

March 20, 2012

RECEIVED OCD  
2012 MAR 23 P 1:54

Case 14808

NMOCD Engineering  
ATTN: Will Jones  
1220 South St. Francis Drive  
Santa Fe, NM 87505

RE: Legacy Reserves  
Andrew Arnquist est. #2  
Attachment to C-108

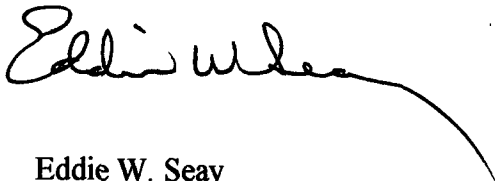
Mr. Jones:

Please find attached a water analysis from a windmill located in the NW ¼ of Section 28, just adjacent to the location of the proposed SWD. I apologize for the delay in returning the analysis.

Legacy is preparing part B and C to your request.

Should you need anything further, please call.

Thanks,



Eddie W. Seay  
Eddie Seay Consulting  
601 W. Illinois  
Hobbs, NM 88242  
575-392-2236  
[seay04@leaco.net](mailto:seay04@leaco.net)

cc: Legacy Reserves

December 09, 2011

Eddie Seay

Eddie Seay Consulting

601 W. Illinois

Hobbs, NM 88242

RE: ANDREW ARNQUIST EST. #2

Enclosed are the results of analyses for samples received by the laboratory on 12/07/11 14:25.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

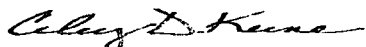
**Analytical Results For:**Eddie Seay Consulting  
601 W. Illinois  
Hobbs NM, 88242Project: ANDREW ARNQUIST EST. #2  
Project Number: LEGACY #2  
Project Manager: Eddie Seay  
Fax To: (505) 392-6949Reported:  
09-Dec-11 10:47

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ARNQUIST WW #1	H102620-01	Water	07-Dec-11 10:40	07-Dec-11 14:25

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Eddie Seay Consulting  
601 W. Illinois  
Hobbs NM, 88242

Project: ANDREW ARNQUIST EST. #2  
Project Number: LEGACY #2  
Project Manager: Eddie Seay  
Fax To: (505) 392-6949

Reported:  
09-Dec-11 10:47

**ARNQUIST WW #1**  
**H102620-01 (Water)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
<b>Cardinal Laboratories</b>									
<b>Inorganic Compounds</b>									
Alkalinity, Bicarbonate	190	5.00	mg/L	1	1120105	HM	08-Dec-11	310.1M	
Calcium	60.9	1.60	mg/L	1	1101803	HM	08-Dec-11	SM3500Ca-D	
Alkalinity, Carbonate	ND	0.00	mg/L	1	1120105	HM	08-Dec-11	310.1M	
Chloride	36.0	4.00	mg/L	1	1120802	HM	08-Dec-11	4500-Cl-B	
Conductivity	565	1.00	uS/cm	1	1120903	HM	08-Dec-11	120.1	
Magnesium	20.4	1.00	mg/L	1	1101803	HM	08-Dec-11	SM3500Mg-E	
pH	7.74	0.100	pH Units	1	1120903	HM	08-Dec-11	150.1	
Potassium	1.59	1.00	mg/L	1	1101803	HM	08-Dec-11	HACH 8049	
Sodium	14.0	1.00	mg/L	1	1101803	HM	08-Dec-11	Calculation	
Sulfate	60.6	10.0	mg/L	1	1120804	HM	07-Dec-11	375.4	
TDS	395	5.00	mg/L	1	1120606	HM	07-Dec-11	160.1	
Alkalinity, Total	156	4.00	mg/L	1	1120105	HM	08-Dec-11	310.1M	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Eddie Seay Consulting  
601 W. Illinois  
Hobbs NM, 88242

Project: ANDREW ARNQUIST EST. #2  
Project Number: LEGACY #2  
Project Manager: Eddie Seay  
Fax To: (505) 392-6949

Reported:  
09-Dec-11 10:47

### Inorganic Compounds - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 1101803 - \*\*\* DEFAULT PREP \*\*\*

##### Blank (1101803-BLK1)

Prepared &amp; Analyzed: 18-Oct-11

Sodium	ND	1.00	mg/L							
Calcium	ND	1.60	mg/L							
Magnesium	ND	1.00	mg/L							
Potassium	ND	1.00	mg/L							

##### LCS (1101803-BS1)

Prepared &amp; Analyzed: 18-Oct-11

Calcium	22.4		mg/L	20.0		112	80-120			
Magnesium	52.5		mg/L	50.0		105	80-120			
Potassium	7.11		mg/L	8.00		88.9	80-120			

#### Batch 1120105 - General Prep - Wet Chem

##### Blank (1120105-BLK1)

Prepared &amp; Analyzed: 01-Dec-11

Alkalinity, Carbonate	ND	0.00	mg/L							
Alkalinity, Bicarbonate	ND	5.00	mg/L							
Alkalinity, Total	ND	4.00	mg/L							

##### LCS (1120105-BS1)

Prepared &amp; Analyzed: 01-Dec-11

Alkalinity, Carbonate	ND	0.00	mg/L				80-120			
Alkalinity, Bicarbonate	ND	5.00	mg/L				80-120			
Alkalinity, Total	112	4.00	mg/L	100		112	80-120			

##### LCS Dup (1120105-BSD1)

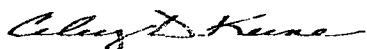
Prepared &amp; Analyzed: 01-Dec-11

Alkalinity, Carbonate	ND	0.00	mg/L				80-120			20
Alkalinity, Bicarbonate	ND	5.00	mg/L				80-120			20
Alkalinity, Total	116	4.00	mg/L	100		116	80-120	3.51		20

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Eddie Seay Consulting  
601 W. Illinois  
Hobbs NM, 88242

Project: ANDREW ARNQUIST EST. #2  
Project Number: LEGACY #2  
Project Manager: Eddie Seay  
Fax To: (505) 392-6949

Reported:  
09-Dec-11 10:47

**Inorganic Compounds - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1120105 - General Prep - Wet Chem**
**Duplicate (1120105-DUP1)**

Source: H102579-01

Prepared &amp; Analyzed: 01-Dec-11

Alkalinity, Carbonate	ND	0.00	mg/L		0.00				20	
Alkalinity, Bicarbonate	2120	5.00	mg/L		2120			0.00	20	
Alkalinity, Total	1740	4.00	mg/L		1740			0.00	20	

**Matrix Spike (1120105-MS1)**

Source: H102579-01

Prepared &amp; Analyzed: 01-Dec-11

Alkalinity, Carbonate	ND	0.00	mg/L		0.00		70-130			
Alkalinity, Bicarbonate	13800	25.0	mg/L		2120		70-130			
Alkalinity, Total	11300	20.0	mg/L	500	1740	NR	70-130			QM-07

**Batch 1120606 - Filtration**
**Blank (1120606-BLK1)**

Prepared &amp; Analyzed: 06-Dec-11

TDS	ND	5.00	mg/L							
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**Duplicate (1120606-DUP1)**

Source: H102602-03

Prepared &amp; Analyzed: 06-Dec-11

TDS	347	5.00	mg/L		352			1.43	20	
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**Batch 1120802 - General Prep - Wet Chem**
**Blank (1120802-BLK1)**

Prepared &amp; Analyzed: 08-Dec-11

Chloride	ND	4.00	mg/L							
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**LCS (1120802-BS1)**

Prepared &amp; Analyzed: 08-Dec-11

Chloride	108	4.00	mg/L		100		108	80-120		
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**LCS Dup (1120802-BSD1)**


Prepared &amp; Analyzed: 08-Dec-11

Chloride	104	4.00	mg/L		100		104	80-120	3.77	20
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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Eddie Seay Consulting  
601 W. Illinois  
Hobbs NM, 88242

Project: ANDREW ARNQUIST EST. #2  
Project Number: LEGACY #2  
Project Manager: Eddie Seay  
Fax To: (505) 392-6949

Reported:  
09-Dec-11 10:47

### Inorganic Compounds - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 1120802 - General Prep - Wet Chem

##### Duplicate (1120802-DUP1)

Source: H102607-01

Prepared & Analyzed: 08-Dec-11

Chloride	1280	4.00	mg/L	1260	1.57	20
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##### Matrix Spike (1120802-MS1)

Source: H102607-01

Prepared & Analyzed: 08-Dec-11

Chloride	1820	4.00	mg/L	500	1260	112	80-120
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#### Batch 1120804 - General Prep - Wet Chem

##### Blank (1120804-BLK1)

Prepared & Analyzed: 07-Dec-11

Sulfate	ND	10.0	mg/L
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##### LCS (1120804-BS1)

Prepared & Analyzed: 07-Dec-11

Sulfate	18.8	10.0	mg/L	20.0	94.0	80-120
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##### LCS Dup (1120804-BSD1)

Prepared & Analyzed: 07-Dec-11

Sulfate	18.3	10.0	mg/L	20.0	91.5	80-120	2.70	20
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##### Duplicate (1120804-DUP1)

Source: H102602-01

Prepared & Analyzed: 07-Dec-11

Sulfate	30.6	10.0	mg/L	31.3	2.26	20
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##### Matrix Spike (1120804-MS1)

Source: H102602-01

Prepared & Analyzed: 07-Dec-11

Sulfate	49.5	10.0	mg/L	20.0	31.3	91.0	70-130
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#### Batch 1120903 - General Prep - Wet Chem

##### LCS (1120903-BS1)

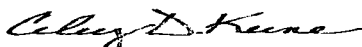
Prepared & Analyzed: 08-Dec-11

Conductivity	505	uS/cm	500	101	90-110
pH	7.10	pH Units	7.00	101	90-110

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Celest D. Keene, Lab Director/Quality Manager

**Analytical Results For:**Eddie Seay Consulting  
601 W. Illinois  
Hobbs NM, 88242Project: ANDREW ARNQUIST EST. #2  
Project Number: LEGACY #2  
Project Manager: Eddie Seay  
Fax To: (505) 392-6949Reported:  
09-Dec-11 10:47**Inorganic Compounds - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1120903 - General Prep - Wet Chem**

Duplicate (1120903-DUP1)

Source: H102620-01

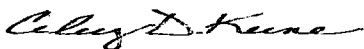
Prepared &amp; Analyzed: 08-Dec-11

Conductivity	565	1.00	uS/cm		565			0.00	20	
pH	7.77	0.100	pH Units		7.74			0.387	20	

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Celey D. Keene, Lab Director/Quality Manager



**Notes and Definitions**

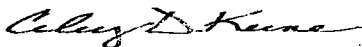
- QM-07      The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- ND          Analyte NOT DETECTED at or above the reporting limit
- RPD        Relative Percent Difference
- \*\*          Samples not received at proper temperature of 6°C or below.
- \*\*\*        Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C
- Samples reported on an as received basis (wet) unless otherwise noted on report

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Cardinal Laboratories

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

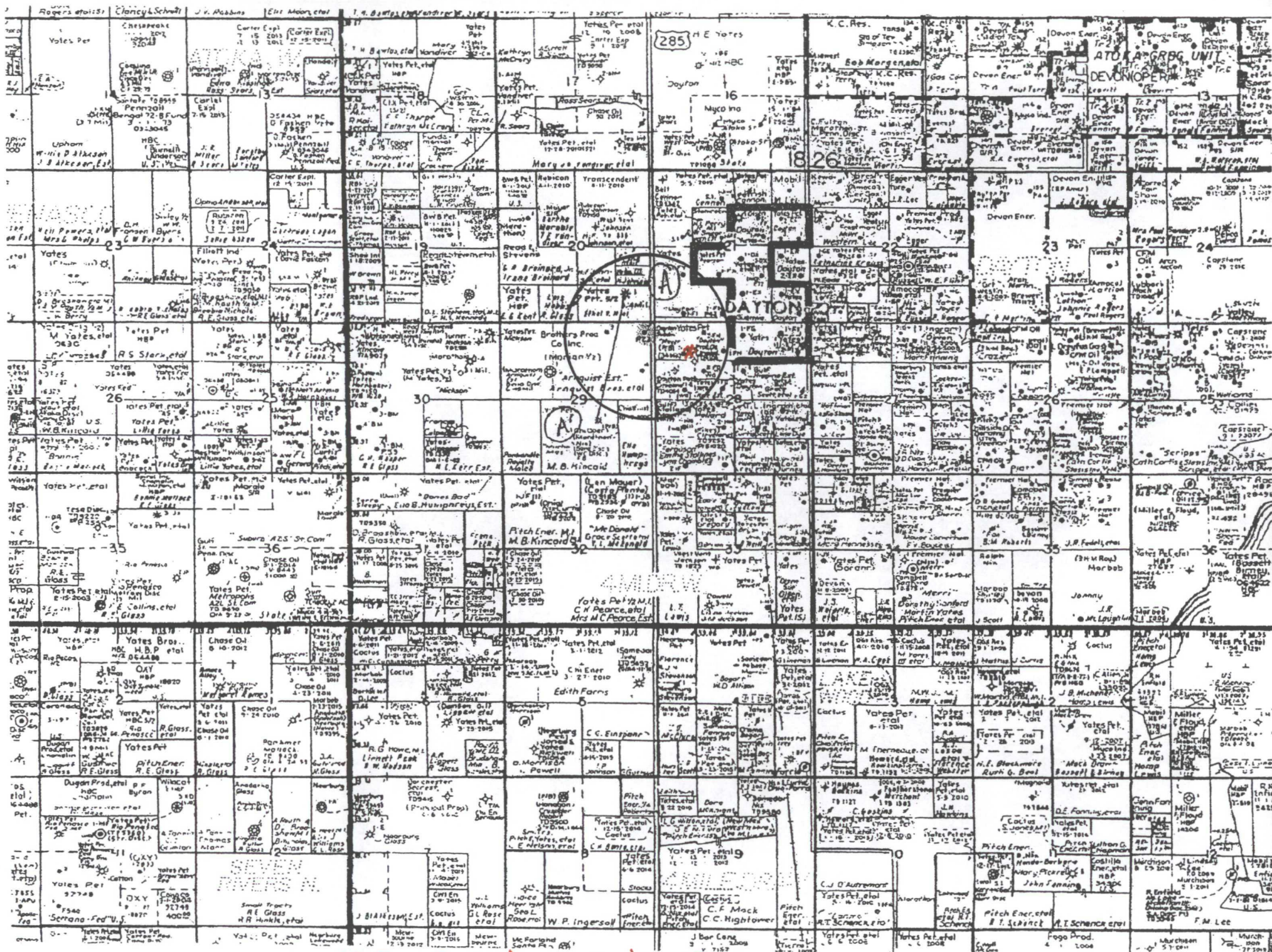


## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476





General location of windmill