



# ALS Paragon



## Inorganics Case Narrative

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### Colorado Oil & Gas Conservation Commission

Complaint 200204739

Work Order Number: 0903072

1. This report consists of 2 soil samples.
2. The samples were received intact at ambient temperature by ALS Paragon on 03/11/09.
3. The samples were prepared for analysis based on SW-846, 3<sup>rd</sup> Edition procedures, Methods for the Chemical Analysis of Waters and Wastes (MCAWW), May 1994 procedures, and Environmental Monitoring Systems Laboratory (EMSL) Rev 2.1 procedures.
4. The samples were analyzed following SW-846, MCAWW, and EMSL procedures for the following methods:

<u>Analyte</u>	<u>Method</u>	<u>SOP #</u>
pH	9045C	1126 Rev 16
Specific conductance	120.1	1128 Rev 9
Bromide	300.0	1113 Rev 11
Chloride	300.0	1113 Rev 11
Sulfate	300.0	1113 Rev 11

5. All standards and solutions were used within their recommended shelf life.
6. The samples were prepared and analyzed within the established hold time for each analysis.

All in house quality control procedures were followed, as described below.

7. General quality control procedures.

- n A preparation (method) blank and laboratory control sample (LCS) were prepared and analyzed with the samples in the bromide, chloride, and sulfate preparation batch. There were not more than 20 samples in this preparation batch.



- The method blank associated with the bromide, chloride, and sulfate batch was below the reporting limit for the requested analytes. This indicates that no contaminants were introduced to the samples during preparation and analysis.
- The LCS was within the acceptance limits for the bromide, chloride, and sulfate analysis.
- All initial and continuing calibration blanks (ICB/CCB) associated with the bromide, chloride, and sulfate analytical batch were below the reporting limit for the requested analytes with the exception of CCB1 for chloride. The samples bracketed by this CCB contained more than ten times the concentration of chloride that was detected in the CCB.
- All initial and continuing calibration verifications (ICV/CCV) associated with each analytical batch were within the acceptance criteria for the requested analytes. This indicates a valid calibration and stable instrument conditions.

8. Matrix specific quality control procedures.

Sample 0903072-1 was designated as the quality control sample for the pH and specific conductance analyses. Per method requirements, matrix QC was performed for the bromide, chloride, and sulfate analysis. Since a sample from this order number was not the selected quality control (QC) sample, matrix specific QC results are not included in this report.

Similarity of matrix and therefore relevance of the QC results should not be automatically inferred for any sample other than the native sample selected for QC.

- A sample duplicate was prepared and analyzed with the pH and specific conductance batches. All guidance criteria for precision were met.

9. Sample dilutions were not required for the requested analyses.

10. Manual integrations are performed when needed to provide consistent and defensible data following the guidelines in SOP 939 Revision 3.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS Paragon certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

  
\_\_\_\_\_  
Megan Johnson  
Inorganics Primary Data Reviewer

3/20/09  
Date

  
\_\_\_\_\_  
Inorganics Final Data Reviewer

3/19/09  
Date



### **Inorganic Data Reporting Qualifiers**

The following qualifiers are used by the laboratory when reporting results of inorganic analyses.

- Concentration qualifier -- If the analyte was analyzed for but not detected a “U” is entered.
- QC qualifier -- Specified entries and their meanings are as follows:
  - N - Spiked sample recovery not within control limits.
  - \* - Duplicate analysis (relative percent difference) not within control limits.
  - Z - Calibration spike recovery not within control limits.

# ALS Paragon

## Sample Number(s) Cross-Reference Table

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**Paragon OrderNum:** 0903072

**Client Name:** Colorado Oil & Gas Conservation Commission

**Client Project Name:**

**Client Project Number:** Complaint 200204739

**Client PO Number:** OE PHA 09000000004

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Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
Sandoval 100309 B	0903072-1		SOIL	10-Mar-09	8:33
Sandoval 100309 S	0903072-2		SOIL	10-Mar-09	9:35

CONDITION OF SAMPLE UPON RECEIPT FORM

Paragon Analytics

Client: COCG

Workorder No: 0903072

Project Manager: AW

Initials: me Date: 3-11-09

1. Does this project require any <b>special handling</b> in addition to standard Paragon procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody <b>seals</b> on <b>shipping containers</b> intact?	<input checked="" type="radio"/> NONE	YES	NO
3. Are Custody seals on <b>sample containers</b> intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a <b>COC (Chain-of-Custody)</b> present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the <b>COC and bottle labels complete and legible</b> ?		<input checked="" type="radio"/> YES	NO
6. Is the <b>COC in agreement</b> with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were <b>airbills / shipping documents</b> present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous <b>samples requiring preservation preserved correctly?</b> (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous <b>non-preserved samples pH 4-9?</b>	<input checked="" type="radio"/> N/A	YES	NO
10. Is there <b>sufficient sample</b> for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the <b>proper containers</b> for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within <b>holding times</b> for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received <b>intact?</b> (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring <b>no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon)</b> headspace free? <b>Size of bubble:</b> _____ < green pea _____ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do perchlorate LCMS-MS samples <b>have</b> headspace? (at least 1/3 of container required)	<input checked="" type="radio"/> N/A	YES	NO
16. Were samples checked for and free from the presence of <b>residual chlorine?</b> (Applicable when PM has indicated samples are from a chlorinated water source; note if field preservation with sodium thiosulfate was not observed.)	<input checked="" type="radio"/> N/A	YES	NO
17. Were the samples <b>shipped on ice?</b>		YES	<input checked="" type="radio"/> NO
18. Were cooler temperatures measured at 0.1-6.0°C? <b>IR gun used*:</b> <input checked="" type="radio"/> #2 <input type="radio"/> #4 <b>RAD ONLY</b>		YES	<input checked="" type="radio"/> NO
Cooler #: _____			
Temperature (°C): <u>Amb</u>			
No. of custody seals on cooler: <u>0</u>			
DOT Survey/Acceptance Information	External µR/hr reading: <u>12</u>		
	Background µR/hr reading: <u>11</u>		
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO / <input checked="" type="radio"/> NA (if no. see Form 008.)			

**Additional Information:** PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO /  NA Contact: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**Project Manager Signature / Date:** [Signature] 3/11/09

\*IR Gun #2: Oakton, SN 29922500201-0066

\*IR Gun #4: Oakton, SN 2372220101-0002



**Paragon Analyticals**

A Division of DataChem Laboratories, Inc.

225 Commerce Drive Fort Collins, CO 80524  
800-443-1511 or (970) 490-1511 (970) 490-1522 Fax

Accession Number (LAB ID) **0903072**

**Chain-of-Custody** Date 11/14/09 Page 1 of 1

Originator: Retain pink copy!

Sample ID	Date	Time *	Lab ID	Matrix	Preservative (Indicate type... HCl, etc.)	No. of Containers	Sample(s)	Turnaround (circle one)	Standard or Rush (Due <u>14</u> )	Disposal: Date <u>3/04/10</u> or Return to Client
Standard 10029 B	10/14/09	08:13	2	S	None	2	SW8260B	Standard	Standard	SW8260B
Standard 10030 S	11/14/09	08:15	2	S	None	2	SW8260B	Standard	Standard	SW8260B
							SW8260B			SW8260B
							SW8021B			SW8021B
							SW8270C			SW8270C
							SW8081A			SW8081A
							SW8082			SW8082
							SW8151A			SW8151A
							SW8330			SW8330
							TCLP Organics SW1311			TCLP Organics SW1311
							SW8260B 8270C 8081A 8151A			SW8260B 8270C 8081A 8151A
							TCLP Metals by ICP Hg			TCLP Metals by ICP Hg
							SW610B 7470 7471 E200.7			SW610B 7470 7471 E200.7
							Dissolved Metals by ICP Hg			Dissolved Metals by ICP Hg
							SW610B 7470 E200.7			SW610B 7470 E200.7
							Total Metals by ICP/MS			Total Metals by ICP/MS
							SW620A E200.8			SW620A E200.8
							Dissolved Metals by ICP/MS			Dissolved Metals by ICP/MS
							SW620A E200.8			SW620A E200.8
							Hexavalent Chromium			Hexavalent Chromium
							SW196A Alkaline Digest? Y / N			SW196A Alkaline Digest? Y / N
							Inorganic Anions			Inorganic Anions
							SW9056 E300.0 (specify in comments)			SW9056 E300.0 (specify in comments)
							Solids:			Solids:
							Total E160.3 TDS E160.1 TSS E160.2			Total E160.3 TDS E160.1 TSS E160.2
							SW9040B SW9045C			SW9040B SW9045C
							TPH			TPH
							SW8015B GRO DRO (circle one or both)			SW8015B GRO DRO (circle one or both)
							Gross Alpha / Beta			Gross Alpha / Beta
							SW9310 E900.0			SW9310 E900.0
							Actinides by Paragon SOP			Actinides by Paragon SOP
							Pu / U / Am / Th / Cm /			Pu / U / Am / Th / Cm /
							Tritium			Tritium
							E906.0			E906.0
							Total Alpha-Emitting Radium			Total Alpha-Emitting Radium
							SW9315 E903.0			SW9315 E903.0
							Radium 226			Radium 226
							E903.1			E903.1
							Radium 228			Radium 228
							SW9320 E904.0			SW9320 E904.0
							Strontium 90 (Total RadioSr)			Strontium 90 (Total RadioSr)
							DS811-00			DS811-00
							Gamma Isotopes			Gamma Isotopes
							E901.1			E901.1
							Radon 222			Radon 222
							SM7510Rn			SM7510Rn

Project Name/No.: 2002-04739

Report To: Peter Gintantus

Phone: 719-246-3071

Fax:

E-mail:

Company:

Address:

Circle method (right); provide additional information as needed (comments).

\* Time Zone: EST (MST/PST) Matrix Key: O = oil, S = soil, NS = non-soil solid, W = water, L = liquid, E = extract, F = filter

Comments:

ANIONS = Br, Cl, SO4

CATIONS = Sb, As, Ba, Be, B, Cd, Cr, Cu, Fe, Pb, Li, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Si, Th, U, Zn

Relinquished By: (1) Signature [Signature] Relinquished By: (2) Signature [Signature]

Printed Name [Name] Printed Name [Name]

Date [Date] Time [Time] Date [Date] Time [Time]

Company [Company] Company [Company]

Received By: (1) Signature [Signature] Received By: (2) Signature [Signature]

Printed Name [Name] Printed Name [Name]

Date [Date] Time [Time] Date [Date] Time [Time]

Company [Company] Company [Company]

# Solid pH in water @25 Degrees Celsius

Method SW9045C

## Sample Results

Lab Name: ALS Paragon

Client Name: Colorado Oil & Gas Conservation Commission

Client Project ID: Complaint 200204739

Work Order Number: 0903072

Final Volume: 20 ml

Reporting Basis: As Received

Matrix: SOIL

Prep Method: METHOD

Result Units: pH

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Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Reporting Limit	Flag	Sample Aliquot
Sandoval 100309 B	0903072-1	03/10/2009	03/13/2009	03/13/2009	N/A	1	8.34	0.1		20 g
Sandoval 100309 S	0903072-2	03/10/2009	03/13/2009	03/13/2009	N/A	1	8.52	0.1		20 g

### Comments:

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1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *ph0903072-1*

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Date Printed: Thursday, March 19, 2009

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# SPECIFIC CONDUCTIVITY

Method EPA120.1

## Sample Results

Lab Name: ALS Paragon

Client Name: Colorado Oil & Gas Conservation Commission

Client Project ID: Complaint 200204739

Work Order Number: 0903072

Final Volume: 40 ml

Reporting Basis: Dry Weight

Matrix: SOIL

Prep Method: METHOD

Result Units: umhos/cm

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Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Reporting Limit	Flag	Sample Aliquot
Sandoval 100309 B	0903072-1	03/10/2009	03/13/2009	03/13/2009	N/A	1	83	1		4 g
Sandoval 100309 S	0903072-2	03/10/2009	03/13/2009	03/13/2009	N/A	1	82	1		4 g

### Comments:

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1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *sc0903072-1*

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Date Printed: Thursday, March 19, 2009

ALS Paragon

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LIMS Version: 6.252A

# Ion Chromatography

Method EPA300.0 Revision 2.1

## Sample Results

Lab Name: ALS Paragon

Work Order Number: 0903072

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200204739

Field ID:	Sandoval 100309 B
Lab ID:	0903072-1

Sample Matrix: SOIL

% Moisture: 6.8

Date Collected: 10-Mar-09

Date Extracted: 12-Mar-09

Date Analyzed: 13-Mar-09

Prep Method: METHOD

Prep Batch: WC090312-1

QCBatchID: WC090312-1-2

Run ID: ic090313-1a

Cleanup: NONE

Basis: Dry Weight

File Name: 90313\_032.DXD

Sample Aliquot: 4 g

Final Volume: 40 ml

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
16887-00-6	CHLORIDE	1	2.3	2.1		
24959-67-9	BROMIDE	1	2.1	2.1	U	
14808-79-8	SULFATE	1	29	11		

Data Package ID: *ic0903072-1*

# Ion Chromatography

Method EPA300.0 Revision 2.1

## Sample Results

Lab Name: ALS Paragon

Work Order Number: 0903072

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200204739

Field ID:	Sandoval 100309 S
Lab ID:	0903072-2

Sample Matrix: SOIL

% Moisture: 3.1

Date Collected: 10-Mar-09

Date Extracted: 12-Mar-09

Date Analyzed: 13-Mar-09

Prep Method: METHOD

Prep Batch: WC090312-1

QCBatchID: WC090312-1-2

Run ID: ic090313-1a

Cleanup: NONE

Basis: Dry Weight

File Name: 90313\_033.DXD

Sample Aliquot: 4 g

Final Volume: 40 ml

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
16887-00-6	CHLORIDE	1	6.1	2.1		
24959-67-9	BROMIDE	1	2.1	2.1	U	
14808-79-8	SULFATE	1	49	10		

Data Package ID: *ic0903072-1*

# pH

## Method SW9045

### Duplicate Sample Results

Lab Name: ALS Paragon

Work Order Number: 0903072

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200204739

Field ID:	Sandoval 100309 B
Lab ID:	0903072-1D

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: 03/10/2009

Date Extracted: 03/13/2009

Date Analyzed: 03/13/2009

Prep Batch: PH090313-1

QCBatchID: PH090313-1-2

Run ID: ph090313-1a

Cleanup: NONE

Basis: As Received

File Name:

Sample Aliquot: 20 g

Final Volume: 20 ml

Result Units: pH

Clean DF: 1

CASNO	Target Analyte	Sample Result	Samp Qual	Duplicate Result	Dup Qual	Reporting Limit	Dilution Factor	RPD	RPD Limit
10-29-7	PH	8.34		8.48		0.1	1		0.5

Data Package ID: *ph0903072-1*

# Specific Conductance in Water

## Method EPA120.1

### Duplicate Sample Results

Lab Name: ALS Paragon

Work Order Number: 0903072

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200204739

Field ID: Sandoval 100309 B

Lab ID: 0903072-1D

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: 03/10/2009

Date Extracted: 03/13/2009

Date Analyzed: 03/13/2009

Prep Batch: SC090313-1

QCBatchID: SC090313-1-1

Run ID: sc090313-1a

Cleanup: NONE

Basis: Dry Weight

File Name:

Sample Aliquot: 4 g

Final Volume: 40 ml

Result Units: umhos/cm

Clean DF: 1

CASNO	Target Analyte	Sample Result	Samp Qual	Duplicate Result	Dup Qual	Reporting Limit	Dilution Factor	RPD	RPD Limit
10-34-4	SPECIFIC CONDUCTIVITY	83		75		1	1	10	10

Data Package ID: sc0903072-1

Date Printed: Thursday, March 19, 2009

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# Ion Chromatography

Method EPA300.0 Revision 2.1

Method Blank

Lab Name: ALS Paragon

Work Order Number: 0903072

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200204739

Lab ID: WC090312-1MB

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 12-Mar-09

Date Analyzed: 13-Mar-09

Prep Method: METHOD

Prep Batch: WC090312-1

QCBatchID: WC090312-1-2

Run ID: ic090313-1a

Cleanup: NONE

Basis: N/A

File Name: 90313\_009.DXD

Sample Aliquot: 4 g

Final Volume: 40 ml

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	DF	Result	Reporting Limit	Result Qualifier	EPA Qualifier
16887-00-6	CHLORIDE	1	2	2	U	
24959-67-9	BROMIDE	1	2	2	U	
14808-79-8	SULFATE	1	10	10	U	

Data Package ID: ic0903072-1

Date Printed: Thursday, March 19, 2009

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# Ion Chromatography

Method EPA300.0 Revision 2.1

Laboratory Control Sample

Lab Name: ALS Paragon

Work Order Number: 0903072

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: Complaint 200204739

Lab ID: WC090312-1LCS

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 03/12/2009

Date Analyzed: 03/13/2009

Prep Method: METHOD

Prep Batch: WC090312-1

QCBatchID: WC090312-1-2

Run ID: ic090313-1a

Cleanup: NONE

Basis: N/A

File Name: 90313\_010.DXD

Sample Aliquot: 4 g

Final Volume: 40 ml

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
16887-00-6	CHLORIDE	100	98.9	2		99	85 - 115%
24959-67-9	BROMIDE	100	97.5	2		98	85 - 115%
14808-79-8	SULFATE	500	509	10		102	85 - 115%

Data Package ID: ic0903072-1

Date Printed: Thursday, March 19, 2009

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