



GALBRAITH® LABORATORIES, INC.

Accuracy with speed - since 1950

LABORATORY REPORT

Barb Holland
Gascoyne Laboratories Inc
2101 Van Deman St
Baltimore MD 21224-6697

Report Date: 10/16/97
Sample Received: 10/03/97
Purchase Order #: Job #9704087
Fax Number: 410-633-5443

SAMPLE ID	LAB ID	ANALYSIS	RESULT(S)	DUPLICATE RESULT(S)
970021039	V-6232	Carbon	30.99 %	
		Hydrogen	3.34 %	
		Nitrogen	< 0.5 * %	
		Oxygen	2.81 %	
970021040	V-6233	Carbon	31.01 %	
		Hydrogen	3.34 %	
		Nitrogen	< 0.5 * %	
		Oxygen	1.96 %	
970021041	V-6234	Carbon	30.99 %	
		Hydrogen	3.34 %	
		Nitrogen	< 0.5 * %	
		Oxygen	1.56 %	
970021042	V-6235	Carbon	31.08 %	30.87 %
		Hydrogen	3.34 %	3.35 %
		Nitrogen	< 0.5 * %	< 0.5 * %
		Oxygen	2.06 %	1.94 %
970021043	V-6236	Carbon	31.09 %	
		Hydrogen	3.35 %	
		Nitrogen	< 0.5 * %	
		Oxygen	1.33 %	
970021044	V-6237	Carbon	31.15 %	
		Hydrogen	3.37 %	
		Nitrogen	< 0.5 * %	

DO A 049263
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Tel: (423) 546-1335 · Fax: (423) 546-7209



GALBRAITH® LABORATORIES, INC.

Accuracy with speed - since 1950

LABORATORY REPORT

Barb Holland

SAMPLE ID	LAB ID	ANALYSIS	RESULT(S)	DUPLICATE RESULT(S)
970021044	V-6237	Oxygen	1.38	%
970021045	V-6238	Carbon	30.99	%
		Hydrogen	3.34	%
		Nitrogen	< 0.5 *	%
		Oxygen	1.40	%
970021046	V-6239	Carbon	31.03	%
		Hydrogen	3.33	%
		Nitrogen	< 0.5 *	%
		Oxygen	1.12	%
970021047	V-6240	Carbon	30.98	%
		Hydrogen	3.32	%
		Nitrogen	< 0.5 *	%
		Oxygen	0.96	%

Notes: * Quality assurance data indicates that we cannot be confident in the analysis of your sample below the level indicated. If lower quantitation limits are required, other procedures may be applicable. Check with our technical personnel. We were unable to do a Sulfur analysis on all samples due to high Chlorine content.

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ICP:le



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GASCOYNE LABORATORIES, INC.
Baltimore, MD 21224

GENQC.WS
page 1

QUALITY CONTROL SUMMARY FOR
GENERAL CHEMICAL ANALYSES

Report No. 9704087 -QC Report Date: 11/7/97

Report To: Radian International Page: 1 of 1

QA/QC Data: Lab Reagent Blank (LRB), Matrix Spike (MS),
Quality Control Sample (QCS), Lab Duplicate Results

	LRB	Limits	Percent Recovery		Duplicate Sample ID	Duplicate Results
			MS	QCS		
Total Petroleum Hydrocarbons	ND	1				1
Oil and Grease	ND	5				1
Total Organic Halides	ND	0.05				1
Water, K.F.	ND	0.1				1
Ash, wt. %	ND	0.01	NA	90.4	9704087-21041	<0.01, <0.01
Btu /lb.	ND	500	NA	100.1	9704087-21046	6400, 16 ?
Density, g/cc	ND	NA	NA	NA	9704087-21039	1.33, 1.33
Total Chlorine, wt. %	ND	0.05	NA	93.2	9704087-21044	65.4, 165.9
Viscosity @ 21°C, cSt	ND	NA	NA	NA	9704087-21040	1.5, 1.5
	ND					1
	ND					1
	ND					1

Notes: (1) Results expressed as: mg/liter (ppm).
mg/kilogram (ppm).
percent (%).

DO A 049265
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DEPT. HEAD: JM 10/9/97

QA/QC: _____

Bf.S.

CCB

SAMPLE ID: +

INC TITRATION:

EQUIVALENCE MV

TITRANT VOLUME

COMPUTATION

270

3.100

3.545E-2

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 7 1997 10:37 AM

13

Bomb Blank

SAMPLE ID: +

SAMPLE DATA: 0.5256

INC TITRATION:

EQUIVALENCE MV

TITRANT VOLUME

COMPUTATION

258

3.106

7.149E-2

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 7 1997 10:44 AM

13

High Chlorine Control

SAMPLE ID: 586

SAMPLE DATA: 0.0971

C.V. 58.6%

93.2% R

INC TITRATION:

EQUIVALENCE MV

TITRANT VOLUME

COMPUTATION

247

17.963

54.63

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 7 1997 10:58 AM

DO A 049266
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130.4.

9704087
Radian Int.

SAMPLE ID: 21039
SAMPLE DATA: 0.0589

Tot. Cl
64.9 %

INC TITRATION:

EQUIVALENCE MV	TITRANT VOLUME	COMPUTATION
266	13.774	64.85

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 7 1997 11:11 AM

13

SAMPLE ID: 21040
SAMPLE DATA: 0.0636

9704087
Radian Int.

Tot. Cl
58.4 %

INC TITRATION:

EQUIVALENCE MV	TITRANT VOLUME	COMPUTATION
247	13.469	58.35

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 7 1997 11:23 AM

13

SAMPLE ID: 21041
SAMPLE DATA: 0.0508

9704087
Radian Int.

Tot. Cl
65.3 %

INC TITRATION:

EQUIVALENCE MV	TITRANT VOLUME	COMPUTATION
250	12.353	65.27

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 7 1997 11:42 AM

DO A 049267
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3) p.

SAMPLE ID: 21042
SAMPLE DATA: 0.0608

9704087
Radian Int.

Tot. Cl
63.3 %

INC TITRATION:

EQUIVALENCE MV	TITRANT VOLUME	COMPUTATION
260	13.855	63.29

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 7 1997 11:58 AM

3)

SAMPLE ID: 21043
SAMPLE DATA: 0.0498

9704087
Radian Int.

Tot. Cl
61.4 %

INC TITRATION:

EQUIVALENCE MV	TITRANT VOLUME	COMPUTATION
258	11.628	61.42

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 7 1997 12:11 PM

13)

SAMPLE ID: 21044
SAMPLE DATA: 0.0489

Interference with probe

INC TITRATION:

TITRATION TERMINATED BY TITRANT VOLUME LIMIT.

OCT 7 1997 12:32 PM

13) P.M.

SAMPLE ID: 21045
SAMPLE DATA: 0.0552

Interference with probe

INC TITRATION:

TITRATION TERMINATED

OCT 7 1997 12:49 PM

===== ANALYSIS ABORTED =====

13)

SAMPLE ID: 21046
SAMPLE DATA: 0.0499

*Interference with probe
Too high MV reading*

INC TITRATION:

EQUIVALENCE MV

TITRANT VOLUME

COMPUTATION

350

15.444

88.40

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 7 1997 1:02 PM

13)

SAMPLE ID: 21047
SAMPLE DATA: 0.0585

*9704087
Radian Int.*

*Tot. Cl
67.0%*

INC TITRATION:

EQUIVALENCE MV

TITRANT VOLUME

COMPUTATION

262

14.057

67.00

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 7 1997 1:15 PM

DO A 049269
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(13) 8.9.

9704087

Radian Int.

SAMPLE ID: 21044
SAMPLE DATA: 0.0705

Tot. Cl

56.3%

INC TITRATION:

EQUIVALENCE MV

TITRANT VOLUME

COMPUTATION

249

14.200

56.32

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 7 1997 1:26 PM

Recheck

(13)

9704087

Radian Int.

SAMPLE ID: 21045
SAMPLE DATA: 0.0524

Tot. Cl

61.7%

INC TITRATION:

EQUIVALENCE MV

TITRANT VOLUME

COMPUTATION

264

12.125

61.73

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 7 1997 1:40 PM

(13)

9704087

Radian Int.

SAMPLE ID: 21046
SAMPLE DATA: 0.0586

Tot. Cl

58.2%

INC TITRATION:

EQUIVALENCE MV

TITRANT VOLUME

COMPUTATION

258

12.614

58.16

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 7 1997 1:54 PM

DO A 049270
CONFIDENTIAL

3) P. 4.

SAMPLE ID: 21044
SAMPLE DATA: 0.0540

9704087
Radian Int.

Tot. Cl
65.4%

INC TITRATION:

EQUIVALENCE MV

TITRANT VOLUME

COMPUTATION

268

12.954

65.35

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 7 1997 2:03 PM

3)

SAMPLE ID: 21044
SAMPLE DATA: 0.0522

9704087
Radian Int.
DUP

Tot. Cl
65.9%

INC TITRATION:

EQUIVALENCE MV

TITRANT VOLUME

COMPUTATION

262

12.700

65.87

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 7 1997 2:41 PM

3)

SAMPLE ID: +

Interference with probe

INC TITRATION:

EQUIVALENCE MV

TITRANT VOLUME

COMPUTATION

172

3.500

0.1773

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 7 1997 2:43 PM

DO A 049271
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1320/1.

End of Method 13 spike
6.0 ml of 0.1 N NaCl

SAMPLE ID: +

INC TITRATION:

99.47-R

EQUIVALENCE MV

TITRANT VOLUME

COMPUTATION

259

5.961

1.050

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 7 1997 2:47 PM

DO A 049272
CONFIDENTIAL

I2-1

Std./Spike ID	Stock ID	Stock Concn.	Wt./Vol. Used	Final Volume	Final Concn.	Prep Date	Expire Date	Verify Date	Disgard Date	Prepared By
0.025N I ₂	Lot 9612082	- Using 0.025N Sodium Thiosulfate				5/16/97	6/30/98	5/16/97	5/19/97	P.J.
C.V. 0.0247N					- Lot 9701378					
		$19.8 \times 0.025 / 20.0 = 0.0247$								
		$19.8 \times 0.025 / 20.0 = 0.0247$								
		$19.8 \times 0.025 / 20.0 = 0.0247$								
ST-1 0.025N Sodium Thiosulfate	Lot 9701378	- Reference Solution with above Solution				7/31/98				P.J.
0.1N AgNO ₃	Lot 9701023	- Using 0.1019N NaCl (ISP10C)				5/16/97	7/31/98	5/16/97		P.J.
C.V. 0.1019		$20.0 / 20.0 \times 0.1019 = 0.1019$								
		$20.0 / 20.0 \times 0.1019 = 0.1019$								
		$20.0 / 20.0 \times 0.1019 = 0.1019$								
0.01N AgNO ₃	Lot 9701023	0.1019N	100.0ml	1000ml	0.010	5/16/97	5/16/98	5/16/97		P.J.
		- Using 0.01N NaCl								
		$20.3 / 20.0 \times 0.01 = 0.010$								
		$20.3 / 20.0 \times 0.01 = 0.010$								
		$20.3 / 20.0 \times 0.01 = 0.010$								
FC-7	Pb10	1000ppm	10ml	200ml	5.0ml	5/21/97	12/98	5/21/97	6/5/97	PRM
0.5ppm Cu	Cu-7	1000ppm	0.5mls	1000mls	0.5	5/23/97		5/23/97		PRG
S-3	Lot# 6M 3320335	100% Na ₂ S-9H ₂ O	4.02g	1000mls	570ppm	5/28/97	11/16/97	5/28/97		PRG
W3-3	S-3	570ppm	50ml	100mls	5.7ppm	5/28/97	5/28/97	5/28/97	5/28/97	PRG
W3-4	S-3	570ppm	50mls	100mls	285ppm	6/3/97	6/3/97	6/3/97	6/3/97	PRG

Std./Spike ID	Stock ID	Stock Concn.	Wt./Vol. Used	Final Volume	Final Concn.	Prep Date	Expire Date	Verify Date	Disgard Date	Prepared By
Pb-10 ^{Fe-11}	Pb-10	1000ppm	1.0 ml	200 ml	5.0 ppm	8/8/97	12/98	8/8/97	8/26/97	PRM
D.I. CHA Pb-2	Pb-12	1000ppm	1.0 ml	200 ml	5.0 ppm	8/12/97	4/98	8/12/97		PRM
1ppm Pb	Pb-12	1000ppm	0.2 ml	200 ml	1.0 ppm	8/15/97	4/98			PRG
5ppm Pb	Pb-12	1000ppm	1.0 ml	200 ml	5.0 ppm	8/15/97	4/98			PRG
10ppm Pb	Pb-12	1000ppm	2.0 ml	200 ml	10.0 ppm	8/15/97	4/98			PRG
I ₂ - 2	Lot # 9612082	0.025 N	- Using	0.025 N	Sodium Thiosulfate	8/11/97	6/30/98	8/11/97	8/11/97	PRG
		19.4 x 0.025 N / 20.0 = 0.0243			C.V. 0.0243 N					
		19.4 x 0.025 N / 20.0 = 0.0243								
		19.4 x 0.025 N / 20.0 = 0.0243								
FC-12	Pb-10	1000ppm	1.0 ml	200 ml	5.0 ppm	8/26/97	12/98	8/26/97	9/16/97	PRG
NaCl-N1	VWR #0039	neat	5.8452g	1000 ml	0.1019 N	9/4/97		9/4/97		PRG
		--Using	0.1 N AgNO ₃	Lot #9701023			5/16/98	(C.V. 0.1019 N)		
		25.0 x 0.1019 = 25.0 N								
		0.1019 = N								
		25.0 x 0.1019 = 25.0 N								
		0.1019 = N								

JOB NO: 9704087

DATE: 10/8/97

CLIENT: Radian International

ANALYST: PRQ

SAMPLE I.D: _____

PARAMETER: Density @ 20°C, 1/cc

STANDARD NOTEBOOK REFERENCE: _____

H₂O Check 10cc = 10.0g 10cc = 10.0g 1.33 Took all samples up to 10ml in graduated
cylinder 21039 13.330g/10cc = 1.33 21042 13.351g/10cc = 1.33 21046 13.326g/10cc = 1.33
13.336g/10cc = 1.33 21043 13.318g/10cc = 1.33 21047 13.333g/10cc = 1.33
21040 13.337g/10cc = 1.33 21044 13.329g/10cc = 1.33 13.333g/10cc = 1.33
21041 13.337g/10cc = 1.33 21045 13.340g/10cc = 1.33 13.333g/10cc = 1.33

JOB NO: _____

DATE: _____

CLIENT: _____

ANALYST: _____

SAMPLE I.D: _____

PARAMETER: _____

STANDARD NOTEBOOK REFERENCE: _____

JOB NO: _____

DATE: _____

CLIENT: _____

ANALYST: _____

SAMPLE I.D: _____

PARAMETER: _____

STANDARD NOTEBOOK REFERENCE: _____

DO A 049275
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JOB NO: 9704087

DATE: 10/8/97

CLIENT: Radian International

ANALYST: PRQ

SAMPLE I.D: _____

PARAMETER: Density @ 20°C, g/cc

STANDARD NOTEBOOK REFERENCE: _____

10cc = 10.0g

H₂O Check 10cc = 10.0g

Took all samples up to 10ml in graduated cylinder

21039	13.330g/10cc = 1.33	21042	13.351g/10cc = 1.33	21046	13.326g/10cc = 1.33
	13.336g/10cc = 1.33	21043	13.318g/10cc = 1.33		
21040	13.337g/10cc = 1.33	21044	13.329g/10cc = 1.33	21047	13.333g/10cc = 1.33
21041	13.337g/10cc = 1.33	21045	13.340g/10cc = 1.33		

JOB NO: 9704087

DATE: 10/8/97

CLIENT: Radian International

ANALYST: PRQ

SAMPLE I.D: _____

PARAMETER: Viscosity @ 20°C, cSt

STANDARD NOTEBOOK REFERENCE: 200

840P

21039	15.9 x 0.0989 = 1.6	21042	15.8 x 0.0989 = 1.6	21045	15.9 x 0.0989 = 1.6
	15.9		15.8		15.9
21040	15.6 x 0.0989 = 1.5	21043	15.8 x 0.0989 = 1.6	21046	15.9 x 0.0989 = 1.6
	15.6		15.8		15.9
21041	15.4 x 0.0989 = 1.5	21044	15.3 x 0.0989 = 1.5	21047	15.9 x 0.0989 = 1.6
	15.4		15.3		15.9

JOB NO: _____

DATE: _____

CLIENT: _____

ANALYST: _____

SAMPLE I.D: _____

PARAMETER: _____

STANDARD NOTEBOOK REFERENCE: _____

DO A 049277
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WEIGHTS, g

RESULTS, %

Date	Job #	Sample ID	Crucible ID	A Crucible	B Crucible & Sample	C Dried Sample & Crucible	D Ashed Sample & Crucible	(B-A) Sample Wt.	Residue	Moisture	TVS	Ash	Analyst
10/8/97	9704087	-Radionu						3.5644	1.6 10/8/97				f. p
		21039	Paul	22.0583			22.0587	3.5104	3.5644			0.01	
		21040	9	18.9348		18.9348	18.9326	3.6618	3.5104			<0.01	
		21041	23	17.8436			17.8428	4.0077	3.6618			<0.01	
		2104136	15	22.3871		22.3877	22.3855	3.6741	4.0077			<0.01	
		21042	17	19.1426		19.1425	19.1569	3.6741				<0.01	
		21043	7	19.5082			19.5082	3.8125				<0.01	
		21044	♡	19.5318			19.5318	3.5996				<0.01	
		21045	11	19.0867			19.0867	3.7355				<0.01	
		21046	13	24.5649			24.5649	3.8014				<0.01	
		21047	AA	17.9894			17.9894	3.7860				<0.01	
	Coal Stand (C.V. 4.29%)	0		21.7818			21.8460	1.6547		90.4 %		3.88	
	9704308												
		21904	J	21.2439			21.2446	1.7328				<0.1	
		21904	6/	20.6709			20.6743	1.9950				0.1	
		21905	SS	16.5762			16.7254	2.0369				7.3	
		21906	18	20.7640			20.7643	2.0907				<0.1	
Albion	factn	2100486	4	20.2740			20.2740	2.3449				<0.01	✓

Residue, % = $\frac{C-A}{\text{Sample Wt.}} \times 100$ Total Volatile Solids (TVS), % = $\frac{C-D}{C-A} \times 100$

Ash, % = $\frac{D-A}{\text{sample wt.}} \times 100$

Moisture, % = $\frac{B-C}{\text{sample wt.}} \times 100$

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[illegible]

RECEIVED FOR LABORATORY BY: <i>[Signature]</i>	DATE: <i>7/21/10</i>	TIME: <i>1050</i>	AIRBILL NO.: <i>2711241514</i>	OPENED BY: <i>S.A.E</i>	DATE: <i>7/21/10</i>	TIME: <i>1050</i>	TEMP °C: <i>[Blank]</i>	SEAL # <i>2</i>	CONDITION: <i>125</i>
REMARKS:									

4-88-30337

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Sample Type Codes:

Air - Airbag	AB	Sludge	SL	Water	WD
- Air Filter	AF	Soil	SO	- Drinking	WD
- Sorbent Tubes	AT	Trip Blank	TB	- Groundwater	WG
Field Blank	FB	Waste- Liquid	LW	- Surface	WS
Oil(s)	OL	- Solid	SW	- Wastewater	WW
Paint Chips	PC			Wipes	WP

GASCOYNE LABORATORIES, INC.

YOUR **ON-TIME** QUALITY LAB...

2101 Van Deman Street • Baltimore, MD 21224

410-633-1800 • FAX: 410-633-5443

LAB USE ONLY

Report # **9704087**

Temp. Blk. _____

Cooler # _____

Test Results to:

Company: GASCOYNEContact: BARRY HOLLAND

Phone No. _____

FAX No. _____

Sample Site/Project _____

Sampler/MDOE # _____

Gascoyne Quote # _____

Client's P.O. # _____

RESULTS NEEDED BY: ☒ ROUTINE (10-15 DAYS) ☐ PRIORITY* BY: _____

LIMS NO. LAB USE ONLY	SAMPLE TYPE USE CODES ABOVE if applicable	SAMPLE IDENTIFICATION (Keep brief and assign sample numbers if possible)	DATE COLLECTED	TIME COLLECTED	COMPOSITE	GRAB	N P D E S	NUMBER OF CONTAINERS	TESTS REQUIRED				COMMENTS (i.e. Data Package, methods, detection limits, etc.)
	LW	970021039	9/15/97					1	Carbon Hydrogen Oxygen Nitrogen Sulphur				*Need CLP type QC package
			9/16/97	1300									
			9/16/97	2000									
			9/18/97										Gascoyne QC pkg 3
			9/17/97										
		970021047											
Total Number of Containers													
Relinquished By (signature):	Printed Name/Affiliation:		Date:	Time:	Received By (signature):	Printed Name/Affiliation:		Date:	Time:				
Relinquished By (signature):	Printed Name/Affiliation:		Date:	Time:	Received By (signature):	Printed Name/Affiliation:		Date:	Time:				
Relinquished By (signature):	Printed Name/Affiliation:		Date:	Time:	Received By (signature):	Printed Name/Affiliation:		Date:	Time:				
Relinquished By (signature):	Printed Name/Affiliation:		Date:	Time:	Received By (signature):	Printed Name/Affiliation:		Date:	Time:				

*May Require Surcharge

WHITE COPY - LAB

YELLOW - REPORT COPY

PINK - CLIENT SAMPLE SUBMITTAL RECEIPT

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Revised 4/97