Cations – meq/L				
Calcium	1.8	---	LADNR1	WM 10/09/15
Magnesium	1.0	---	LADNR1	WM 10/09/15
Sodium	8.9	---	LADNR1	WM 10/09/15

¹Submerged Wetland Area; Elevated Wetland Area

**Upland Area

¹LADNR Lab Procedures for Analysis of E & P Waste.

Attest:

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 10/23/15

Lab No: LFY-0097
Regulatory

Field: Nemium Production
H.C.Drew Manuel Estate 15 #1
Calcasieu Parish Serial #225207

Attention: Mr. James Shiver

LELAP Certificate #01968


Soil Analysis

Location: Soil Background 1ft.depth
Sampled: 10/07/15 by J. Shiver

Parameters - units	Results	Limitations	Method	Analyst / Date
pH - s.u.	5.315	6.0 - 9.0	SW 846 9045C	SR 10/08/15
Total Metals Content - mg/kg				
Arsenic	0.778	10	SW 846 6010B	WM 10/16/15
Barium, true total	785	20,000* 40,000**	LADNR ¹	WM 10/16/15
Cadmium	<0.150	10	SW 846 6010B	WM 10/16/15
Chromium	4.85	500	SW 846 6010B	WM 10/16/15
Copper	0.626	---	SW 846 6010B	WM 10/16/15
Lead	9.33	500	SW 846 6010B	WM 10/16/15
Mercury	0.0051	10	SW 846 7471A	SR 10/19/15
Molybdenum	<0.150	---	SW 846 6010B	WM 10/16/15
Nickel	1.70	---	SW 846 6010B	WM 10/16/15
Selenium	0.335	10	SW 846 6010B	WM 10/16/15
Silver	0.591	200	SW 846 6010B	WM 10/16/15
Zinc	4.27	500	SW 846 6010B	WM 10/16/15
Oil & Grease - % dry weight	0.0417	1.0	SW 846 9071B	WM 10/12/15
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) - mmhos/cm	2	8* 4**	LADNR ¹	WM 10/09/15
SAR (sodium adsorption ratio)	3	14* 12**	LADNR ¹	WM 10/09/15
ESP (exchangeable sodium percentage)	3	25* 15**	LADNR ¹	WM 10/13/15
CEC (cation exchange capacity) - meq/100g	10	---	LADNR ¹	WM 10/13/15

*Submerged Wetland Area; Elevated Wetland Area
**Upland Area

LADNR Lab Procedures for Analysis of E & P Waste.

Attest: 

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 10/23/15

Lab No: LFY-0150
Regulatory

Field: Neumin Production
H.C. Drew Manual Estate 15 #1
Calcasieu Parish Serial #225207

Attention: Mr. James Shiver

LELAP Certificate #01968

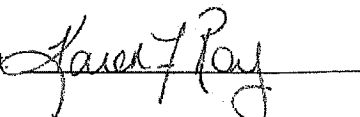
Soil Analysis

Location: Soil Production Area 5ft. depth
Sampled: 10/07/15 by J. Shiver

	Results	Limitations	Method	Analyst / Date
Soluble Salts & Cationic Distribution				
SAR (sodium adsorption ratio)	14	14* 12**	LADNR1	WM 10/13/15
ESP (exchangeable sodium percentage)	16	25* 15**	LADNR1	WM 10/13/15
Soluble Anions & Cations – meq/L.				
Calcium	3.0	---	LADNR1	WM 10/13/15
Magnesium	1.4	---	LADNR1	WM 10/13/15
Sodium	20.2	---	LADNR1	WM 10/13/15

*Submerged Wetland Area; Elevated Wetland Area
**Upland Area

¹LADNR Lab Procedures for Analysis of E & P Waste.

Attest 



PETROLEUM LABORATORIES, INC.

333 East Kaliste Saloom Road
Lafayette, Louisiana 70508
337-234-7414

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 10/23/15

Lab No: LFY-0196
Regulatory

Field: Neumin Production
H.C. Drew Manual Estate 15 #1
Calcasieu Parish Serial #225207

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: Soil Production Area 6ft. depth
Sampled: 10/07/15 by J. Shiver

	Results	Limitations	Method	Analyst / Date
Soluble Salts & Cationic Distribution				
SAR (sodium adsorption ratio)	16	14' 12"	LADNR ¹	WM 10/16/15
ESP (exchangeable sodium percentage)	18	25' 15"	LADNR ¹	WM 10/16/15
Soluble Anions & Cations – meq/L				
Calcium	4.1	---	LADNR1	WM 10/16/15
Magnesium	1.7	---	LADNR1	WM 10/16/15
Sodium	27.3	---	LADNR1	WM 10/16/15

¹Submerged Wetland Area; Elevated Wetland Area
^{**}Upland Area

¹LADNR Lab Procedures for Analysis of E & P Waste.

Attest:

**Commercial Maintenance Services
Neumin Production
H.C. Drew Manual Estate 15 #1
10/07/15**

Quality Assurance / Quality Control Data

Parameter - units	Certified Value	Obtained Value	% Recovery	Acceptance Limits
pH - s.u.	11.00	10.44	95	90 - 110
Arsenic - mg/kg	123	85.9	70	50 - 110
Barium - mg/kg	393	327	83	65 - 110
Cadmium - mg/kg	78.6	62.6	80	60 - 110
Chromium - mg/kg	149	119	80	60 - 111
Copper - mg/kg	122	98.1	80	62 - 110
Lead - mg/kg	200	167	84	66 - 111
Mercury - mg/kg	10.4	9.06	87	85 - 115
Molybdenum - mg/kg	86.4	68.5	79	56 - 110
Nickel - mg/kg	116	92.7	80	58 - 110
Selenium - mg/kg	147	126	86	56 - 113
Silver - mg/kg	56.5	45.4	80	58 - 116
Zinc - mg/kg	259	215	83	59 - 110
Oil & Grease - mg/kg	1703	1309	77	37 - 139
Electrical Conductivity - μ mhos/cm	10.00	9.86	99	90 - 110
Calcium - mg/l	1.00	1.02	102	90 - 110
Magnesium - mg/l	1.00	1.04	104	90 - 110
Sodium - mg/l	1.02	1.05	103	90 - 110

Attest: Karel F. Roy

Sample Receipt Checklist

PLI Lab No:	LFY-0095, LFY-0096, LFY-0097, LFT-0150, LFY-0196	Received By:	R.F.			
Date / Time Received:	10/07/15 / 1340hrs.	Sample Matrix:	Soil			
Sample Arrived at Lab by: Sample Dropped off by Customer		Chilled: Yes				
Shipping container and/or bottles in good condition?					Yes	
Custody seals intact on shipping container?					NA	
Custody seals intact on sample bottles?					NA	
Chain of Custody form used?					Yes	
Chain of Custody agrees with sample identification?					Yes	
Chain of Custody has proper signatures upon receipt of samples?					Yes	
Samples in proper containers and proper preservatives used?					Yes	
Sufficient sample for analysis requested?					Yes	
Samples received within holding time?					Yes	
Bottle #	Sample ID	Analysis Requested	Temp °C	pH s.u.	Preservative Used	Lot Number
01	LFY-0095 LFY-0096 LFY-0097 LFY-0150 LFY-0196	29-B Parameters	17.0	N/A	None	---
Special Instructions:						

Jeffrey Hermes/FTNMSF

From: Jeffrey Hermes/FTNMSF
Sent: Tuesday, November 03, 2015 1:26 PM
To: 'Austin Arabie'; beubarbe@yahoo.com
Cc: James McIntire/NMCSF; Richard Garcia/FTNMSF; Dean Johnstone/NMCSF; Blaine Johnson
Subject: RE: HC Drew Manual Estate "15" No. 1
Attachments: email.CMS.Neumin.Manual.Estate.15#1.10-07-15.pdf

Mr. Arabie,
Please find attached the lab results of the soil sampling done on October 7, 2015.
Thanks,
Jeff

From: Austin Arabie [mailto:aarabie@arabie-env.com]
Sent: Wednesday, October 28, 2015 4:26 PM
To: Jeffrey Hermes/FTNMSF; beubarbe@yahoo.com
Cc: James McIntire/NMCSF; Richard Garcia/FTNMSF; Dean Johnstone/NMCSF; Blaine Johnson
Subject: RE: HC Drew Manual Estate "15" No. 1

Mr. Hermes:

Blaine Johnson (Engineer with Arabie Environmental) and I met with Beau Barbe (H.C. Drew Estate) today to discuss the status of the well site closure. According to the lease, the site is to be closed by "removing all contaminants including removal and replacement of all contaminated soil." Arabie Environmental did not have access to pre-site development soil data, so we used recently collected on site sample data and our experience in reviewing thousands of soil samples to establish a closure standard for the site. The standards we established are expected to be less limiting than true background samples. The closure standards that we established are EC 2mmhos/cm, SAR of 4, and ESP 4%. Three samples collected on the site on behalf of Neumin were at or below those standards. An additional "background" sample collected off of the well site on behalf of Neumin was below those standards. From those four samples, we can conclude that the clean up standards are not overly restrictive.

As of today, the areas that remain in question are the Tank Battery (Area 1) and the Production Area (Area 2). At the Tank Battery, samples down to three feet have exceeded the clean up standard for two or more of the parameters. At the Production Area, sample data from as deep as 6 feet indicate not only exceedances of the clean up standard but exceedances of 29B. As noted in Mr. Johnson's email of October 20, 2015, it is our understanding that samples were collected from greater depths at both of those areas but the analytical results have not been provided to us.

In summary,

- 1) the lease agreement requires removal of all contaminants and contaminated soil,
- 2) the off site background sample and several on site samples provide the baseline for each parameter
- 3) Samples collected beneath the tank battery exceed the established standard, deeper samples collected but data not provided
- 4) Samples collected beneath the production area exceed the established standard and 29B standards, deeper samples collected but data not provided

Please provide laboratory results for all the soil samples collected to date.

Sincerely

Austin Arabie

From: Jeffrey Hermes/FTNMSF [<mailto:JHermes@ftpc.fpcusa.com>]
Sent: Thursday, October 22, 2015 2:14 PM
To: Austin Arabie; beubarbe@yahoo.com
Cc: James McIntire/NMCSF; Richard Garcia/FTNMSF; Dean Johnstone/NMCSF
Subject: FW: HC Drew Manual Estate "15" No. 1

Mr. Arabie,

Neumin needs to complete the Drew Manuel Estate 15 No.1 location clean up and according to our lease, Neumin is required to "reasonably restore" the premises to the condition existing as of the date of the execution of this lease. It is Neumin's goal to accomplish this in a prompt and mutually acceptable manner.

Due to lack of pre-site development data availability, Neumin believes that the limits set in the Louisiana Statewide Order 29-B should be used in determining the restoration parameters.

At Area 1 (Tank Battery Area) the 2 foot samples collected indicated an EC-3, SAR-9, and an ESP-11, the 3 foot samples indicated an EC-2, SAR-7, and an ESP-9. These parameters are all within 29-B limits and no other testing should be required.

At Area 2 (Production Area) the 1 foot depth sample: EC-6, SAR-15, ESP-16, 2 foot depth sample: EC-9, SAR-15, ESP-17, 3 foot depth sample: EC-13, SAR-10, ESP-12, (preliminary results for 4,5, & 6 foot depth samples) 4 foot depth sample: EC-4, SAR-16, ESP-18, 5 foot depth sample: EC- (not reported), SAR-14, ESP-16, 6 foot depth sample: EC- (not reported), SAR-16, ESP-18. It appears from these results that a natural progression of the salts migrating downward in the soil is occurring. We believe that further testing on this area is not required. We submit that the removal of the top three feet of soil in the Area #2, the addition of gypsum, and replacement of the top three feet of soil with fresh uncontaminated soil should be all that is required to remediate the Area #2.

The other area's of concern that were tested are all well within 29-B Parameters and require no additional testing.

As was noted earlier, the area in direct contact with the wellbore will be excavated in a 10 foot by 10 foot square to a 6 foot depth, this soil will be removed, gypsum will be added and fresh soil will be used to fill the excavated area.

Neumin understands that Arabie Environmental's responsibility is to insure that the Drew Manuel Estate's property is properly treated and not abused; However, it should be noted that the Neumin Drew Manuel "15" No.1 well's oil and gas production has contributed an estimated \$3.5 MM to the Drew Estate over the life of this well. We believe that with this volume of oil and gas production it is not uncommon for there to be a small footprint of the well site location for a period of time but with the restorations that we plan to conduct, that period should be brief.

Sincerely,

Jeff Hermes
Land Manager
Neumin Production Co.
P.O. Box 769
103 Fannin Road
Point Comfort, TX 77978
361-987-8920 office
361-935-4134 cell
jhermes@ftpc.fpcusa.com

From: Austin Arabie <aarabie@arabie-env.com>

Date: Tuesday, October 6, 2015 2:59 PM

To: James McIntire <jimcintire@Reagan.com>

Cc: Beau Barbe <beaubarbe@yahoo.com>, Blaine Johnson <bjohnson@arabie-env.com>

Subject: HC Drew Manual Estate "15" No. 1

James: I have attached a sample location map with a summary of the lab results for each area. As you know, the lease agreement requires restoration of the site to "original condition". Since we don't have pre-site development laboratory data, we suggest using EC 2 mmhos/cm, SAR of 4, and ESP 4 % as "original condition." Based on the sampling conducted so far, it would appear that samples from areas 3, 4, and 5 appear to meet the assumed original condition standard. The 29-B Standards for the area would be EC < 4 mmhos/cm, SAR of <12, and ESP < 15.

At Area 1 (Tank Battery Area) the 1 foot depth sample exceeded all three 29-B parameters and the 2 foot sample exceeded "original condition." At that area, additional samples should be collected below 2 feet to determine the extent of the exceedance.

At Area 2 (Production Area) samples need to be collected to determine the full depth of exceedances.

At Area 6 (Well site), it is our understanding that you plan to excavate a 10 ft. by 10 ft. area to a depth of 6 feet. We would like to see confirmation samples from the bottom and side walls of that excavation to demonstrate compliance with the lease.

We appreciate your assistance in getting this site closed out in accordance with the lease. Let us know if we can be of any assistance to you. We would want to continue to be notified of any upcoming sampling events. As we understand it, Davies will be sampling again tomorrow and we do plan to have someone on site.

Austin Arabie

This communication is solely for use by the intended recipient and may contain information that is privileged, confidential or copyrighted under applicable law. If you are not the intended recipient, you are hereby formally notified that any use, copying or distribution of this communication, in whole or in part, is strictly prohibited. Unless explicitly stated, this communication does not constitute a contract offer, a contract amendment, or an acceptance of a contract offer. This communication also does not constitute consent to the use of sender's contact information for direct marketing purposes or for transfers of data to third parties.

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Report To: Commercial Maintenance Services 145 Rambling Road Ville Platte, LA 70586 Attn: Mr. James Shiver	Report Date: 10/23/15 Lab Number: LFY-0095, LFY-0096, LFY-0097 LFY-0150, LFY-0196 Description of Services: Soil Analysis Sample Identification: Neumin Production H.C. Drew Manual Estate 15 #1 Sample Matrix: Soil
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Case Narrative

On, 10/07/15, five samples were submitted for analysis. These samples were analyzed according to LADNR Laboratory Procedures for Analysis of Exploration & Production Waste. Results for these samples can be found on the following pages.

Should you have any questions concerning your results, please do not hesitate to contact us.

The results of these analyses are only representative of the sample(s) submitted for analysis

Thank you for allowing Petroleum Laboratories to be of service to you.

Total Number of pages in this report: 9

Attest: *Karen F. Roy*

LELAP Certification Number: 01968

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 10/23/15

Lab No: LFY-0095
Regulatory

Field: Nemium Production
H.C.Drew Manuel Estate 15 #1
Calcasieu Parish Serial #225207

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: Soil Production Area 4ft. depth
Sampled: 10/07/15 by J. Shiver

Parameters - units	Results	Limitations	Method	Analyst / Date
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) -- mmhos/cm	4	8* 4**	LADNR ¹	WM 10/09/15
SAR (sodium adsorption ratio)	16	14* 12**	LADNR ¹	WM 10/09/15
ESP (exchangeable sodium percentage)	18	25* 15**	LADNR ¹	WM 10/09/15
Soluble Anions & Cations -- meq/L				
Calcium	3.0	---	LADNR1	WM 10/09/15
Magnesium	1.3	---	LADNR1	WM 10/09/15
Sodium	23.5	---	LADNR1	WM 10/09/15

*Submerged Wetland Area; Elevated Wetland Area
**Upland Area

¹LADNR Lab Procedures for Analysis of E & P Waste.

Attest:



Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 10/23/15

Lab No: LFY-0096
Regulatory

Field: Nemium Production
H.C.Drew Manuel Estate 15 #1
Calcasieu Parish Serial #225207

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: Soil Tank Battery 3ft. depth
Sampled: 10/07/15 by J. Shiver

Parameters - units	Results	Limitations	Method	Analyst / Date
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) – mmhos/cm	2	8* 4**	LADNR ¹	WM 10/09/15
SAR (sodium adsorption ratio)	7	14* 12**	LADNR ¹	WM 10/09/15
ESP (exchangeable sodium percentage)	9	25* 15**	LADNR ¹	WM 10/09/15
Soluble Anions & Cations – meq/L				
Calcium	1.8	---	LADNR1	WM 10/09/15
Magnesium	1.0	---	LADNR1	WM 10/09/15
Sodium	8.9	---	LADNR1	WM 10/09/15

*Submerged Wetland Area; Elevated Wetland Area
**Upland Area

¹LADNR Lab Procedures for Analysis of E & P Waste.

Attest: 

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 10/23/15

Lab No: LFY-0097
Regulatory

Field: Nernium Production
H.C.Drew Manuel Estate 15 #1
Calcasieu Parish Serial #225207

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: Soil Background 1ft.depth
Sampled: 10/07/15 by J. Shiver

Parameters - units	Results	Limitations	Method	Analyst / Date
pH - s.u.	5.315	6.0 - 9.0	SW 846 9045C	SR 10/08/15
Total Metals Content - mg/kg				
Arsenic	0.778	10	SW 846 6010B	WM 10/16/15
Barium, true total	785	20,000* 40,000**	LADNR ¹	WM 10/16/15
Cadmium	<0.150	10	SW 846 6010B	WM 10/16/15
Chromium	4.85	500	SW 846 6010B	WM 10/16/15
Copper	0.626	—	SW 846 6010B	WM 10/16/15
Lead	9.33	500	SW 846 6010B	WM 10/16/15
Mercury	0.0051	10	SW 846 7471A	SR 10/19/15
Molybdenum	<0.150	—	SW 846 6010B	WM 10/16/15
Nickel	1.70	—	SW 846 6010B	WM 10/16/15
Selenium	0.335	10	SW 846 6010B	WM 10/16/15
Silver	0.591	200	SW 846 6010B	WM 10/16/15
Zinc	4.27	500	SW 846 6010B	WM 10/16/15
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SAR (sodium adsorption ratio)	3	14* 12**	LADNR ¹	WM 10/09/15
ESP (exchangeable sodium percentage)	3	25* 15**	LADNR ¹	WM 10/13/15
CEC (cation exchange capacity) - meq/100g	10	—	LADNR ¹	WM 10/13/15

*Submerged Welland Area; Elevated Welland Area
**Upland Area

LADNR Lab Procedures for Analysis of E & P Waste.

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 10/23/15

Lab No: LFY-0150
Regulatory

Field: Neumin Production
H.C. Drew Manual Estate 15 #1
Calcasieu Parish Serial #225207

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: Soil Production Area 5ft. depth
Sampled: 10/07/15 by J. Shiver

	Results	Limitations	Method	Analyst / Date
Soluble Salts & Cationic Distribution				
SAR (sodium adsorption ratio)	14	14* 12**	LADNR ¹	WM 10/13/15
ESP (exchangeable sodium percentage)	16	25* 15**	LADNR ¹	WM 10/13/15
Soluble Anions & Cations – meq/L				
Calcium	3.0	---	LADNR1	WM 10/13/15
Magnesium	1.4	---	LADNR1	WM 10/13/15
Sodium	20.2	---	LADNR1	WM 10/13/15

*Submerged Wetland Area; Elevated Wetland Area
**Upland Area

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Attest: 

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 10/23/15

Lab No: LFY-0196
Regulatory

Field: Neumin Production
H.C. Drew Manual Estate 15 #1
Calcasieu Parish Serial #225207

Attention: Mr. James Shiver

LELAP Certificate #01968


Soil Analysis

Location: Soil Production Area 6ft. depth
Sampled: 10/07/15 by J. Shiver

	Results	Limitations	Method	Analyst / Date
Soluble Salts & Cationic Distribution				
SAR (sodium adsorption ratio)	16	14' 12**	LADNR ¹	WM 10/16/15
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Soluble Anions & Cations – meq/L.				
Calcium	4.1	---	LADNR1	WM 10/16/15
Magnesium	1.7	---	LADNR1	WM 10/16/15
Sodium	27.3	---	LADNR1	WM 10/16/15

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Attest: 

**Commercial Maintenance Services
Neumin Production
H.C. Drew Manual Estate 15 #1
10/07/15**

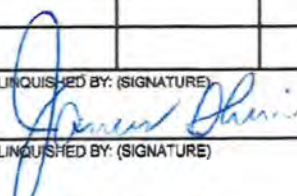

Quality Assurance / Quality Control Data

Parameter - units	Certified Value	Obtained Value	% Recovery	Acceptance Limits
pH - s.u.	11.00	10.44	95	90 - 110
Arsenic - mg/kg	123	85.9	70	50 - 110
Barium - mg/kg	393	327	83	65 - 110
Cadmium - mg/kg	78.6	62.6	80	60 - 110
Chromium - mg/kg	149	119	80	60 - 111
Copper - mg/kg	122	98.1	80	62 - 110
Lead - mg/kg	200	167	84	66 - 111
Mercury - mg/kg	10.4	9.06	87	85 - 115
Molybdenum - mg/kg	86.4	68.5	79	56 - 110
Nickel - mg/kg	116	92.7	80	58 - 110
Selenium - mg/kg	147	126	86	56 - 113
Silver - mg/kg	56.5	45.4	80	58 - 116
Zinc - mg/kg	259	215	83	59 - 110
Oil & Grease - mg/kg	1703	1309	77	37 - 139
Electrical Conductivity - μ mhos/cm	10.00	9.86	99	90 - 110
Calcium - mg/l	1.00	1.02	102	90 - 110
Magnesium - mg/l	1.00	1.04	104	90 - 110
Sodium - mg/l	1.02	1.05	103	90 - 110

Attest: 

Temp = 17°C

CHAIN OF CUSTODY RECORD

CONTRACTOR/COMPANY			PURCHASE ORDER#JOB#			CONTACT					
CLIENT/LEASE			SAMPLED BY:			HOURS	MILES	EXPENSES	RENTAL FEES		
LAB #	SAMPLE #	DATE	TIME	CELL NUMBER	HORIZON SAMPLED	#CONTAINERS	ANALYSIS REQUESTED				
LFY-0095		10-7-15	9:45	Soil	Production Area 4' depth	1	pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods				
LFY-0150		10-7-15	9:50	Soil	Production Area 5' depth	1	pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods				
LFY-0196		10-7-15	9:55	Soil	Production Area 6' depth	1	pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods				
LFY-0096		10-7-15	10:50	Soil	Zank Battery Area 3' depth	1	pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods				
		10-7-15	10:55	Soil	Zank Battery Area 4' depth	1	pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods				
		10-7-15	11:00	Soil	Zank Battery Area 5' depth	1	pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods				
LFY-0097		10-7-15	11:35	Soil	Back Ground 1' depth	2	pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods				
		10-7-15	11:40	Soil	Back Ground 2' depth	2	pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods				
		10-7-15	11:45	Soil	Back Ground 3' depth	2	pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods				
				Neumin Production H.C. Dewe Manuel Estate 15 #1 Calcasieu Parish Serial # 225207							
RELINQUISHED BY: (SIGNATURE)		DATE/TIME		RECEIVED BY: (SIGNATURE)		DATE/TIME		COMMENTS: All analysis to be performed in strict accordance with the most recent revised LADNR Laboratory Procedures for Analysis of Exploration & Production Waste. No other procedures are acceptable. Report to sba-tours@yahoo.com + doves.conter@yahoo.com Invoice ONLY to sba-tours@yahoo.com			
		10-7-15 13:40									
						10-7-15 13:40					

Sample Receipt Checklist

PLI Lab No:	LFY-0095, LFY-0096, LFY-0097, LFT-0150, LFY-0196	Received By:	R.F.			
Date / Time Received:	10/07/15 / 1340hrs.	Sample Matrix:	Soil			
Sample Arrived at Lab by: Sample Dropped off by Customer		Chilled: Yes				
Shipping container and/or bottles in good condition?					Yes	
Custody seals intact on shipping container?					NA	
Custody seals intact on sample bottles?					NA	
Chain of Custody form used?					Yes	
Chain of Custody agrees with sample identification?					Yes	
Chain of Custody has proper signatures upon receipt of samples?					Yes	
Samples in proper containers and proper preservatives used?					Yes	
Sufficient sample for analysis requested?					Yes	
Samples received within holding time?					Yes	
Bottle #	Sample ID	Analysis Requested	Temp °C	pH s.u.	Preservative Used	Lot Number
01	LFY-0095 LFY-0096 LFY-0097 LFY-0150 LFY-0196	29-B Parameters	17.0	N/A	None	---
Special Instructions:						

Subject: 11-12-15.CMS.Neumin.Manual.Clay.Prod.Pkg
From: Karen Roy (qaqc@petroleumlaboratories.com)
To: sba_tours@yahoo.com; daviesconst@yahoo.com;
Date: Thursday, December 3, 2015 2:19 PM

Attached is the report package for the soils sampled on 11-12-15.

Please contact me with any questions.

Thank-you

Karen F. Roy

Quality Manager

Petroleum Laboratories, Inc.

333 E. Kaliste Saloom Road

Lafayette, LA 70508

Phone: 337-234-7414

qaqc@petroleumlaboratories.com

Attachments

- email.CMS.Neumin.Manual.Clay.Prod.11-12-15.pdf (518.36KB)

Report To: Commercial Maintenance Services 145 Rambling Road Ville Platte, LA 70586 Attn: Mr. James Shiver	Report Date: 12/01/15 Lab Number: LFZ-0206 thru LFZ-0209 Description of Services: Soil Analysis Sample Identification: Neumin Production H.C. Drew Manual Estate 15 #1 Calcasieu Parish Serial #225207 Sample Matrix: Soil
---	---

Case Narrative

On, 11/12/15, four samples were submitted for analysis. These samples were analyzed according to LADNR Laboratory Procedures for Analysis of Exploration & Production Waste. Results for these samples can be found on the following pages.

A portion of each sample was subcontracted to Petroleum Laboratories, Inc. (Houma, LA). LELAP Certificate No.: 01969.

Should you have any questions concerning your results, please do not hesitate to contact us.

The results of these analyses are only representative of the sample(s) submitted for analysis

Thank you for allowing Petroleum Laboratories to be of service to you.

Total Number of pages in this report: 8

Attest: David F. Roy

LELAP Certification Number: 01968

PETROLEUM LABORATORIES, INC.

333 East Kaliste Saloom Road
Lafayette, Louisiana 70508
337-234-7414

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 12/01/15

Lab No: LFZ-0206
Regulatory

Field: Neumin Production
H.C. Drew Manual Estate 15 #1
Calcasieu Parish Serial #225207

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: Clay Wellhead Area 8ft. depth
Sampled: 11/12/15 by J. Shiver

	Results	Limitations	Method	Analyst / Date
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) – mmhos/cm	1	8* 4**	LADNR ¹	SR 11/17/15
SAR (sodium adsorption ratio)	2	14* 12**	LADNR ¹	BO 11/19/15
ESP (exchangeable sodium percentage)	2	25* 15**	LADNR ¹	BO 11/19/15
Soluble Anions & Cations² – meq/L				
Calcium	1.3	---	LADNR1	BO 11/19/15
Magnesium	0.7	---	LADNR1	BO 11/19/15
Sodium	2.1	---	LADNR1	BO 11/19/15

*Submerged Wetland Area; Elevated Wetland Area
**Upland Area

¹LADNR Lab Procedures for Analysis of E & P Waste.

²Subcontracted to Petroleum Laboratories, Inc. (Houma, LA). LELAP Certificate No.: 01969.

Attest:

James F. Roy

PETROLEUM LABORATORIES, INC.

333 East Kaliste Saloom Road
Lafayette, Louisiana 70508
337-234-7414

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 12/01/15

Lab No: LFZ-0207
Regulatory

Field: Neumin Production
H.C. Drew Manual Estate 15 #1
Calcasieu Parish Serial #225207

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: Clay Production Area "A" 8ft. depth
Sampled: 11/12/15 by J. Shiver

	Results	Limitations	Method	Analyst / Date
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) – mmhos/cm	10	8* 4**	LADNR ¹	SR 11/17/15
SAR (sodium adsorption ratio)	16	14* 12**	LADNR ¹	BO 11/19/15
ESP (exchangeable sodium percentage)	19	25* 15**	LADNR ¹	BO 11/19/15
Soluble Anions & Cations² – meq/L				
Calcium	3.6	---	LADNR ¹	BO 11/19/15
Magnesium	1.5	---	LADNR ¹	BO 11/19/15
Sodium	25.9	---	LADNR ¹	BO 11/19/15

*Submerged Wetland Area; Elevated Wetland Area
**Upland Area

¹LADNR Lab Procedures for Analysis of E & P Waste.

²Subcontracted to Petroleum Laboratories, Inc. (Houma, LA). LELAP Certificate No.: 01969.

Attest:

Karel F. Roy

PETROLEUM LABORATORIES, INC.

333 East Kalliste Saloom Road
Lafayette, Louisiana 70508
337-234-7414

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 12/01/15

Lab No: LFZ-0208
Regulatory

Field: Neumin Production
H.C. Drew Manual Estate 15 #1
Calcasieu Parish Serial #225207

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: Clay Production Area "B" 8ft. depth
Sampled: 11/12/15 by J. Shiver

	Results	Limitations	Method	Analyst / Date
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) – mmhos/cm	4	8* 4**	LADNR ¹	SR 11/17/15
SAR (sodium adsorption ratio)	6	14* 12**	LADNR ¹	BO 11/19/15
ESP (exchangeable sodium percentage)	7	25* 15**	LADNR ¹	BO 11/19/15
Soluble Anions & Cations² – meq/L.				
Calcium	4.3	---	LADNR1	BO 11/19/15
Magnesium	2.6	---	LADNR1	BO 11/19/15
Sodium	10.5	---	LADNR1	BO 11/19/15

*Submerged Wetland Area; Elevated Wetland Area
**Upland Area

¹LADNR Lab Procedures for Analysis of E & P Waste.

²Subcontracted to Petroleum Laboratories, Inc. (Houma, LA). LELAP Certificate No.: 01969.

Attest:

Kathy Roy

PETROLEUM LABORATORIES, INC.

333 East Kaliste Saloom Road
Lafayette, Louisiana 70508
337-234-7414

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 12/01/15

Lab No: LFZ-0209
Regulatory

Field: Neumin Production
H.C. Drew Manual Estate 15 #1
Calcasieu Parish Serial #225207

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: Clay Production Area "C" 8ft. depth
Sampled: 11/12/15 by J. Shiver

	Results	Limitations	Method	Analyst / Date
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) – mmhos/cm	7	8* 4**	LADNR ¹	SR 11/17/15
SAR (sodium adsorption ratio)	18	14* 12**	LADNR ¹	BO 11/19/15
ESP (exchangeable sodium percentage)	20	25* 15**	LADNR ¹	BO 11/19/15
Soluble Anions & Cations² – meq/L				
Calcium	4.9	---	LADNR ¹	BO 11/19/15
Magnesium	2.5	---	LADNR ¹	BO 11/19/15
Sodium	33.6	---	LADNR ¹	BO 11/19/15

*Submerged Wetland Area; Elevated Wetland Area
**Upland Area

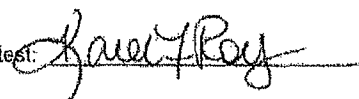
¹LADNR Lab Procedures for Analysis of E & P Waste.

²Subcontracted to Petroleum Laboratories, Inc. (Houma, LA). LELAP Certificate No.: 01968.

**Commercial Maintenance Services
Neumin Production
H.C. Drew Manual Estate 15 #1
11/12/15**

Quality Assurance / Quality Control Data

Parameter - units	Certified Value	Obtained Value	% Recovery	Acceptance Limits
Electrical Conductivity - μ mhos/cm	10.0	9.98	100	90 - 110
Calcium - mg/l	50.0	50.7	101	90 - 110
Magnesium - mg/l	50.0	49.8	99	90 - 110
Sodium - mg/l	50.0	49.9	100	90 - 110

Attest: 

CHAIN OF CUSTODY RECORD

16c

CONTRACTOR/COMPANY		PURCHASE ORDER# / JOB#		CONTACT			
CLIENT/LEASE		SAMPLED BY:		HOURS	MILES	EXPENSES	RENTAL FEES
LAB #	SAMPLE #	DATE	TIME	CELL NUMBER	HORIZON SAMPLED	#CONTAINERS	ANALYSIS REQUESTED
Commercial Marine Service							
Neurmin Production		James Shin					
		11-12-15	9:50	Clay Willheadam 7' depth		1	pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods
LFZ-0206		11-12-15	10:10	Clay Willheadam 8' depth		1	pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods
		11-12-15	10:20	Clay Production Area A 7' depth		1	pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods
LFZ-0207		11-12-15	10:32	Clay Production Area A 8' depth		1	pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods
		11-12-15	10:45	Clay Production Area B 7' depth		1	pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods
LFZ-0208		11-12-15	10:56	Clay Production Area B 8' depth		1	pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods
		11-12-15	11:10	Clay Production Area C 7' depth		1	pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods
LFZ-0209		11-12-15	11:28	Clay Production Area C 8' depth		1	pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods
				Neurmin Production H C Drew Manuel Estate 15 # 1 Calcasieu Parish Serial # 225207			pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods
							pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods
							pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods
							pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods
							pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods
							pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods
							pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods
							pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods
							pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods
							pH, EC, SAR, ESP, CEC, TPH, As, Ba, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn Na, Ca, Mg, CO ₂ , HCO ₃ , Cl, SO ₄ all per LADNR approved lab methods
RELINQUISHED BY: (SIGNATURE)		DATE/TIME	RECEIVED BY: (SIGNATURE)	DATE/TIME	COMMENTS: All analysis to be performed in strict accordance with the most recent revised LADNR Laboratory Procedures for Analysis of Exploration & Production Waste. No other procedures are acceptable.		
RELINQUISHED BY: (SIGNATURE)		DATE/TIME	RECEIVED BY: (SIGNATURE)	DATE/TIME			
RELINQUISHED BY: (SIGNATURE)		DATE/TIME	RECEIVED BY: (SIGNATURE)	DATE/TIME			

Sample Receipt Checklist

PLI Lab No: LFZ-0206 thru LFZ-0209		Received By: K.H.				
Date / Time Received: 11/12/15 / 1340hrs.		Sample Matrix: Soil				
Sample Arrived at Lab by: Sample Dropped off by Customer		Chilled: Yes				
Shipping container and/or bottles in good condition?			Yes			
Custody seals intact on shipping container?			NA			
Custody seals intact on sample bottles?			NA			
Chain of Custody form used?			Yes			
Chain of Custody agrees with sample identification?			Yes			
Chain of Custody has proper signatures upon receipt of samples?			Yes			
Samples in proper containers and proper preservatives used?			Yes			
Sufficient sample for analysis requested?			Yes			
Samples received within holding time?			Yes			
Samples received on ice?			No			
IR Temperature Gun Serial # 140038128			Yes			
Bottle #	Sample ID	Analysis Requested	Temp °C	pH s.u.	Preservative Used	Lot Number
01	LFZ-0206 thru LFZ-0209	29-B Parameters	16.0	N/A	None	---
Special Instructions:						

Jeffrey Hermes/FTNMSF

From: James McIntire <jimcintire@Reagan.com>
Sent: Wednesday, April 20, 2016 3:48 PM
To: Blaine Johnson
Cc: Jeffrey Hermes/FTNMSF; Dean Johnstone/NMCSF
Subject: Neumin HC Drew Manual Estate #15-1
Attachments: email.CMS.Neumin.Manuel.Estate15#1.04-04-16.pdf

Blaine,
Attached is a copy of the lab report on the samples pulled in the Drew Manuel #15-1 production area (10' & 12' samples) on 4/4/2016.

Thanks,
James

James McIntire
Cell: 281-455-2662

Report To: Commercial Maintenance Services 145 Rambling Road Ville Platte, LA 70586 Attn: Mr. James Shiver	Report Date: 04/20/16 Lab Number: LGE-0038, LGE-0039 LGE-0040 LGE-0190 and LGE-0191 Description of Services: Soil Analysis Sample Identification: Neumin Production H.C. Drew Manuel Estate 15 #1 Calcasieu Parish Sample Matrix: Soil
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Case Narrative

On, 04/04/16, six samples were submitted. Only five samples were requested for analysis. These samples were analyzed according to LADNR Laboratory Procedures for Analysis of Exploration & Production Waste. Results for these samples can be found on the following pages.

Samples were dried at 105°C due to the matrix of the samples. Samples submitted are treatment zone material / sludge.

Should you have any questions concerning your results, please do not hesitate to contact us.

The results of these analyses are only representative of the sample(s) submitted for analysis

Thank you for allowing Petroleum Laboratories to be of service to you.

Total Number of pages in this report: 9

Attest: Karel F. Roy

LELAP Certification Number: 01968

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Report Date: 02/01/16 Lab No: LGE-0038
Regulatory

Location: Neumin Production
H.C. Drew Manuel Estate 15 #1
Calcasieu Parish

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: PA #1 10ft. depth
Sampled: 04/04/16 by J. Shiver

Parameter -- units	Results	Limitations	Method	Analyst / Date
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) -- mmhos/cm	4	10	LADNR ¹	WM 04/08/16
SAR (sodium adsorption ratio)	17	12	LADNR ¹	WM 04/11/16
ESP (exchangeable sodium percentage)	19	15	LADNR ¹	WM 04/11/16
Soluble Anions & Cations - meq/L				
Calcium	0.8	---	LADNR ¹	WM 04/11/16
Magnesium	0.7	---	LADNR ¹	WM 04/11/16
Sodium	14.3	---	LADNR ¹	WM 04/11/16

¹LADNR Lab Procedures for Analysis of E & P Waste.

Attest: 

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Report Date: 02/01/16 Lab No: LGE-0039
Regulatory

Location: Neumin Production
H.C. Drew Manuel Estate 15 #1
Calcasieu Parish

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: PA #2 10ft. depth
Sampled: 04/04/16 by J. Shiver

Parameter – units	Results	Limitations	Method	Analyst / Date
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) – mmhos/cm	6	10	LADNR ¹	WM 04/08/16
SAR (sodium adsorption ratio)	8	12	LADNR ¹	WM 04/11/16
ESP (exchangeable sodium percentage)	10	15	LADNR ¹	WM 04/11/16
Soluble Anions & Cations – meq/L				
Calcium	7.6	---	LADNR ¹	WM 04/11/16
Magnesium	5.2	---	LADNR ¹	WM 04/11/16
Sodium	20.5	---	LADNR ¹	WM 04/11/16

¹LADNR Lab Procedures for Analysis of E & P Waste.

Attest: 

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Report Date: 02/01/16

Lab No: LGE-0040
Regulatory

Location: Neumin Production
H.C. Drew Manuel Estate 15 #1
Calcasieu Parish

Attention: Mr. James Shiver

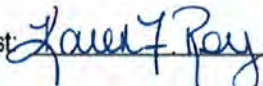
LELAP Certificate #01968

Soil Analysis

Location: PA #3 10ft. depth
Sampled: 04/04/16 by J. Shiver

Parameter – units	Results	Limitations	Method	Analyst / Date
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) – mmhos/cm	2	10	LADNR ¹	WM 04/08/16
SAR (sodium adsorption ratio)	3	12	LADNR ¹	WM 04/11/16
ESP (exchangeable sodium percentage)	3	15	LADNR ¹	WM 04/11/16
Soluble Anions & Cations – meq/L				
Calcium	2.6	---	LADNR ¹	WM 04/11/16
Magnesium	1.7	---	LADNR ¹	WM 04/11/16
Sodium	3.8	---	LADNR ¹	WM 04/11/16

¹LADNR Lab Procedures for Analysis of E & P Waste.

Attest:  _____

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Report Date: 02/01/16

Lab No: LGE-0190
Regulatory

Location: Neumin Production
H.C. Drew Manuel Estate 15 #1
Calcasieu Parish

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: PA #1 12ft. depth
Sampled: 04/04/16 by J. Shiver

Parameter – units	Results	Limitations	Method	Analyst / Date
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) – mmhos/cm	8	10	LADNR ¹	WM 04/08/16
SAR (sodium adsorption ratio)	14	12	LADNR ¹	WM 04/11/16
ESP (exchangeable sodium percentage)	16	15	LADNR ¹	WM 04/11/16
Soluble Anions & Cations – meq/L				
Calcium	3.0	---	LADNR ¹	WM 04/11/16
Magnesium	1.5	---	LADNR ¹	WM 04/11/16
Sodium	21.4	---	LADNR ¹	WM 04/11/16

¹LADNR Lab Procedures for Analysis of E & P Waste.

Attest: 

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Report Date: 02/01/16 Lab No: LGE-0191
Regulatory

Location: Neumin Production
H.C. Drew Manuel Estate 15 #1
Calcasieu Parish

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: PA #2 12ft. depth
Sampled: 04/04/16 by J. Shiver

Parameter – units	Results	Limitations	Method	Analyst / Date
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) – mmhos/cm	5	10	LADNR ¹	WM 04/08/16
SAR (sodium adsorption ratio)	4	12	LADNR ¹	WM 04/11/16
ESP (exchangeable sodium percentage)	5	15	LADNR ¹	WM 04/11/16
Soluble Anions & Cations – meq/L				
Calcium	10.0	---	LADNR ¹	WM 04/11/16
Magnesium	6.8	---	LADNR ¹	WM 04/11/16
Sodium	11.9	---	LADNR ¹	WM 04/11/16

¹LADNR Lab Procedures for Analysis of E & P Waste.

Attest: 

**Commercial Maintenance Services
Neumin Production
H.C. Drew Manuel Estate 15 #1
Calcasieu Parish
04/04/16**

Quality Assurance / Quality Control Data

Parameter - units	Certified Value	Obtained Value	% Recovery	Acceptance Limits
Electrical Conductivity – μ mhos/cm	10.1	9.52	94	90 – 110
Calcium – mg/l	1.00	1.01	101	90 – 110
Magnesium – mg/l	1.00	1.02	102	90 – 110
Sodium – mg/l	1.02	1.00	102	90 – 110

Attest: 

109 Cleveland Street
Houma, LA 70363
(985) 868-4820

PETROLEUM LABORATORIES, INC.
CHAIN OF CUSTODY

Neomin Production
HC Draw Manual Estate 15th
Alcusa Faust
333 E. Kaliste Saloom Rd.
Lafayette, LA 70508
(337) 234-7414

Company <i>Commercial/Industrial Service</i>				Matrix	Bottle	Size	Preservation	Analysis Requested				FOR OFFICE USE ONLY		
Phone Number <i>337-654-4137</i>				W = Water SL = Sludge S = Soil O = Other				Number of Containers	P = Plastic G = Glass	1 = 1 Liter 4 = 4 oz. 6 = 6 oz. 8 = 8 oz. 16 = 16 oz.	0 = None 1 = Hydrochloric 2 = Nitric 3 = Sulfuric 4 = Phosphoric	<i>EC, SAR, ESP</i>	CONDITION OF SAMPLES UPON RECEIPT AT LAB	
Field / Sample Point <i>Neomin Production</i>					Regulatory <input type="checkbox"/> Non-Regulatory <input type="checkbox"/>	PLI LAB NUMBER	pH - s.u.						Temp - °C	
Sample		Comp	Grab	Sample Location / Identification										
Date	Time													
<i>4/4/16</i>	<i>12:13</i>			<i>PA#1 Soil 10'</i>							<i>✓</i>		<i>LGE-0038</i>	<i>30°C</i>
<i>4/4/16</i>	<i>12:18</i>			<i>PA#1 Soil 10'</i>							<i>✓</i>		<i>LGE-0190</i>	
<i>4/4/16</i>	<i>11:52</i>			<i>PA#2 Soil 10'</i>							<i>✓</i>		<i>LGE-0039</i>	
<i>4/4/16</i>	<i>11:57</i>			<i>PA#2 Soil 12'</i>							<i>✓</i>		<i>LGE-0191</i>	
<i>4/4/16</i>	<i>11:25</i>			<i>PA#3 Soil 10'</i>							<i>✓</i>		<i>LGE-0040</i>	
<i>4/4/16</i>	<i>11:30</i>			<i>PA#4 Soil 10'</i>							<i>✓</i>			
Sampler (s) (Print) <i>John Davis</i>				1. Relinquished By: <i>John Davis</i>		Date: <i>4/4/16</i>	Time: <i>1:20</i>	2. Received By: <i>[Signature]</i>		Date: <i>4-4-16</i>	Time: <i>1420</i>			
				3. Relinquished By:		Date:	Time:	4. Received By:		Date:	Time:			
				5. Relinquished By: <i>[Signature]</i>		Date: <i>4-4-16</i>	Time: <i>15:25</i>	6. Received for Laboratory: <i>[Signature]</i>		Date: <i>4-4-16</i>	Time: <i>1625</i>			
Turn-Around Time Normal Service <input type="checkbox"/> 3 - 5 Days Rush Service <input type="checkbox"/> 24 Hrs <input type="checkbox"/> 48 Hrs				Data Results To:		Invoice To:		Sample Remarks: <i>run 10' first if fail run 12'</i>						

Sample Receipt Checklist

PLI Lab No:	LGE-0038, LGE-0039, LGE-0040 LGE-0190, and LGE-0191	Received By:	W.M.			
Date / Time Received:	04/04/16 / 1625hrs.	Sample Matrix:	Soil			
Sample Arrived at Lab by: Sampled / Delivered by Client		Chilled: Yes				
Shipping container and/or bottles in good condition?					Yes	
Custody seals intact on shipping container?					NA	
Custody seals intact on sample bottles?					NA	
Chain of Custody form used?					Yes	
Chain of Custody agrees with sample identification?					Yes	
Chain of Custody has proper signatures upon receipt of samples?					Yes	
Samples in proper containers and proper preservatives used?					Yes	
Sufficient sample for analysis requested?					Yes	
Samples received within holding time?					Yes	
Samples received on ice?					Yes	
IR Temperature Gun Serial # 151849812					Yes	
Bottle #	Sample ID	Analysis Requested	Temp °C	pH s.u.	Preservative Used	Lot Number
01	LGE-0038 LGE-0039 LGE-0040 LGE-0190 LGE-0191	EC, SAR, ESP	30	N/A	None	---
Special Instructions:						

SCOFIELD, GERARD, POHORELSKY, GALLAUGHER & LANDRY

ATTORNEYS AT LAW
A LIMITED LIABILITY COMPANY
POST OFFICE DRAWER 3028
LAKE CHARLES, LOUISIANA 70602

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KEVIN P. FONTENOT
PETER J. POHORELSKY
ANDREA ALBRIGHT CRAWFORD

May 10, 2017

JOHN B. SCOFIELD *Emeritus*
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Of Counsel

Jeff Hermes
Neumin Production Co.
P.O. Box 769
103 Fannin Road
Point Comfort, TX 77978

James McIntire
Neumin Production Co.
P.O. Box 769
103 Fannin Road
Point Comfort, TX 77978

Re: HC Drew Manual Estate "15" No.1

Dear Sirs:

The attached response from Acadian Engineers & Environmental Consultants, Inc. ("*Acadian*") makes it clear that Acadian needs to revisit the data from sampling conducted by Davies Construction L.L.C. ("*Davies*") on October 7, 2015 and its own work for the following reasons:

1. Acadian has not defined the vertical and lateral extent of contamination. Their borings and samples together with those by Davies still do not reveal the horizontal and vertical limits of the contamination in the area. That must be done.
2. Acadian's reports did not include the soil contamination results from Davies' sampling. As a result, their maps of the impacted areas are incorrect and it is not clear from the text of Acadian's reports that they understand that the contaminated soil identified by Davies' samples is still present.

SCOFIELD, GERARD, POHORELSKY, GALLAUGHER & LANDRY

Mssrs. Hermes and McIntire

May 10, 2017

Page 2

- a. Acadian is correct in its April 6, 2017 letter to be critical of Davies' sampling method, but that method did not yield "false positives" or false elevated levels of oilfield waste. Those waste constituents were there during Davies' sampling previously and during Acadian's sampling.
- b. On page 1, Acadian says that "characterization of the site in its current (November and December 2016) [condition] was considered paramount based upon sampling protocol". We agree with that statement, but the sampling and report did not characterize the site in its current condition since it failed to include the Davies sampling and did not define the physical limits of the contamination.
- c. On page 2, Acadian says that "Acadian's soil sampling was targeted to define the existing limits of exploration and production waste." The waste previously found there was still "existing" during Acadian's sampling so if "characterization of the site in its current (November and December 2016) [condition] was considered paramount based upon sampling protocol". the results of Davies' sampling should have been included in Acadian's report.
- d. On page 2, Acadian says that "The latest site characterization provides the extent of the COC's of the site at the time of the latest field investigation. The site characterization provides the most recent limits of subsurface impact." These statements are totally inaccurate which makes us believe that Acadian thinks that the contamination reported by Davies was dug up and hauled away.

SCOFIELD, GERARD, POHORELSKY, GALLAUGHER & LANDRY

Mssrs. Hermes and McIntire
May 10, 2017
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- e. On page 2, Acadian says the “actual horizontal limits of impact . . . is ultimately determined through final site verification performed during corrective action.” That is true but Acadian does not have a clear enough understanding of the extent of contamination at this point.
 3. As to groundwater:
 - a. On page 2, Acadian says that shallow groundwater contamination is below the 29B standard. That is incorrect for the reasons explained in Austin Arabie’s letter of March 27, 2017 and will not be repeated here, but that is irrelevant since what Acadian found is not “background” or original condition and that is the standard to be achieved. We need confirmation that it is agreed that the 29B standard is not the standard to be achieved by Neumin.
 - b. Acadian says several things regarding remediation of groundwater with no “conclusion” in that regard other than “Determination of E&P waste in background groundwater and soils appears to be paramount at this juncture.” We assume but need confirmation that Acadian does not really mean that it has to determine if E&P waste is present in background groundwater, because if there is E&P waste in it, then it isn’t background. We also assume but need confirmation that Acadian did not intend to include soil in that statement as we believe we have agreed upon a soil background, which Acadian has referred to as “estate threshold” for each parameter.
 4. It is important that the extent of contamination is better understood prior to commencing cleanup. We discussed several reasons for this, such as Neumin having the scope of the contamination in order to obtain accurate bids and to execute a good contract with a cleanup contractor. Additionally, if a cleanup contractor starts excavating the soil without a good idea of the full extent of contamination, HC Drew Estate will be forced to have someone monitor the work on an almost continuous basis at Neumin’s expense. If the extent of

SCOFIELD, GERARD, POHORELSKY, GALLAUGHER & LANDRY

Mssrs. Hermes and McIntire
May 10, 2017
Page 4

contamination is known prior to excavation, then third party monitoring could be greatly reduced.

5. In their next to last paragraph of the April 6, 2017 response, Acadian states that "background" concentrations need to be determined in soils and groundwater. It is my opinion that the soil samples that we have previously agreed upon as a baseline or background are acceptable. I don't believe any additional soil background samples are necessary nor would they benefit Neumin. The background sample was collected by James Shiver on October 7, 2015 (copy of Petroleum Laboratories' analysis enclosed). Also enclosed and identified as "Arabie Sample Location Map" is the map of the sampling prior to August 15, 2016. Also enclosed and identified as "Arabie Soil Sample Data" is a table prepared by Austin Arabie on August 15, 2016, but all samples were collected by others, not Arabie, and not on August 15, 2016. James Shiver's October 7, 2015 sample is the first sample listed on that table. Austin Arabie's email to you of October 29, 2015 (enclosed) sets forth the closure standards previously established. The background sample in this instance may actually be biased high, or said another way, true background is likely to be less than this sample indicated, but my client is willing to accept it in an effort to bring this to a conclusion.
6. However, background concentrations for groundwater have not been established and needs to be done. In their previous groundwater sampling, Acadian analyzed for metals and general chemistry parameters. Those same parameters should be selected for background analysis.
7. After determining background concentrations for groundwater, the full extent of the contaminated groundwater plume should be determined by Neumin.

As I have stated previously, H.C. Drew Estate wants the clean up to commence immediately but the scope of the work must be properly defined before work commences. If it is not, bids received will be open to renegotiation while work is in progress and the work will have to be overseen by my client's consultants on a routine basis which will unnecessarily increase the cost to Neumin. If Neumin accepts the results of the October 2015 sample as background, then it needs to define the area of contaminated soil that exceeds those levels. That means drilling

SCOFIELD, GERARD, POHORELSKY, GALLAUGHER & LANDRY

Mssrs. Hermes and McIntire

May 10, 2017

Page 5

borings around the area of known exceedances to determine how far out the contaminants reach. In each area they need to bore and sample to a depth, to where background concentrations are found. Please advise how Neumin intends to proceed.

Sincerely,



JOHN R. POHORELSKY

JRP/jmf

Enclosures

cc: H. C. Drew
Austin Arabia

PETROLEUM LABORATORIES, INC.

333 East Kaliste Saloom Road
Lafayette, Louisiana 70508
337-234-7414

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 10/23/15

Lab No: LFY-0097
Regulatory

Field: Nemium Production
H.C.Drew Manuel Estate 15 #1
Calcasieu Parish Serial #225207

Attention: Mr. James Shiver

LELAP Certificate #01968

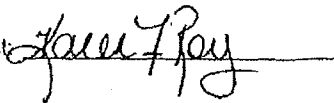
Soil Analysis

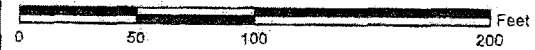
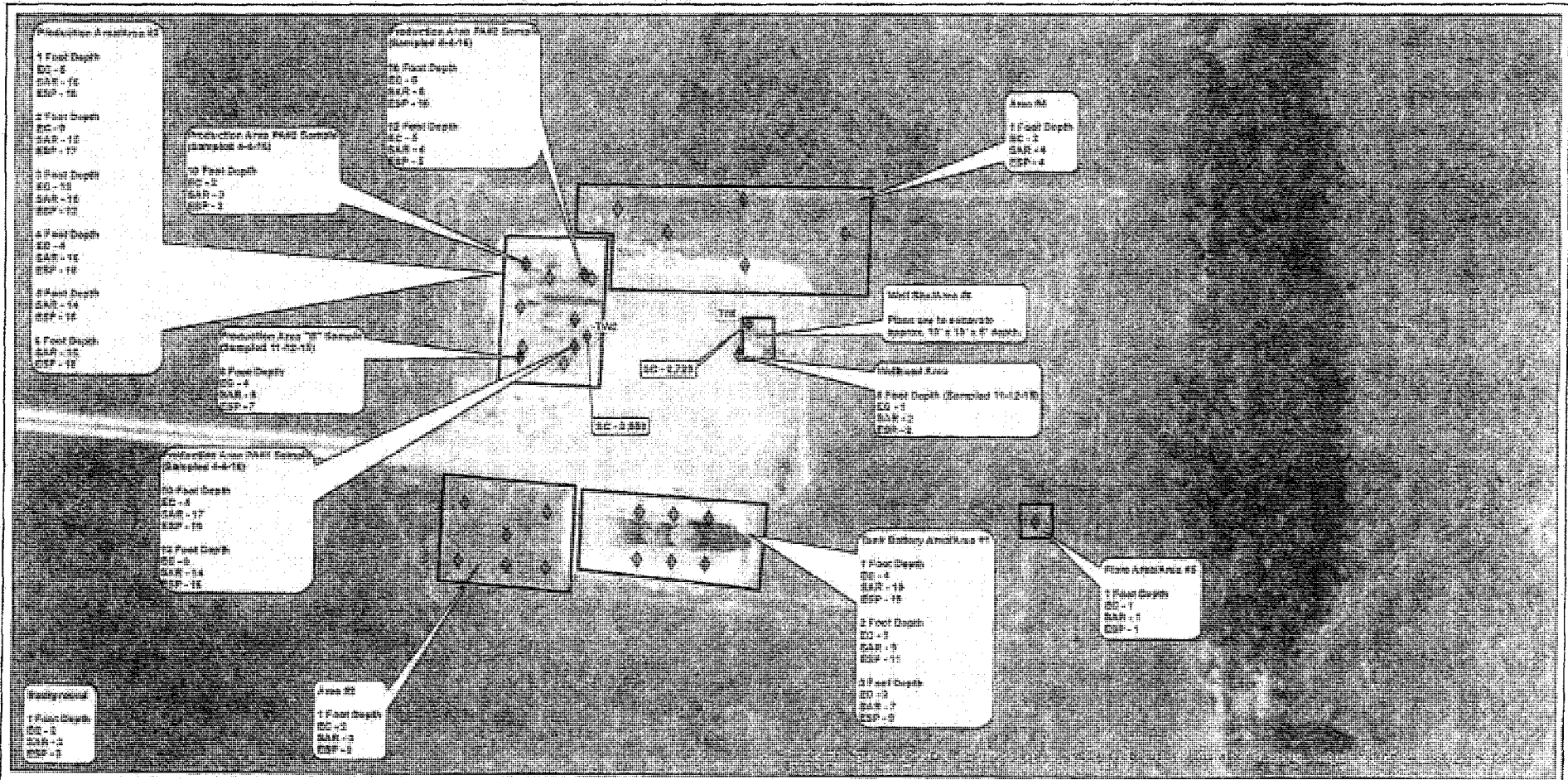
Location: Soil Background 1ft.depth
Sampled: 10/07/15 by J. Shiver

Parameters - units	Results	Limitations	Method	Analyst / Date
pH - s.u.	5.315	6.0 - 9.0	SW 846 9045C	SR 10/08/15
Total Metals Content - mg/kg				
Arsenic	0.778	10	SW 846 6010B	WM 10/16/15
Barium, true total	785	20,000' 40,000"	LADNR ¹	WM 10/16/15
Cadmium	<0.150	10	SW 846 6010B	WM 10/16/15
Chromium	4.85	500	SW 846 6010B	WM 10/16/15
Copper	0.626	---	SW 846 6010B	WM 10/16/15
Lead	9.33	500	SW 846 6010B	WM 10/16/15
Mercury	0.0051	10	SW 846 7471A	SR 10/19/15
Molybdenum	<0.150	---	SW 846 6010B	WM 10/16/15
Nickel	1.70	---	SW 846 6010B	WM 10/16/15
Selenium	0.335	10	SW 846 6010B	WM 10/16/15
Silver	0.591	200	SW 846 6010B	WM 10/16/15
Zinc	4.27	500	SW 846 6010B	WM 10/16/15
Oil & Grease - % dry weight	0.0417	1.0	SW 846 9071B	WM 10/12/15
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) - mmhos/cm	2	8' 4"	LADNR ¹	WM 10/09/15
SAR (sodium adsorption ratio)	3	14' 12"	LADNR ¹	WM 10/09/15
ESP (exchangeable sodium percentage)	3	25' 15"	LADNR ¹	WM 10/13/15
CEC (cation exchange capacity) - meq/100g	10	---	LADNR ¹	WM 10/13/15

¹Submerged Wetland Area; Elevated Wetland Area
²Upland Area

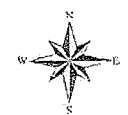
LADNR Lab Procedures for Analysis of E & P Waste.

Attest: 



- ◆ Approximate Composite Sample Location
- ◆ Approximate Grab Sample Location

Note: 29-B limits for Uplands
 EC - 4
 SAR - 12
 ESP - 15



ARABIE ENVIRONMENTAL SOLUTIONS

SAMPLE LOCATION MAP

H.C. DREW ESTATE 15 #1
 NEUMIN PRODUCTION
 CARLYSS, LOUISIANA

Drawn By: JJK	Checked By: CD
Date: 08/20/10	Project No.: 11297

**SOIL SAMPLE DATA SUMMARY
H.C. DREW ESTATE
CALCASIEU PARISH, LOUISIANA**

Sample ID	Sample Date	Sample Interval (Ft. BGS)	Laboratory Results		
			Electrical Conductivity (mmhos/cm)	Sodium Adsorption Ratio	Exchangeable Sodium Percentage
Comparative Standard:		29-B	4	12	15%
		Background	2	4	4%
Background Area					
Background	10/7/2015	1	2	3	3
Tank Battery Area / Area #1					
Area 1	9/2/2015	1	4	19	19
		2	3	9	11
	10/7/2015	3	2	7	9
Production Area / Area #2					
Area 2	9/2/2015	1	6	16	16
		2	9	15	17
	9/24/2015	3	13	10	12
		4	4	16	18
	10/23/2015	5	NA	14	16
		6	NA	16	18
B	11/12/2015	8	4	6	7
PA #1	4/4/2016	10	4	17	19
		12	8	14	16
PA #2	4/4/2016	10	6	8	10
		12	5	4	5
PA #3	4/4/2016	10	2	3	3
Area #3					
Area #3	9/24/2015	1	2	3	3
Area #4					
Area #4	9/24/2015	1	2	4	4
Flare Area / Area #5					
Flare Area / Area #5	9/24/2015	1	1	1	1
Well Site / Area #6					
Well Site / Area #6	11/12/2015	8	1	2	2

Notes:

Ft. BGS = Feet Below Ground Surface

mmhos/cm = millimhos per centimeter

NA = Not Analyzed;

29-B = Louisiana Department of Natural Resources Office of Conservation Order 29-B

Concentrations **bolded** where detected above regulatory comparative standard

Concentrations **shaded** where detected above background comparative standard

Austin Arabie

From: Austin Arabie
Sent: Tuesday, November 10, 2015 2:38 PM
To: 'Jeffrey Hermes/FTNMSF'; beaubarbe@yahoo.com
Cc: James McIntire/NMCSF; Richard Garcia/FTNMSF; Dean Johnstone/NMCSF; Blaine Johnson
Subject: RE: HC Drew Manual Estate "15" No. 1

Mr. Hermes, I have had the opportunity to review the laboratory results that were included in your Nov. 3, 2015 email. We appreciate you providing those reports. With that data, it still appears that at least one area of the property does not conform with Order 29-B or with the lease requirement of "removal of all contaminants." The samples collected from the 4 foot depth at the Production Area (Area #2) were reported as EC-4, which is slightly greater than Order 29-B standard of "less than 4"), and both the SAR and ESP were greater than the 29-B standard. We requested additional analysis of deeper samples that were collected and the results provided to us did not include EC and the SAR and ESP results were still greater than 29-B and of course greater than the expected background conditions.

Please keep us advised on any plans for additional analysis or sampling efforts.

Sincerely,

Austin Arabie

From: Jeffrey Hermes/FTNMSF [mailto:JHermes@ftpc.fpcusa.com]
Sent: Tuesday, November 03, 2015 1:26 PM
To: Austin Arabie; beaubarbe@yahoo.com
Cc: James McIntire/NMCSF; Richard Garcia/FTNMSF; Dean Johnstone/NMCSF; Blaine Johnson
Subject: RE: HC Drew Manual Estate "15" No. 1

Mr. Arabie,
Please find attached the lab results of the soil sampling done on October 7, 2015.
Thanks,
Jeff

From: Austin Arabie [mailto:aarabie@arabie-env.com]
Sent: Wednesday, October 28, 2015 4:26 PM
To: Jeffrey Hermes/FTNMSF; beaubarbe@yahoo.com
Cc: James McIntire/NMCSF; Richard Garcia/FTNMSF; Dean Johnstone/NMCSF; Blaine Johnson
Subject: RE: HC Drew Manual Estate "15" No. 1

Mr. Hermes:

Blaine Johnson (Engineer with Arabie Environmental) and I met with Beau Barbe (H.C. Drew Estate) today to discuss the status of the well site closure. According to the lease, the site is to be closed by "removing all contaminants including removal and replacement of all contaminated soil." Arabie Environmental did not have access to pre-site development soil data, so we used recently collected on site sample data and our experience in reviewing thousands of soil samples to establish a closure standard for the site. The standards we established are expected to be less limiting than true background samples. The closure standards that we established are EC 2mmhos/cm, SAR of 4, and ESP 4%. Three samples collected on the site on behalf of Neumin were at or below those standards. An additional "background" sample collected off of the well site on behalf of Neumin was below those standards. From those four samples, we can conclude that the clean up standards are not overly restrictive.

As of today, the areas that remain in question are the Tank Battery (Area 1) and the Production Area (Area 2). At the Tank Battery, samples down to three feet have exceeded the clean up standard for two or more of the parameters. At the Production Area, sample data from as deep as 6 feet indicate not only exceedances of the clean up standard but exceedances of 29B. As noted in Mr. Johnson's email of October 20, 2015, it is our understanding that samples were collected from greater depths at both of those areas but the analytical results have not been provided to us.

In summary,

- 1) the lease agreement requires removal of all contaminants and contaminated soil,
- 2) the off site background sample and several on site samples provide the baseline for each parameter
- 3) Samples collected beneath the tank battery exceed the established standard, deeper samples collected but data not provided
- 4) Samples collected beneath the production area exceed the established standard and 29B standards, deeper samples collected but data not provided

Please provide laboratory results for all the soil samples collected to date.

Sincerely

Austin Arabie

From: Jeffrey Hermes/FTNMSF [<mailto:JHermes@ftpc.fpcusa.com>]
Sent: Thursday, October 22, 2015 2:14 PM
To: Austin Arabie; beaubarbe@yahoo.com
Cc: James McIntire/NMCSF; Richard Garcia/FTNMSF; Dean Johnstone/NMCSF
Subject: FW: HC Drew Manual Estate "15" No. 1

Mr. Arabie,

Neumin needs to complete the Drew Manuel Estate 15 No.1 location clean up and according to our lease, Neumin is required to "reasonably restore" the premises to the condition existing as of the date of the execution of this lease. It is Neumin's goal to accomplish this in a prompt and mutually acceptable manner.

Due to lack of pre-site development data availability, Neumin believes that the limits set in the Louisiana Statewide Order 29-B should be used in determining the restoration parameters.

At Area 1 (Tank Battery Area) the 2 foot samples collected indicated an EC-3, SAR-9, and an ESP-11, the 3 foot samples indicated an EC-2, SAR-7, and an ESP-9. These parameters are all within 29-B limits and no other testing should be required.

At Area 2 (Production Area) the 1 foot depth sample: EC-6, SAR-15, ESP-16, 2 foot depth sample: EC-9, SAR-15, ESP-17, 3 foot depth sample: EC-13, SAR-10, ESP-12, (preliminary results for 4,5, & 6 foot depth samples) 4 foot depth sample: EC-4, SAR-16, ESP-18, 5 foot depth sample: EC- (not reported), SAR-14, ESP-16, 6 foot depth sample: EC- (not reported), SAR-16, ESP-18. It appears from these results that a natural progression of the salts migrating downward in the soil is occurring. We believe that further testing on this area is not required. We submit that the removal of the top three feet of soil in the Area #2, the addition of gypsum, and replacement of the top three feet of soil with fresh uncontaminated soil should be all that is required to remediate the Area #2.

The other area's of concern that were tested are all well within 29-B Parameters and require no additional testing.

As was noted earlier, the area in direct contact with the wellbore will be excavated in a 10 foot by 10 foot square to a 6 foot depth, this soil will be removed, gypsum will be added and fresh soil will be used to fill the excavated area.

Neumin understands that Arabie Environmental's responsibility is to insure that the Drew Manuel Estate's property is properly treated and not abused; However, it should be noted that the Neumin Drew Manuel "15" No.1 well's oil and gas production has contributed an estimated \$3.5 MM to the Drew Estate over the life of this well. We believe that with this volume of oil and gas production it is not uncommon for there to be a small footprint of the well site location for a period of time but with the restorations that we plan to conduct, that period should be brief.

Sincerely,

Jeff Hermes
Land Manager
Neumin Production Co.
P.O. Box 769
103 Fannin Road
Point Comfort, TX 77978
361-987-8920 office
361-935-4134 cell
jhermes@ftpc.fpcusa.com

From: Austin Arabie <aarabie@arabie-env.com>

Date: Tuesday, October 6, 2015 2:59 PM

To: James McIntire <jimcintire@Reagan.com>

Cc: Beau Barbe <beaubarbe@yahoo.com>, Blaine Johnson <bjohnson@arabie-env.com>

Subject: HC Drew Manuel Estate "15" No. 1

James: I have attached a sample location map with a summary of the lab results for each area. As you know, the lease agreement requires restoration of the site to "original condition". Since we don't have pre-site development laboratory data, we suggest using EC 2 mmhos/cm, SAR of 4, and ESP 4% as "original condition." Based on the sampling conducted so far, it would appear that samples from areas 3, 4, and 5 appear to meet the assumed original condition standard. The 29-B Standards for the area would be EC < 4 mmhos/cm, SAR of <12, and ESP < 15.

At Area 1 (Tank Battery Area) the 1 foot depth sample exceeded all three 29-B parameters and the 2 foot sample exceeded "original condition." At that area, additional samples should be collected below 2 feet to determine the extent of the exceedance.

At Area 2 (Production Area) samples need to be collected to determine the full depth of exceedances.

At Area 6 (Well site), it is our understanding that you plan to excavate a 10 ft. by 10 ft. area to a depth of 6 feet. We would like to see confirmation samples from the bottom and side walls of that excavation to demonstrate compliance with the lease.

We appreciate your assistance in getting this site closed out in accordance with the lease. Let us know if we can be of any assistance to you. We would want to continue to be notified of any upcoming sampling events. As we understand it, Davies will be sampling again tomorrow and we do plan to have someone on site.

Austin Arabie

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Austin Arabie

From: Austin Arabie
Sent: Wednesday, October 28, 2015 4:26 PM
To: 'Jeffrey Hermes/FTNMSF'; beaubarbe@yahoo.com
Cc: James McIntire/NMCSF; Richard Garcia/FTNMSF; Dean Johnstone/NMCSF; Blaine Johnson
Subject: RE: HC Drew Manual Estate "15" No. 1

Mr. Hermes:

Blaine Johnson (Engineer with Arabie Environmental) and I met with Beau Barbe (H.C. Drew Estate) today to discuss the status of the well site closure. According to the lease, the site is to be closed by "removing all contaminants including removal and replacement of all contaminated soil." Arabie Environmental did not have access to pre-site development soil data, so we used recently collected on site sample data and our experience in reviewing thousands of soil samples to establish a closure standard for the site. The standards we established are expected to be less limiting than true background samples. The closure standards that we established are EC 2mmhos/cm, SAR of 4, and ESP 4%. Three samples collected on the site on behalf of Neumin were at or below those standards. An additional "background" sample collected off of the well site on behalf of Neumin was below those standards. From those four samples, we can conclude that the clean up standards are not overly restrictive.

As of today, the areas that remain in question are the Tank Battery (Area 1) and the Production Area (Area 2). At the Tank Battery, samples down to three feet have exceeded the clean up standard for two or more of the parameters. At the Production Area, sample data from as deep as 6 feet indicate not only exceedances of the clean up standard but exceedances of 298. As noted in Mr. Johnson's email of October 20, 2015, it is our understanding that samples were collected from greater depths at both of those areas but the analytical results have not been provided to us.

In summary,

- 1) the lease agreement requires removal of all contaminants and contaminated soil,
- 2) the off site background sample and several on site samples provide the baseline for each parameter
- 3) Samples collected beneath the tank battery exceed the established standard, deeper samples collected but data not provided
- 4) Samples collected beneath the production area exceed the established standard and 298 standards, deeper samples collected but data not provided

Please provide laboratory results for all the soil samples collected to date.

Sincerely

Austin Arabie

From: Jeffrey Hermes/FTNMSF [mailto:JHermes@ftpc.fpcusa.com]
Sent: Thursday, October 22, 2015 2:14 PM
To: Austin Arabie; beaubarbe@yahoo.com
Cc: James McIntire/NMCSF; Richard Garcia/FTNMSF; Dean Johnstone/NMCSF
Subject: FW: HC Drew Manual Estate "15" No. 1

Mr. Arabie,

Neumin needs to complete the Drew Manuel Estate 15 No.1 location clean up and according to our lease, Neumin is required to "reasonably restore" the premises to the condition existing as of the date of the execution of this lease. It is Neumin's goal to accomplish this in a prompt and mutually acceptable manner.

Due to lack of pre-site development data availability, Neumin believes that the limits set in the Louisiana Statewide Order 29-B should be used in determining the restoration parameters.

At Area 1 (Tank Battery Area) the 2 foot samples collected indicated an EC-3, SAR-9, and an ESP-11, the 3 foot samples indicated an EC-2, SAR-7, and an ESP-9. These parameters are all within 29-B limits and no other testing should be required.

At Area 2 (Production Area) the 1 foot depth sample: EC-6, SAR-15, ESP-16, 2 foot depth sample: EC-9, SAR-15, ESP-17, 3 foot depth sample: EC-13, SAR-10, ESP-12, (preliminary results for 4,5, & 6 foot depth samples) 4 foot depth sample: EC-4, SAR-16, ESP-18, 5 foot depth sample: EC- (not reported), SAR-14, ESP-16, 6 foot depth sample: EC- (not reported), SAR-16, ESP-18. It appears from these results that a natural progression of the salts migrating downward in the soil is occurring. We believe that further testing on this area is not required. We submit that the removal of the top three feet of soil in the Area #2, the addition of gypsum, and replacement of the top three feet of soil with fresh uncontaminated soil should be all that is required to remediate the Area #2.

The other area's of concern that were tested are all well within 29-B Parameters and require no additional testing.

As was noted earlier, the area in direct contact with the wellbore will be excavated in a 10 foot by 10 foot square to a 6 foot depth, this soil will be removed, gypsum will be added and fresh soil will be used to fill the excavated area.

Neumin understands that Arable Environmental's responsibility is to insure that the Drew Manuel Estate's property is properly treated and not abused; However, it should be noted that the Neumin Drew Manuel "15" No.1 well's oil and gas production has contributed an estimated \$3.5 MM to the Drew Estate over the life of this well. We believe that with this volume of oil and gas production it is not uncommon for there to be a small footprint of the well site location for a period of time but with the restorations that we plan to conduct, that period should be brief.

Sincerely,

Jeff Hermes
Land Manager
Neumin Production Co.
P.O. Box 769
103 Fannin Road
Point Comfort, TX 77978
361-987-8920 office
361-935-4134 cell
jhermes@ftpc.fpcusa.com

From: Austin Arabie <aarabie@arabie-env.com>

Date: Tuesday, October 6, 2015 2:59 PM

To: James McIntire <jimcintire@Reagan.com>

Cc: Beau Barbe <beubarbe@yahoo.com>, Blaine Johnson <bjohnson@arabie-env.com>

Subject: HC Drew Manuel Estate "15" No. 1

James: I have attached a sample location map with a summary of the lab results for each area. As you know, the lease agreement requires restoration of the site to "original condition". Since we don't have pre-site development laboratory data, we suggest using EC 2 mmhos/cm, SAR of 4, and ESP 4 % as "original condition." Based on the sampling conducted so far, it would appear that samples from areas 3, 4, and 5 appear to meet the assumed original condition standard. The 29-B Standards for the area would be EC < 4 mmhos/cm, SAR of <12, and ESP < 15.

At Area 1 (Tank Battery Area) the 1 foot depth sample exceeded all three 29-B parameters and the 2 foot sample exceeded "original condition." At that area, additional samples should be collected below 2 feet to determine the extent of the exceedance.

At Area 2 (Production Area) samples need to be collected to determine the full depth of exceedances.

At Area 6 (Well site), it is our understanding that you plan to excavate a 10 ft. by 10 ft. area to a depth of 6 feet. We would like to see confirmation samples from the bottom and side walls of that excavation to demonstrate compliance with the lease.

We appreciate your assistance in getting this site closed out in accordance with the lease. Let us know if we can be of any assistance to you. We would want to continue to be notified of any upcoming sampling events. As we understand it, Davies will be sampling again tomorrow and we do plan to have someone on site.

Austin Arabia

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Austin Arabie

From: Austin Arabie
Sent: Wednesday, October 28, 2015 9:17 AM
To: 'Jeffrey Hermes/FTNMSF'; beaubarbe@yahoo.com
Cc: James McIntire/NMCSF; Richard Garcia/FTNMSF; Dean Johnstone/NMCSF; Blaine Johnson
Subject: RE: HC Drew Manual Estate "15" No. 1

Mr. Hermes,

We appreciate the information you have provided. We too are anxious to have the well site closed out in accordance with the lease. The part of the lease that we have focused on says "removing all contaminants including removal and replacement of all contaminated soil." In that regard, I am reviewing all the lab sample data and in your email below, there are a couple of EC's shown as "not reported". Those EC values are important to our evaluation. Has that data been reported yet? Also, we would like to have complete copies of final lab reports for all of the samples taken at the site.

Thank you for your assistance in this matter.

Sincerely,

Austin Arabie

From: Jeffrey Hermes/FTNMSF [mailto:JHermes@ftpc.fpcusa.com]
Sent: Thursday, October 22, 2015 2:14 PM
To: Austin Arabie; beaubarbe@yahoo.com
Cc: James McIntire/NMCSF; Richard Garcia/FTNMSF; Dean Johnstone/NMCSF
Subject: FW: HC Drew Manual Estate "15" No. 1

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361-935-4134 cell
jhermes@ftpc.fpcusa.com

From: Austin Arabie <aarabie@arabie-env.com>

Date: Tuesday, October 6, 2015 2:59 PM

To: James McIntire <jimcintire@Reagan.com>

Cc: Beau Barbe <beaubarbe@yahoo.com>, Blaine Johnson <bjohnson@arabie-env.com>

Subject: HC Drew Manuel Estate "15" No. 1

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Acadian Engineers & Environmental Consultants Inc.

Andre' Aucoin, P.E., Pres.
Don Gladfelter, P.L.S.

James A. Ducote, P.E., P.L.S., (1934-2005)

April 6, 2017

Mr. Jeffrey Hermes
Neumin Production Company
Post Office Box 769
Point Comfort, Texas 77978-0769

RE: Arable Env Solutions/Response to Corr
Neumin Production Company
HC Drew Manual Estate "15" No. 1
Calcasieu Parish, Louisiana
AE File No. 16-36

Dear Mr. Hermes:

Acadian Engineers & Environmental Consultants Inc. (Acadian) is in receipt of Arable Environmental Solutions (Arable) response to Acadian's Limited Site Investigation Report for the above referenced. Based upon our review, Acadian provides the following response and recommendations. The following is composed solely in an effort to arrive at a mutually acceptable resolution to this matter versus a defense of the Limited Site Investigation Report.

The field investigation was performed in latter portion of 2016 as a stand alone assessment of the site versus a complimentary extension of previous site investigation activities. Previous site sampling did not meet industry protocol, due to open hole soil sampling with the potential for inaccuracies inherent in defining limits of impacts; primarily vertical definition the November and December 2016 full depth sampling was performed utilizing a stainless steel sampling tube which provides distinct soil sample definition; maximizing vertical delineation of impact. Additionally, previous sampling also involved soil removal and relocation. Characterization of the site in its current (November and December 2016) was considered paramount based upon sampling protocol and the definition accuracy inherent with such techniques. No post excavation samples were acquired subsequent to the September, October and November 2016 events necessary to define the location of the impacted media after removal and replacement.

1601 Amazon St. • P.O. Box 1126 • Eunice, Louisiana 70535-1126
Ph. (337) 457-1492 • Toll Free (800) 264-1492 • Fax (337) 457-1493
E-Mail: andre@acadianengineers.com
Web Page: acadianengineers.com

Mr. Jeff Hermes
April 6, 2017
Page 2 of 3

Acadian's soil sampling was targeted to define the existing limits of exploration and production (E&P) waste. The latest site characterization provides the extent of the constituents of concern (COC's) of the site at the time of the latest field investigation. The site characterization provides the most recent limits of subsurface impact.

In regard to the delineation of subsurface impact, Acadian employed the use of field screening (Electrical Conductivity) techniques combined with analytical laboratory quantification data by which a relative representation can be employed to estimate the extent of subsurface impact. Electrical Conductivity is a relative measure of chlorides; and other particles capable of conducting an electrical current present when consistent field screening measurements and procedures are employed. These field measurements are used to provide a reasonable representation of relative measurement of media impact versus subjecting each sample to laboratory analysis. Definitive concentrations of E&P wastes are only available through laboratory analysis; yet field screening techniques is considered an acceptable method in estimating the limits of subsurface impact.

The purpose of the Limited Site Investigation was to define the limits of soil impact at the three (3) areas of concern (AOC) by acquiring samples from fifteen (15) soil bore locations which were continuously sampled from ground surface down to fifteen (15') feet below ground surface. The data acquired by performing the sampling were intended to estimate the horizontal and vertical extent of E&P waste impact by subjecting one (1) sample per bore to laboratory processes and cross referencing with electrical conductivity field screening values to provide a reasonable estimation of the subsurface impact. The limits of soil impact depicted on the Limited Site Investigation Report Figures reveal above estate threshold values at the perimeter bore locations. The actual horizontal limits of impact can be estimated by employing a "straight line relationship" by interpolation; yet as stated in the Conclusion of the Report; is ultimately determined through final site verification performed during Corrective Action. That is, floor and sidewall sampling must be employed; supported by laboratory analytical procedures to determine if below threshold limits have been met within the remaining soil matrix.

The Limited Site Investigation Report reveals shallow groundwater concentrations below the Louisiana Department of Natural Resources (LDNR) 29b regulatory concentrations. However, the E&P waste groundwater concentrations apparently exceed the Estate established threshold values. As we discussed, remediation of groundwater is considerably more problematic and time consuming than over excavation/disposal used within the unsaturated zone. Pump and treat/disposal of E&P wastes from the shallow groundwater can be enhanced by installing subsurface

Mr. Jeff Hermes
April 6, 2017
Page 3 of 3

recovery galleries from which to pump E&P waste impacted groundwater; yet the Estate established threshold appears to be potentially restrictive and difficult to meet within any reasonable period of time.


Assessed within Risk Based parameters, the allowable concentrations are likely to be considerably less restrictive, especially when viewing the groundwater as Non-Drinking Water (Classification 3) which the total dissolved solids content lends itself to. Additionally, metals (Arsenic) concentrations are not uncommon in shallow aquifers throughout South Louisiana and may be at "original condition" levels.

Based upon this, it appears that "background" concentrations need to be determined in soils and groundwater. As stated, soil over-excavation and disposal can be performed with some level of expedience, although the final extent removed, disposed and replaced is determined through final site verification sampling. Groundwater remediation of E&P wastes is considerably more difficult and potentially time excessive. Determination of E&P waste in background groundwater and soils appears to be paramount at this juncture.

Please review and contact me if there are any questions or you require additional information.

Sincerely,

ACADIAN ENGINEERS
& ENVIRONMENTAL CONSULTANTS INC.



Andre' Aucoin, PE

AA/lpg

cc: James McIntire, Neumin Production Company, W/Enclosure
R. Dean Johnstone, Neumin Production Company, W/Enclosure

///1636word/neumin hermes-response to arabia review

Jeffrey Hermes/FTNMSF

From: John Pohorelsky <johnp@sgpgl.com>
Sent: Friday, May 26, 2017 10:01 AM
To: James I. McIntire/NMCSF; Jeffrey Hermes/FTNMSF
Cc: Joycelyn Fontenot; Beau Barbe (beubarbe@yahoo.com); aarabie@arabie-env.com
Subject: RE: H. C. Drew Manual Estate "15" No. 1
Attachments: Hermes.McIntire Ltr. 2017-5-12.pdf

Gentlemen – please confirm your receipt of the below e-mail and the attachment and let me know where things stand.



JOHN R. POHORELSKY | SCOFIELD, GERARD, POHORELSKY, GALLAUGHER & LANDRY
901 LAKESHORE DRIVE, NINTH FLOOR (70601) | POST OFFICE DRAWER 3028 (70602)
LAKE CHARLES, LA | TEL: 337.433.9436 | FAX: 337.436.0306 | Cell: 337-274-4015
www.sgpgl.com

From: Joycelyn Fontenot
Sent: Friday, May 12, 2017 1:24 PM
To: JamesMcIntire@ftpc.fpcusa.com; Jeffrey Hermes/FTNMSF
Cc: John Pohorelsky
Subject: H. C. Drew Manual Estate "15" No. 1

Gentlemen – please see the attached e-mail.



JOYCELYN M. FONTENOT | Assistant to John R. Pohorelsky | SCOFIELD, GERARD, POHORELSKY, GALLAUGHER & LANDRY
AND LAKE AREA TITLE, LLC
901 LAKESHORE DRIVE, NINTH FLOOR (70601) | POST OFFICE DRAWER 3028 (70602)
LAKE CHARLES, LA | TEL: 337.433.9436 | FAX: 337.436.0306 | www.sgpgl.com

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SCOFIELD, GERARD, POHORELSKY, GALLAUGHER & LANDRY

ATTORNEYS AT LAW
A LIMITED LIABILITY COMPANY
POST OFFICE DRAWER 3028
LAKE CHARLES, LOUISIANA 70602

SCOTT J. SCOFIELD
JOHN R. POHORELSKY
PATRICK D. GALLAUGHER, JR.
ROBERT E. LANDRY
PHILLIP W. DeVILBISS
KEVIN P. FONTENOT
PETER J. POHORELSKY
ANDREA ALBRIGHT CRAWFORD

May 10, 2017

JOHN B. SCOFIELD *Emeritus*
RICHARD E. GERARD, JR. *Emeritus*

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LAKE CHARLES, LA 70601
TELEPHONE: (337) 433-9436
FACSIMILE: (337) 436-0306

www.sgppl.com

WILLIAM B. SWIFT, LLC
Of Counsel

Jeff Hermes
Neumin Production Co.
P.O. Box 769
103 Fannin Road
Point Comfort, TX 77978

James McIntire
Neumin Production Co.
P.O. Box 769
103 Fannin Road
Point Comfort, TX 77978

Re: HC Drew Manual Estate "15" No.1

Dear Sirs:

The attached response from Acadian Engineers & Environmental Consultants, Inc. ("*Acadian*") makes it clear that Acadian needs to revisit the data from sampling conducted by Davies Construction L.L.C. ("*Davies*") on October 7, 2015 and its own work for the following reasons:

1. Acadian has not defined the vertical and lateral extent of contamination. Their borings and samples together with those by Davies still do not reveal the horizontal and vertical limits of the contamination in the area. That must be done.
2. Acadian's reports did not include the soil contamination results from Davies' sampling. As a result, their maps of the impacted areas are incorrect and it is not clear from the text of Acadian's reports that they understand that the contaminated soil identified by Davies' samples is still present.

SCOFIELD, GERARD, POHORELSKY, GALLAUGHER & LANDRY

Mssrs. Hermes and McIntire

May 10, 2017

Page 2

- a. Acadian is correct in its April 6, 2017 letter to be critical of Davies' sampling method, but that method did not yield "false positives" or false elevated levels of oilfield waste. Those waste constituents were there during Davies' sampling previously and during Acadian's sampling.
- b. On page 1, Acadian says that "characterization of the site in its current (November and December 2016) [condition] was considered paramount based upon sampling protocol" We agree with that statement, but the sampling and report did not characterize the site in its current condition since it failed to include the Davies sampling and did not define the physical limits of the contamination.
- c. On page 2, Acadian says that "Acadian's soil sampling was targeted to define the existing limits of exploration and production waste." The waste previously found there was still "existing" during Acadian's sampling so if "characterization of the site in its current (November and December 2016) [condition] was considered paramount based upon sampling protocol" the results of Davies' sampling should have been included in Acadian's report.
- d. On page 2, Acadian says that "The latest site characterization provides the extent of the COC's of the site at the time of the latest field investigation. The site characterization provides the most recent limits of subsurface impact." These statements are totally inaccurate which makes us believe that Acadian thinks that the contamination reported by Davies was dug up and hauled away.

SCOFIELD, GERARD, POHORELSKY, GALLAUGHER & LANDRY

Mssrs. Hermes and McIntire
May 10, 2017
Page 3

- e. On page 2, Acadian says the “actual horizontal limits of impact . . . is ultimately determined through final site verification performed during corrective action.” That is true but Acadian does not have a clear enough understanding of the extent of contamination at this point.
3. As to groundwater:
 - a. On page 2, Acadian says that shallow groundwater contamination is below the 29B standard. That is incorrect for the reasons explained in Austin Arabie’s letter of March 27, 2017 and will not be repeated here, but that is irrelevant since what Acadian found is not “background” or original condition and that is the standard to be achieved. We need confirmation that it is agreed that the 29B standard is not the standard to be achieved by Neumin.
 - b. Acadian says several things regarding remediation of groundwater with no “conclusion” in that regard other than “Determination of E&P waste in background groundwater and soils appears to be paramount at this juncture.” We assume but need confirmation that Acadian does not really mean that it has to determine if E&P waste is present in background groundwater, because if there is E&P waste in it, then it isn’t background. We also assume but need confirmation that Acadian did not intend to include soil in that statement as we believe we have agreed upon a soil background, which Acadian has referred to as “estate threshold” for each parameter.
4. It is important that the extent of contamination is better understood prior to commencing cleanup. We discussed several reasons for this, such as Neumin having the scope of the contamination in order to obtain accurate bids and to execute a good contract with a cleanup contractor. Additionally, if a cleanup contractor starts excavating the soil without a good idea of the full extent of contamination, HC Drew Estate will be forced to have someone monitor the work on an almost continuous basis at Neumin’s expense. If the extent of

SCOFIELD, GERARD, POHORELSKY, GALLAUGHER & LANDRY

Mssrs. Hermes and McIntire
May 10, 2017
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contamination is known prior to excavation, then third party monitoring could be greatly reduced.

5. In their next to last paragraph of the April 6, 2017 response, Acadian states that “background” concentrations need to be determined in soils and groundwater. It is my opinion that the soil samples that we have previously agreed upon as a baseline or background are acceptable. I don’t believe any additional soil background samples are necessary nor would they benefit Neumin. The background sample was collected by James Shiver on October 7, 2015 (copy of Petroleum Laboratories’ analysis enclosed). Also enclosed and identified as “Arabie Sample Location Map” is the map of the sampling prior to August 15, 2016. Also enclosed and identified as “Arabie Soil Sample Data” is a table prepared by Austin Arabie on August 15, 2016, but all samples were collected by others, not Arabie, and not on August 15, 2016. James Shiver’s October 7, 2015 sample is the first sample listed on that table. Austin Arabie’s email to you of October 29, 2015 (enclosed) sets forth the closure standards previously established. The background sample in this instance may actually be biased high, or said another way, true background is likely to be less than this sample indicated, but my client is willing to accept it in an effort to bring this to a conclusion.
6. However, background concentrations for groundwater have not been established and needs to be done. In their previous groundwater sampling, Acadian analyzed for metals and general chemistry parameters. Those same parameters should be selected for background analysis.
7. After determining background concentrations for groundwater, the full extent of the contaminated groundwater plume should be determined by Neumin.

As I have stated previously, H.C. Drew Estate wants the clean up to commence immediately but the scope of the work must be properly defined before work commences. If it is not, bids received will be open to renegotiation while work is in progress and the work will have to be overseen by my client’s consultants on a routine basis which will unnecessarily increase the cost to Neumin. If Neumin accepts the results of the October 2015 sample as background, then it needs to define the area of contaminated soil that exceeds those levels. That means drilling

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May 10, 2017
Page 5

borings around the area of known exceedances to determine how far out the contaminants reach. In each area they need to bore and sample to a depth, to where background concentrations are found. Please advise how Neumin intends to proceed.

Sincerely,



JOHN R. POHORELSKY

JRP/jmf

Enclosures

cc: H. C. Drew
Austin Arabie

PETROLEUM LABORATORIES, INC.

333 East Kaliste Saloom Road
Lafayette, Louisiana 70508
337-234-7414

Company: Commercial Maintenance Services
145 Rambling Road
Ville Platte, LA 70586

Date: 10/23/15

Lab No: LFY-0097
Regulatory

Field: Nemium Production
H.C.Drew Manuel Estate 15 #1
Calcasieu Parish Serial #225207

Attention: Mr. James Shiver

LELAP Certificate #01968

Soil Analysis

Location: Soil Background 1ft.depth
Sampled: 10/07/15 by J. Shiver

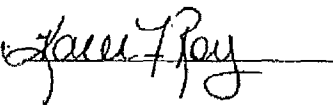
Parameters - units	Results	Limitations	Method	Analyst / Date
pH - s.u.	5.315	6.0 - 9.0	SW 846 9045C	SR 10/08/15
Total Metals Content - mg/kg				
Arsenic	0.778	10	SW 846 6010B	WM 10/16/15
Barium, true total	785	20,000* 40,000**	LADNR†	WM 10/16/15
Cadmium	<0.150	10	SW 846 6010B	WM 10/16/15
Chromium	4.85	500	SW 846 6010B	WM 10/16/15
Copper	0.626	---	SW 846 6010B	WM 10/16/15
Lead	9.33	500	SW 846 6010B	WM 10/16/15
Mercury	0.0051	10	SW 846 7471A	SR 10/19/15
Molybdenum	<0.150	---	SW 846 6010B	WM 10/16/15
Nickel	1.70	---	SW 846 6010B	WM 10/16/15
Selenium	0.335	10	SW 846 6010B	WM 10/16/15
Silver	0.591	200	SW 846 6010B	WM 10/16/15
Zinc	4.27	500	SW 846 6010B	WM 10/16/15
Oil & Grease - % dry weight	0.0417	1.0	SW 846 9071B	WM 10/12/15
Soluble Salts & Cationic Distribution				
EC (electrical conductivity) - mmhos/cm	2	8" 4"	LADNR†	WM 10/09/15
SAR (sodium adsorption ratio)	3	14" 12"	LADNR†	WM 10/09/15
ESP (exchangeable sodium percentage)	3	25" 15"	LADNR†	WM 10/13/15
CEC (cation exchange capacity) - meq/100g	10	---	LADNR†	WM 10/13/15

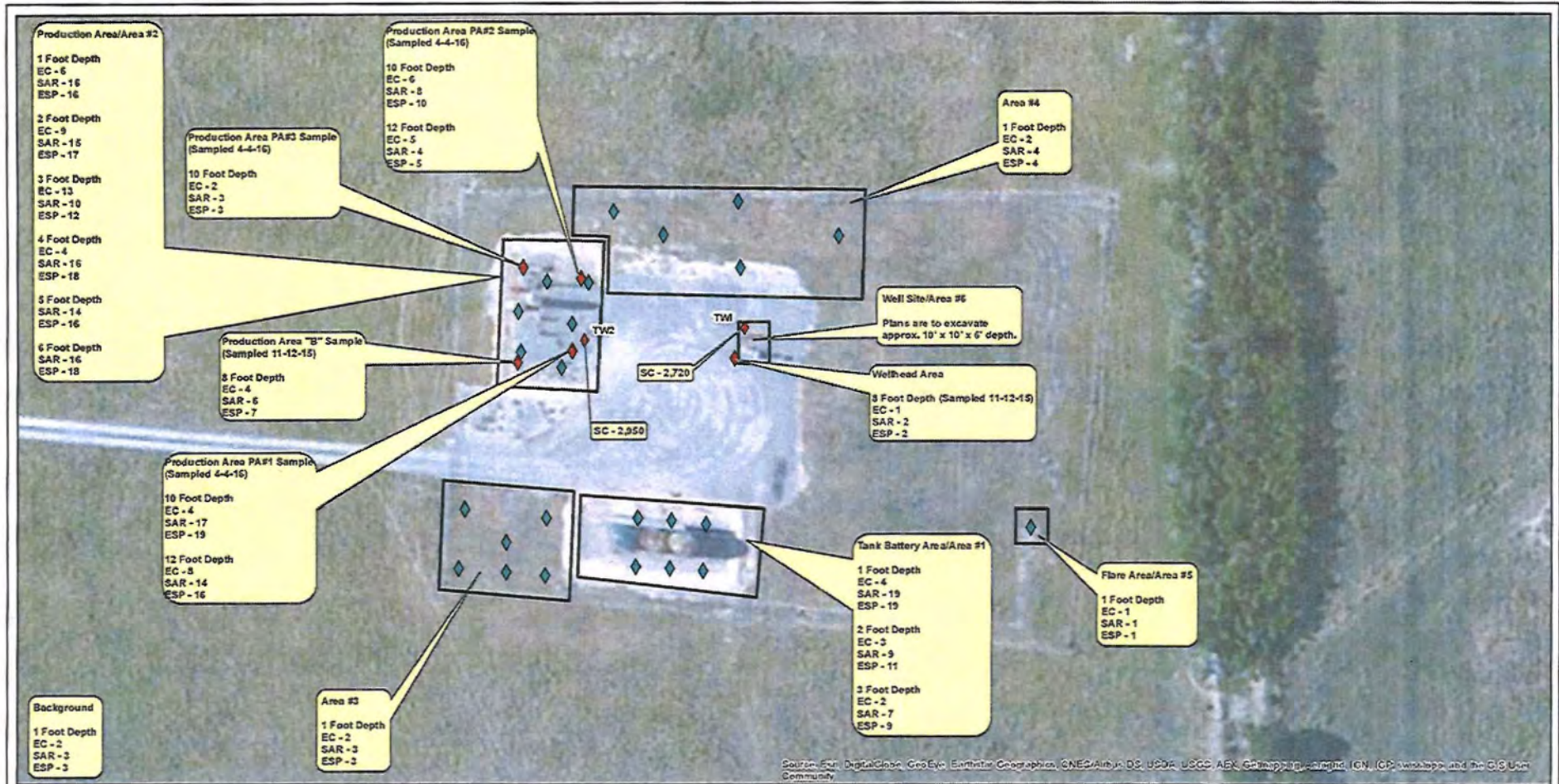
*Submerged Wetland Area; Elevated Wetland Area
**Upland Area

LADNR Lab Procedures for Analysis of E & P Waste.

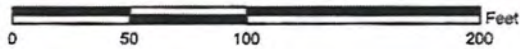
Page 1 of 1

Attest:





Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, Aero, GeoEye, IGN, GP, Swiremap and the GIS User Community



- ◆ Approximate Composite Sample Location
- ◆ Approximate Grab Sample Location

Note: 29-B limits for Uplands
 EC - 4
 SAR - 12
 ESP - 15



SAMPLE LOCATION MAP	
H.C. DREW ESTATE 15 #1 NEUMIN PRODUCTION CARLYSS, LOUISIANA	
Drawn By: JRC	Checked By: CSJ
Date: 08/15/16	Project No.: 11207

**SOIL SAMPLE DATA SUMMARY
H.C. DREW ESTATE
CALCASIEU PARISH, LOUISIANA**

Sample ID	Sample Date	Sample Interval (Ft. BGS)	Laboratory Results		
			Electrical Conductivity (mmhos/cm)	Sodium Adsorption Ratio	Exchangeable Sodium Percentage
Comparative Standard:		29-B	4	12	15%
		Background	2	4	4%
Background Area					
Background	10/7/2015	1	2	3	3
Tank Battery Area / Area #1					
Area 1	9/2/2015	1	4	19	19
		2	3	9	11
	10/7/2015	3	2	7	9
Production Area / Area #2					
Area 2	9/2/2015	1	6	16	16
		2	9	15	17
	9/24/2015	3	13	10	12
	10/23/2015	4	4	16	18
		5	NA	14	16
		6	NA	16	18
B	11/12/2015	8	4	6	7
PA #1	4/4/2016	10	4	17	19
		12	8	14	16
PA #2	4/4/2016	10	6	8	10
		12	5	4	5
PA #3	4/4/2016	10	2	3	3
Area #3					
Area #3	9/24/2015	1	2	3	3
Area #4					
Area #4	9/24/2015	1	2	4	4
Flare Area / Area #5					
Flare Area / Area #5	9/24/2015	1	1	1	1
Well Site / Area #6					
Well Site / Area #6	11/12/2015	8	1	2	2

Notes:

Ft. BGS = Feet Below Ground Surface

mmhos/cm = millimhos per centimeter

NA = Not Analyzed;

29-B = Louisiana Department of Natural Resources Office of Conservation Order 29-B

Concentrations **bolded** where detected above regulatory comparative standard

Concentrations shaded where detected above background comparative standard

Austin Arable

From: Austin Arable
Sent: Tuesday, November 10, 2015 2:38 PM
To: 'Jeffrey Hermes/FTNMSF'; beaubarbe@yahoo.com
Cc: James McIntire/NMCSF; Richard Garcia/FTNMSF; Dean Johnstone/NMCSF; Blaine Johnson
Subject: RE: HC Drew Manual Estate "15" No. 1

Mr. Hermes, I have had the opportunity to review the laboratory results that were included in your Nov. 3, 2015 email. We appreciate you providing those reports. With that data, it still appears that at least one area of the property does not conform with Order 29-B or with the lease requirement of "removal of all contaminants." The samples collected from the 4 foot depth at the Production Area (Area #2) were reported as EC-4, which is slightly greater than Order 29-B standard of "less than 4", and both the SAR and ESP were greater than the 29-B standard. We requested additional analysis of deeper samples that were collected and the results provided to us did not include EC and the SAR and ESP results were still greater than 29-B and of course greater than the expected background conditions.

Please keep us advised on any plans for additional analysis or sampling efforts.

Sincerely,

Austin Arable

From: Jeffrey Hermes/FTNMSF [mailto:JHermes@ftpc.fpcusa.com]
Sent: Tuesday, November 03, 2015 1:26 PM
To: Austin Arable; beaubarbe@yahoo.com
Cc: James McIntire/NMCSF; Richard Garcia/FTNMSF; Dean Johnstone/NMCSF; Blaine Johnson
Subject: RE: HC Drew Manual Estate "15" No. 1

Mr. Arable,
Please find attached the lab results of the soil sampling done on October 7, 2015.
Thanks,
Jeff

From: Austin Arable [mailto:aarable@arable-env.com]
Sent: Wednesday, October 28, 2015 4:26 PM
To: Jeffrey Hermes/FTNMSF; beaubarbe@yahoo.com
Cc: James McIntire/NMCSF; Richard Garcia/FTNMSF; Dean Johnstone/NMCSF; Blaine Johnson
Subject: RE: HC Drew Manual Estate "15" No. 1

Mr. Hermes:

Blaine Johnson (Engineer with Arable Environmental) and I met with Beau Barbe (H.C. Drew Estate) today to discuss the status of the well site closure. According to the lease, the site is to be closed by "removing all contaminants including removal and replacement of all contaminated soil." Arable Environmental did not have access to pre-site development soil data, so we used recently collected on site sample data and our experience in reviewing thousands of soil samples to establish a closure standard for the site. The standards we established are expected to be less limiting than true background samples. The closure standards that we established are EC 2mmhos/cm, SAR of 4, and ESP 4%. Three samples collected on the site on behalf of Neumin were at or below those standards. An additional "background" sample collected off of the well site on behalf of Neumin was below those standards. From those four samples, we can conclude that the clean up standards are not overly restrictive.

As of today, the areas that remain in question are the Tank Battery (Area 1) and the Production Area (Area 2). At the Tank Battery, samples down to three feet have exceeded the clean up standard for two or more of the parameters. At the Production Area, sample data from as deep as 6 feet indicate not only exceedances of the clean up standard but exceedances of 29B. As noted in Mr. Johnson's email of October 20, 2015, it is our understanding that samples were collected from greater depths at both of those areas but the analytical results have not been provided to us.

In summary,

- 1) the lease agreement requires removal of all contaminants and contaminated soil,
- 2) the off site background sample and several on site samples provide the baseline for each parameter
- 3) Samples collected beneath the tank battery exceed the established standard, deeper samples collected but data not provided
- 4) Samples collected beneath the production area exceed the established standard and 29B standards, deeper samples collected but data not provided

Please provide laboratory results for all the soil samples collected to date.

Sincerely

Austin Arabie

From: Jeffrey Hermes/FTNMSF [<mailto:JHermes@ftpc.fpcusa.com>]
Sent: Thursday, October 22, 2015 2:14 PM
To: Austin Arabie; beaubarbe@yahoo.com
Cc: James McIntire/NMCSF; Richard Garcia/FTNMSF; Dean Johnstone/NMCSF
Subject: FW: HC Drew Manual Estate "15" No. 1

Mr. Arabie,

Neumin needs to complete the Drew Manuel Estate 15 No.1 location clean up and according to our lease, Neumin is required to "reasonably restore" the premises to the condition existing as of the date of the execution of this lease. It is Neumin's goal to accomplish this in a prompt and mutually acceptable manner.

Due to lack of pre-site development data availability, Neumin believes that the limits set in the Louisiana Statewide Order 29-B should be used in determining the restoration parameters.

At Area 1 (Tank Battery Area) the 2 foot samples collected indicated an EC-3, SAR-9, and an ESP-11, the 3 foot samples indicated an EC-2, SAR-7, and an ESP-9. These parameters are all within 29-B limits and no other testing should be required.

At Area 2 (Production Area) the 1 foot depth sample: EC-6, SAR-15, ESP-16, 2 foot depth sample: EC-9, SAR-15, ESP-17, 3 foot depth sample: EC-13, SAR-10, ESP-12, (preliminary results for 4,5, & 6 foot depth samples) 4 foot depth sample: EC-4, SAR-16, ESP-18, 5 foot depth sample: EC- (not reported), SAR-14, ESP-16, 6 foot depth sample: EC- (not reported), SAR-16, ESP-18. It appears from these results that a natural progression of the salts migrating downward in the soil is occurring. We believe that further testing on this area is not required. We submit that the removal of the top three feet of soil in the Area #2, the addition of gypsum, and replacement of the top three feet of soil with fresh uncontaminated soil should be all that is required to remediate the Area #2.

The other area's of concern that were tested are all well within 29-B Parameters and require no additional testing.

As was noted earlier, the area in direct contact with the wellbore will be excavated in a 10 foot by 10 foot square to a 6 foot depth, this soil will be removed, gypsum will be added and fresh soil will be used to fill the excavated area.

Neumin understands that Arabie Environmental's responsibility is to insure that the Drew Manuel Estate's property is properly treated and not abused; However, it should be noted that the Neumin Drew Manuel "15" No.1 well's oil and gas production has contributed an estimated \$3.5 MM to the Drew Estate over the life of this well. We believe that with this volume of oil and gas production it is not uncommon for there to be a small footprint of the well site location for a period of time but with the restorations that we plan to conduct, that period should be brief.

Sincerely,

Jeff Hermes
Land Manager
Neumin Production Co.
P.O. Box 769
103 Fannin Road
Point Comfort, TX 77978
361-987-8920 office
361-935-4134 cell
jhermes@ftpc.fpcusa.com

From: Austin Arabie <aarabie@arabie-env.com>

Date: Tuesday, October 6, 2015 2:59 PM

To: James McIntire <jimcintire@Reagan.com>

Cc: Beau Barbe <beaubarbe@yahoo.com>, Blaine Johnson <bjohnson@arabie-env.com>

Subject: HC Drew Manuel Estate "15" No. 1

James: I have attached a sample location map with a summary of the lab results for each area. As you know, the lease agreement requires restoration of the site to "original condition". Since we don't have pre-site development laboratory data, we suggest using EC 2 mmhos/cm, SAR of 4, and ESP 4.% as "original condition." Based on the sampling conducted so far, it would appear that samples from areas 3, 4, and 5 appear to meet the assumed original condition standard. The 29-B Standards for the area would be EC < 4 mmhos/cm, SAR of <12, and ESP < 15.

At Area 1 (Tank Battery Area) the 1 foot depth sample exceeded all three 29-B parameters and the 2 foot sample exceeded "original condition." At that area, additional samples should be collected below 2 feet to determine the extent of the exceedance.

At Area 2 (Production Area) samples need to be collected to determine the full depth of exceedances.

At Area 6 (Well site), it is our understanding that you plan to excavate a 10 ft. by 10 ft. area to a depth of 6 feet. We would like to see confirmation samples from the bottom and side walls of that excavation to demonstrate compliance with the lease.

We appreciate your assistance in getting this site closed out in accordance with the lease. Let us know if we can be of any assistance to you. We would want to continue to be notified of any upcoming sampling events. As we understand it, Davies will be sampling again tomorrow and we do plan to have someone on site.

Austin Arabie

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Austin Arable

From: Austin Arable
Sent: Wednesday, October 28, 2015 4:26 PM
To: 'Jeffrey Hermes/FTNMSF'; beubarbe@yahoo.com
Cc: James McIntire/NMCSF; Richard Garcia/FTNMSF; Dean Johnstone/NMCSF; Blaine Johnson
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Sincerely,

Jeff Hermes
Land Manager
Neumin Production Co.
P.O. Box 769
103 Fannin Road
Point Comfort, TX 77978
361-987-8920 office
361-935-4134 cell
jhermes@ftpc.fpcusa.com

From: Austin Arable <aarable@arable-env.com>

Date: Tuesday, October 6, 2015 2:59 PM

To: James McIntire <jimcintire@Reagan.com>

Cc: Beau Barbe <beaubarbe@yahoo.com>, Blaine Johnson <bjohnson@arable-env.com>

Subject: HC Drew Manuel Estate "15" No. 1

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Austin Arabia

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Austin Arable

From: Austin Arable
Sent: Wednesday, October 28, 2015 9:17 AM
To: 'Jeffrey Hermes/FTNMSF'; beubarbe@yahoo.com
Cc: James McIntire/NMCSF; Richard Garcia/FTNMSF; Dean Johnstone/NMCSF; Blaine Johnson
Subject: RE: HC Drew Manual Estate "15" No. 1

Mr. Hermes,

We appreciate the information you have provided. We too are anxious to have the well site closed out in accordance with the lease. The part of the lease that we have focused on says "removing all contaminants including removal and replacement of all contaminated soil." In that regard, I am reviewing all the lab sample data and in your email below, there are a couple of EC's shown as "not reported". Those EC values are important to our evaluation. Has that data been reported yet? Also, we would like to have complete copies of final lab reports for all of the samples taken at the site.

Thank you for your assistance in this matter.

Sincerely,

Austin Arable

From: Jeffrey Hermes/FTNMSF [mailto:JHermes@ftpc.fpcusa.com]
Sent: Thursday, October 22, 2015 2:14 PM
To: Austin Arable; beubarbe@yahoo.com
Cc: James McIntire/NMCSF; Richard Garcia/FTNMSF; Dean Johnstone/NMCSF
Subject: FW: HC Drew Manual Estate "15" No. 1

Mr. Arable,

Neumin needs to complete the Drew Manuel Estate 15 No.1 location clean up and according to our lease, Neumin is required to "reasonably restore" the premises to the condition existing as of the date of the execution of this lease. It is Neumin's goal to accomplish this in a prompt and mutually acceptable manner.

Due to lack of pre-site development data availability, Neumin believes that the limits set in the Louisiana Statewide Order 29-B should be used in determining the restoration parameters.

At Area 1 (Tank Battery Area) the 2 foot samples collected indicated an EC-3, SAR-9, and an ESP-11, the 3 foot samples indicated an EC-2, SAR-7, and an ESP-9. These parameters are all within 29-B limits and no other testing should be required.

At Area 2 (Production Area) the 1 foot depth sample: EC-6, SAR-15, ESP-16, 2 foot depth sample: EC-9, SAR-15, ESP-17, 3 foot depth sample: EC-13, SAR-10, ESP-12, (preliminary results for 4,5, & 6 foot depth samples) 4 foot depth sample: EC-4, SAR-16, ESP-18, 5 foot depth sample: EC- (not reported), SAR-14, ESP-16, 6 foot depth sample: EC- (not reported), SAR-16, ESP-18. It appears from these results that a natural progression of the salts migrating downward in the soil is occurring. We believe that further testing on this area is not required. We submit that the removal of the top three feet of soil in the Area #2, the addition of gypsum, and replacement of the top three feet of soil with fresh uncontaminated soil should be all that is required to remediate the Area #2.

The other area's of concern that were tested are all well within 29-B Parameters and require no additional testing.

As was noted earlier, the area in direct contact with the wellbore will be excavated in a 10 foot by 10 foot square to a 6 foot depth, this soil will be removed, gypsum will be added and fresh soil will be used to fill the excavated area.

Neumin understands that Arable Environmental's responsibility is to insure that the Drew Manuel Estate's property is properly treated and not abused; However, it should be noted that the Neumin Drew Manuel "15" No.1 well's oil and gas production has contributed an estimated \$3.5 MM to the Drew Estate over the life of this well. We believe that with this volume of oil and gas production it is not uncommon for there to be a small footprint of the well site location for a period of time but with the restorations that we plan to conduct, that period should be brief.

Sincerely,

Jeff Hermes
Land Manager
Neumin Production Co.
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Point Comfort, TX 77978
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361-935-4134 cell
jhermes@ftpc.fpcusa.com

From: Austin Arable <aarable@arable-env.com>

Date: Tuesday, October 6, 2015 2:59 PM

To: James McIntire <jimcintire@Reagan.com>

Cc: Beau Barbe <beaubarbe@yahoo.com>, Blaine Johnson <bjohnson@arable-env.com>

Subject: HC Drew Manuel Estate "15" No. 1

James: I have attached a sample location map with a summary of the lab results for each area. As you know, the lease agreement requires restoration of the site to "original condition". Since we don't have pre-site development laboratory data, we suggest using EC 2 mmhos/cm, SAR of 4, and ESP 4 % as "original condition." Based on the sampling conducted so far, it would appear that samples from areas 3, 4, and 5 appear to meet the assumed original condition standard. The 29-B Standards for the area would be EC < 4 mmhos/cm, SAR of <12, and ESP < 15.

At Area 1 (Tank Battery Area) the 1 foot depth sample exceeded all three 29-B parameters and the 2 foot sample exceeded "original condition." At that area, additional samples should be collected below 2 feet to determine the extent of the exceedance.

At Area 2 (Production Area) samples need to be collected to determine the full depth of exceedances.

At Area 6 (Well site), it is our understanding that you plan to excavate a 10 ft. by 10 ft. area to a depth of 6 feet. We would like to see confirmation samples from the bottom and side walls of that excavation to demonstrate compliance with the lease.

We appreciate your assistance in getting this site closed out in accordance with the lease. Let us know if we can be of any assistance to you. We would want to continue to be notified of any upcoming sampling events. As we understand it, Davies will be sampling again tomorrow and we do plan to have someone on site.

Austin Arable

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Acadian Engineers & Environmental Consultants Inc.

Andre' Aucoin, P.E., Pres.
Don Gladfelter, P.L.S.

James A. Ducote, P.E., P.L.S., (1934-2005)

April 6, 2017

Mr. Jeffrey Hermes
Neumin Production Company
Post Office Box 769
Point Comfort, Texas 77978-0769

RE: Arabic Env Solutions/Response to Corr
Neumin Production Company
HC Drew Manual Estate "15" No. 1
Calcasieu Parish, Louisiana
AE File No. 16-36

Dear Mr. Hermes:

Acadian Engineers & Environmental Consultants Inc. (Acadian) is in receipt of Arabic Environmental Solutions (Arabic) response to Acadian's Limited Site Investigation Report for the above referenced. Based upon our review, Acadian provides the following response and recommendations. The following is composed solely in an effort to arrive at a mutually acceptable resolution to this matter versus a defense of the Limited Site Investigation Report.

The field investigation was performed in latter portion of 2016 as a stand alone assessment of the site versus a complimentary extension of previous site investigation activities. Previous site sampling did not meet industry protocol, due to open hole soil sampling with the potential for inaccuracies inherent in defining limits of impacts; primarily vertical definition the November and December 2016 full depth sampling was performed utilizing a stainless steel sampling tube which provides distinct soil sample definition; maximizing vertical delineation of impact. Additionally, previous sampling also involved soil removal and relocation. Characterization of the site in its current (November and December 2016) was considered paramount based upon sampling protocol and the definition accuracy inherent with such techniques. No post excavation samples were acquired subsequent to the September, October and November 2016 events necessary to define the location of the impacted media after removal and replacement.

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April 6, 2017
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Acadian's soil sampling was targeted to define the existing limits of exploration and production (E&P) waste. The latest site characterization provides the extent of the constituents of concern (COC's) of the site at the time of the latest field investigation. The site characterization provides the most recent limits of subsurface impact.

In regard to the delineation of subsurface impact, Acadian employed the use of field screening (Electrical Conductivity) techniques combined with analytical laboratory quantification data by which a relative representation can be employed to estimate the extent of subsurface impact. Electrical Conductivity is a relative measure of chlorides; and other particles capable of conducting an electrical current present when consistent field screening measurements and procedures are employed. These field measurements are used to provide a reasonable representation of relative measurement of media impact versus subjecting each sample to laboratory analysis. Definitive concentrations of E&P wastes are only available through laboratory analysis; yet field screening techniques is considered an acceptable method in estimating the limits of subsurface impact.

The purpose of the Limited Site Investigation was to define the limits of soil impact at the three (3) areas of concern (AOC) by acquiring samples from fifteen (15) soil bore locations which were continuously sampled from ground surface down to fifteen (15') feet below ground surface. The data acquired by performing the sampling were intended to estimate the horizontal and vertical extent of E&P waste impact by subjecting one (1) sample per bore to laboratory processes and cross referencing with electrical conductivity field screening values to provide a reasonable estimation of the subsurface impact. The limits of soil impact depicted on the Limited Site Investigation Report Figures reveal above estate threshold values at the perimeter bore locations. The actual horizontal limits of impact can be estimated by employing a "straight line relationship" by interpolation; yet as stated in the Conclusion of the Report; is ultimately determined through final site verification performed during Corrective Action. That is, floor and sidewall sampling must be employed; supported by laboratory analytical procedures to determine if below threshold limits have been met within the remaining soil matrix.

The Limited Site Investigation Report reveals shallow groundwater concentrations below the Louisiana Department of Natural Resources (LDNR) 29b regulatory concentrations. However, the E&P waste groundwater concentrations apparently exceed the Estate established threshold values. As we discussed, remediation of groundwater is considerably more problematic and time consuming than over excavation/disposal used within the unsaturated zone. Pump and treat/disposal of E&P wastes from the shallow groundwater can be enhanced by installing subsurface

Mr. Jeff Hermes
April 6, 2017
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recovery galleries from which to pump E&P waste impacted groundwater; yet the Estate established threshold appears to be potentially restrictive and difficult to meet within any reasonable period of time.


Assessed within Risk Based parameters, the allowable concentrations are likely to be considerably less restrictive, especially when viewing the groundwater as Non-Drinking Water (Classification 3) which the total dissolved solids content lends itself to. Additionally, metals (Arsenic) concentrations are not uncommon in shallow aquifers throughout South Louisiana and may be at "original condition" levels.

Based upon this, it appears that "background" concentrations need to be determined in soils and groundwater. As stated, soil over-excavation and disposal can be performed with some level of expedience, although the final extent removed, disposed and replaced is determined through final site verification sampling. Groundwater remediation of E&P wastes is considerably more difficult and potentially time excessive. Determination of E&P waste in background groundwater and soils appears to be paramount at this juncture.

Please review and contact me if there are any questions or you require additional information.

Sincerely,

ACADIAN ENGINEERS
& ENVIRONMENTAL CONSULTANTS INC.



Andre' Aucoin, PE

AA/lpg

cc: James McIntire, Neumin Production Company, W/Enclosure
R. Dean Johnstone, Neumin Production Company, W/Enclosure

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