October 9, 2012

Ms. Gretchen Fitzgerald
Construction Group
NYSDOT Region 8
4 Burnett Boulevard
Poughkeepsie, NY 12603

RE: PIN 8807.31.101, Harrison Spill Site (NYSDEC #94-07349)
Harrison Sub-Residency, Westchester County, New York
Fifth-Quarter Sampling Results, July 2012

Dear Ms. Fitzgerald,

The following letter report summarizes the field investigative procedures and results of the fifth-quarter groundwater sampling event at the above referenced site (see Figure 1) by Cashin Associates, P.C. (CA). The sampling was performed in accordance with CA's Scope of Work and Cost Estimate dated June 2012 and approved by the New York State Department of Transportation (NYSDOT) on June 28, 2012. The scope was developed in accordance with the NYSDOT's *Operation and Maintenance Plan for the Harrison Sub-Residency, Landfill and Petroleum Spill Area, February 2010.*

The previous spill at the Harrison Sub-Residency site was closed by the New York State Department of Conservation (NYSDEC) on October 10, 2002 when the air sparge/soil vapor extraction (AS/SVE) system was shut down. The recent groundwater sampling was performed to meet monitoring requirements of the NYSDOT relating to NYSDEC Spill #94-07349. A discussion of the methodology and analytical results of the recent groundwater sampling round (July 2012) is presented in this letter.

GROUNDWATER SAMPLING METHODOLOGY

The July 2012 monitoring event consisted of the collection and laboratory analysis of groundwater samples from the two existing monitoring wells (PC-1 and MW-11[1]) at the spill site (see Figure 2).

The groundwater sampling methodology performed by CA was consistent with the methodology used in prior sampling events at the site.

[1] Monitoring wells MW-13, GP-1 and GP-2 were closed by NYSDOT Main Office Geotech Group on November 29, 2011. Monitoring wells MW-1 and MW-12 were closed by NYSDOT Main Office Geotech Group on May 2, 2012.

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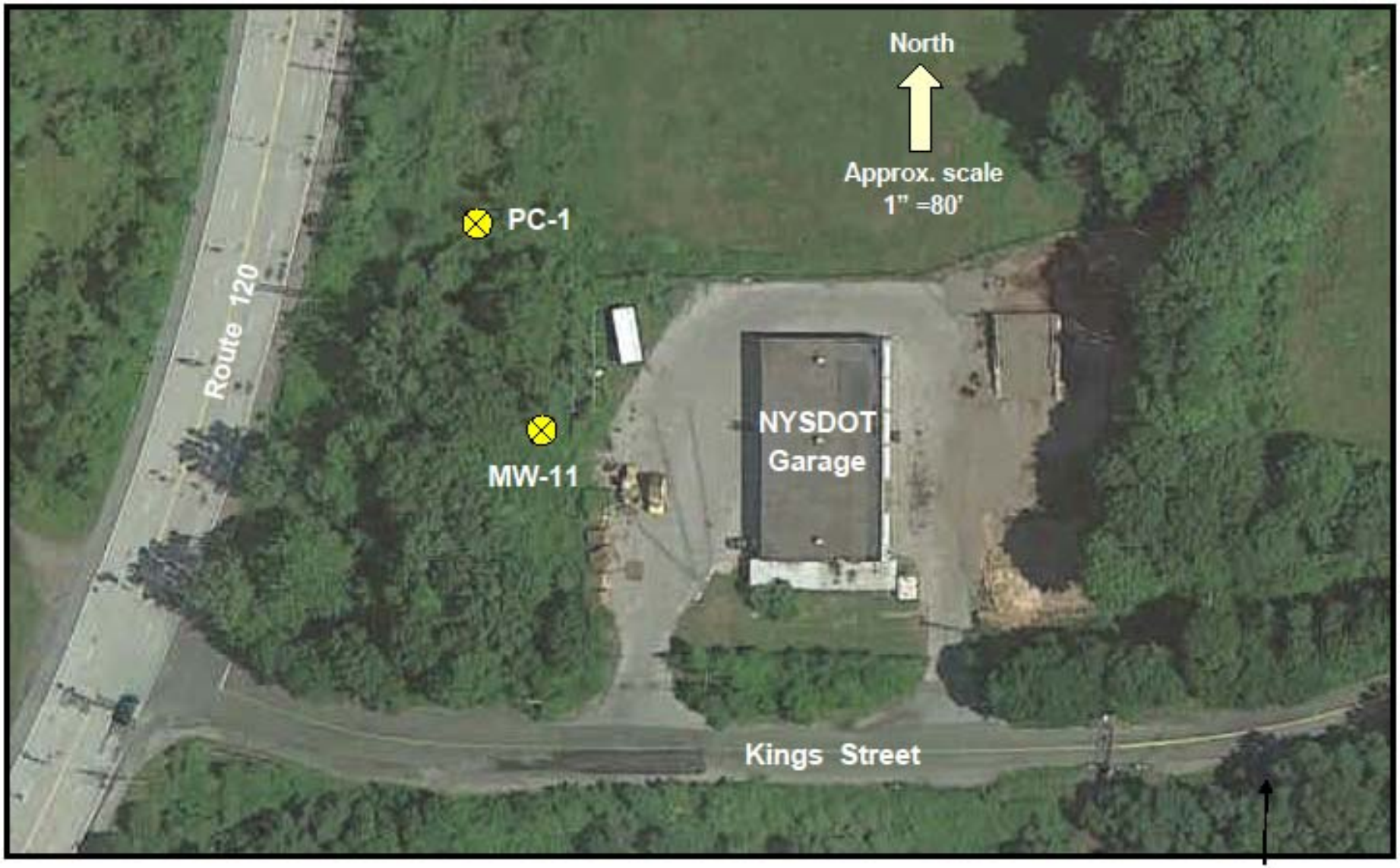
Figure 1
Harrison Subresidency Site



Monitoring Well Location

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Figure 2
Harrison Subresidency Spill Site
Monitoring Well Locations
NYSDOT Harrison, N.Y.

Prior to commencing site activities, CA conducted a visual inspection of the monitoring well casings and well heads to note any signs of damage or tampering. Static water level measurements and total depth measurements from all groundwater monitoring wells were recorded. During sampling, groundwater was purged from each monitoring well until the hydraulic equilibrium between casing water and the aquifer was achieved, in order to obtain a representative sample of the aquifer. This was accomplished by calculating the relative contribution from stagnant casing water to the total discharged from the well.

Wells were purged using a Whale pump equipped with a Rheostat (for adjustable flow), in-line flow cell and dedicated tubing. Groundwater samples were collected when the well recovered to approximately 75% of its initial volume or within two hours (whichever came first) using a dedicated disposable polyethylene bailer. Well purge water was discharged immediately downgradient of the well sampled. Field parameters of temperature, turbidity, dissolved oxygen (DO), pH, specific conductivity, and oxidation-reduction potential (Eh) were recorded for each well during purging and at the time of sample collection using a Horiba U-22 water quality monitor equipped with an in-line flow-through cell.

All samples were transferred to clean, pre-preserved laboratory-supplied containers to be submitted and analyzed by a New York State certified laboratory (Hampton-Clarke Veritech, Farifield, New Jersey) for the presence of BTEX compounds (benzene, toluene, ethylbenzene and total xylenes) plus MTBE (methyl tertiary butyl ether) and the natural attenuation parameters: iron (dissolved, Fe-II), manganese (dissolved, Mn-II), bicarbonate alkalinity (as HCO_3), alkalinity (total), nitrate (NO_3) and sulfate (SO_4). For quality control/assurance purposes, one trip blank was submitted to the laboratory.

RESULTS

Analytical results of the groundwater samples were compared to the NYSDEC Class GA Standards or Guidance Values. No floating product was detected in either of the two remaining wells.

No BTEX compounds were detected in monitoring well PC-1 above minimum reporting limits (MRLs). Monitoring well MW-11 was reported with three BTEX compounds, two of which (ethylbenzene and xylenes) were reported at concentrations above the NYSDEC Standard. MTBE was not detected in either of the wells sampled.

Dissolved iron and dissolved manganese were detected in well MW-11 at concentrations exceeding NYSDEC Standards. Neither metal was detected in PC-1.

Nitrate was not detected in either well. Sulfate was detected in both wells, at concentrations below the NYSDEC Standard.

Total alkalinity and alkalinity as bicarbonate were each detected in MW-11 at concentrations of 360 mg/L. Total alkalinity and alkalinity bicarbonate were detected in PC-1 at concentrations of 200mg/L and 210 mg/L, respectively.

The trip blank submitted for quality control/quality assurance analysis were all non-detect.

A summary of the analytical data for the monitoring wells and QA/QC results for the July 2012 monitoring round is presented in Table 1. Groundwater sampling logs are attached as Appendix

A. Copies of the laboratory analytical results and sample chain-of-custody documents are enclosed as Appendix B.

DISCUSSION

Compared to the previous groundwater sampling event conducted in April 2011, BTEX concentrations in MW-11 during the July 2012 sampling event were slightly less, and MTBE levels were non-detect during both events. BTEX and MTBE levels in PC-1 were non-detect during both events.

Levels of redox potential (ORP), dissolved oxygen (DO), alkalinity, metals (iron and manganese), anions (nitrate and sulfate), and pH were measured to help determine if biodegradation/natural attenuation is occurring. Compared to the previous sampling round conducted in April 2011, both PC-1 and MW-11 showed decreases in sulfate concentrations and increases in dissolved manganese concentrations. Dissolved iron increased in MW-11 and remained non-detect in PC-1. Alkalinity increased in MW-11 and decreased in PC-1.

The increase in dissolved iron concentrations within the plume is the byproduct result of the natural degradation process. Biologically activity within the plume is also attributed to the aerobic conditions based on DO values (<2.0 mg/L), pH values ranging from 6.67 to 6.80, and a positive ORP in well MW-11. However, it appears that the plume may be shifting from the current aerobic condition to anaerobic conditions as shown by the increase in dissolved manganese and dissolved iron concentrations.

The groundwater monitoring of the Harrison Spill Site will be continued on a fifth-quarter basis unless otherwise decided by NYSDEC.

If you have any questions, or require any additional information, please feel free to contact me.

Sincerely,

CASHIN ASSOCIATES, P.C.

Gregory T. Greene
Director of Environmental Programs

cc: Anjan Sen, NYSDOT Consultant Management Bureau
Carl Kochersberger, NYSDOT Environmental Science Bureau

Table 1. Analytical Results of Groundwater Monitoring Wells
Harrison Subresidency Spill Site, July 2012

			CLIENT ID: **MW-11**	**PC-1**	**Trip Blank**
			COLLECTION DATE: 7/24/2012	7/24/2012	7/24/2012
			SAMPLE MATRIX: Aqueous	Aqueous	Aqueous
Analyte	Units	NYSDEC Class GA Standard			
Metals					
Dissolved Iron	ug/L	300	**5,500**	ND	ND
Dissolved Manganese	ug/L	300	**8,800**	790	ND
Volatiles					
Benzene	ug/L	1	**1.9**	ND	ND
Ethylbenzene	ug/L	5	**32**	ND	ND
m&p-Xylenes	ug/L	5	**11**	ND	ND
Methyl-t-butyl ether	ug/L	50	ND	ND	ND
o-Xylene	ug/L	5	2.3	ND	ND
Toluene	ug/L	5	ND	ND	ND
Wet Chemistry					
Alkalinity (Total)	mg CaCO3/l	NA	360	210	ND
Alkalinity Bicarbonate	mgHCO3/L	NA	360	200	ND
Nitrate	ug/L	10,000	ND	ND	ND
Sulfate	ug/L	250,000	3,300	1,400	ND
Field Parameters					
pH		NA	6.67	7.08	NA
Temperature	Celcius	NA	16.6	18.12	NA
Specific Conductivity	umhos	NA	2.05	0.777	NA
Dissolved Oxygen	mg/L	NA	5.03	5.13	NA
Turbidity	NTUs	NA	16.7	33.3	NA

Notes:

BOLD indicates a concentration exceeding NYSDEC Class GA Standard
ND – Non Detect
NA – Not Applicable

Appendix A

Groundwater Sampling Logs

GROUNDWATER SAMPLING LOG

Site Name: Harrison Spill Site
Site Location: Harrison Subresidency, Harrison, NY
Date: 7/24/12
Purge Method: Whale Pump
Purge Start Time: 10:30
Purge End Time: 11:30
Well Casing Condition: Good

Well/Sampling Point ID: MW-11
Well Diameter: 2"
Weather: Sunny 90^{O}F

Water Level & Water Column Height (feet)

Depth to Water (DTW)	Depth to Well Bottom (DTB)	Water Column Height (DTB-DTW)	WELL CAPACITY (gallons):
12.43	18.15	6.07	0.16

Purge Volume Conversions

0.75"=0.02	1"=0.04	1.25"=0.06	2"=0.16	3"=0.37	4"=0.65	5"=1.02	6"=1.47	12"=5.88

*1 well volume = volume/linear foot x water column height

Well Purge Water Quality

VOLUME PURGED (gal)	PH	TEMP (C)	COND (µmhos)	DO (mg/L)	TURB (NTUs)	ORP
0	6.80	17.05	2.05	5.75	906	110
2	6.79	16.97	2.03	5.03	55.4	3
4	6.67	16.60	2.05	5.03	16.7	4

Groundwater Sampling Data

SAMPLED BY:

Marc Califano, Tom LaBanca

SAMPLING METHOD:	SAMPLE COLLECTED AT:	REMARKS:
Dedicated bailer	11:30	

ANALYSIS:

BTEX & MTBE, Fe II & Mn II (laboratory filtered), HCO_3, total alkalinity, NO_3, SO_4

GROUNDWATER SAMPLING LOG

Site Name: Harrison Spill Site
Site Location: Harrison Subresidency, Harrison, NY
Date: 7/24/12
Purge Method: Whale Pump
Purge Start Time: 12:00
Purge End Time: 15:00
Well Casing Condition: Good

Well/Sampling Point ID: PC-1
Well Diameter: 2"
Weather: Sunny 90°F

Water Level & Water Column Height (feet)

Depth to Water (DTW)	Depth to Well Bottom (DTB)	Water Column Height (DTB-DTW)	WELL CAPACITY (gallons):
1.2	16.73	15.53	2.5

Purge Volume Conversions

0.75"=0.02	1"=0.04	1.25"=0.06	2"=0.16	3"=0.37	4"=0.65	5"=1.02	6"=1.47	12"=5.88

*1 well volume = volume/linear foot x water column height

Well Purge Water Quality

VOLUME PURGED (gal)	PH	TEMP (C)	COND (µmhos)	DO (mg/L)	TURB (NTUs)	ORP
0	7.18	18.29	0.737	3.52	145	72
3	7.22	19.19	0.773	5.39	66.8	-15
5	7.30	17.85	0.772	4.75	151	-9
8	7.08	18.12	0.777	5.13	33.3	38

Groundwater Sampling Data

SAMPLED BY:

Marc Califano, Tom LaBanca

SAMPLING METHOD:	SAMPLE COLLECTED AT:	REMARKS:
Dedicated bailer	15:00	

ANALYSIS:

BTEX & MTBE, Fe II & Mn II (laboratory filtered), HCO_3, total alkalinity, NO_3, SO_4

Appendix B

Groundwater Analytical Data

HC·V
HAMPTONCLARKE·VERITECH

175 ROUTE 46 WEST, UNIT D · FAIRFIELD, NJ 07004
2 MADISON ROAD, FAIRFIELD, NJ 07004
800-426-9992 · 973-244-9770
FAX: 973-244-9787

WWW.HCVLAB.COM

Project: 9051.011 Harrison Spill

Client PO: 9051.011

Report To: Cashin Associates
1200 Veterans Memorial Highway
Hauppauge, NY 11788

Attn: Kimberly Somers

Received Date: 7/24/2012

Report Date: 8/20/2012

Deliverables: NYDOH-CatA

Lab ID: AC67262

Lab Project No: 2072426

Robin Cousineau - Quality Assurance Director OR **Stanley Gilewicz - Laboratory Director**

NJ (07071) NY (ELAP11408) CT (PH-0671) USACE
PA (68-00463) KY (90124)

NELAP ACCREDITED TNI LABORATORY

HC·V
HAMPTONCLARKE·VERITECH

2072426

THIS CATEGORY "A" REPORT
IS NUMBERED FROM
1 to 27

HCV Case Narrative/Conformance Summary

Client: Cashin Associates
Project: 9051.011 Harrison Spill
HCV Project: 2072426

Hampton-Clarke/Veritech (HC·V) received the following samples on July 24, 2012:

Client ID	HCV Sample ID	Matrix	Analysis
MW-11 U	AC67262-001	Aqueous	VO-BTEX (8260B), Total + Bicarbonate Alkalinity (SM2320B), Nitrate, Sulfate (300.0)
MW-11 F	AC67262-002	Aqueous	Metals (200.7)
PC-1 U	AC67262-003	Aqueous	VO-BTEX (8260B), Total + Bicarbonate Alkalinity (SM2320B), Nitrate, Sulfate (300.0)
PC-1 F	AC67262-004	Aqueous	Metals (200.7)
TB7/23	AC67262-005	Aqueous	VO-BTEX (8260B)

Volatile Organic Analysis:

Data conforms to method requirements.

Metals Analysis:

The serial dilution for batch 18155 is outside QC limits for one or more analytes, suggesting matrix interference.

Samples AC67262-002 and 004 were filtered and preserved in the laboratory per clients request.

Wet Chemistry Analysis:

Data conforms to method requirements.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Robin Cousineau
Quality Assurance Director

Or

Stanley Gilewicz
Laboratory Director

8/20/2012
Date

Veritech/Division of Hampton-Clarke
175 Route 46 West and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787 | 973-439-1458
Service Center: 137-D Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056
NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | WV #353 | KY #90124

HC-V HamptonClarke·Veritech

CHAIN OF CUSTODY RECORD

Project # (Lab Use Only): 2072426

Page ____ of ____

2072426 0882

Customer Information

1a) Customer: CASHIN ASSOCIATES, P.C.
Address: 1200 Veterans memorial Hwy
Hauppauge, NY 11788
1b) Email/Cell/Fax/Ph: KSomers@ca-pc.com
1c) Send Invoice to: Debbie Young
1d) Send Report to: Kim Somers

Project Information

2a) Project: Harrison Still
9051.003 -011 (3)
2b) Project Mgr: Greg Greene
2c) Project Location (City/State): Harrison, NY
2d) Quote/PO # (If Applicable):

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Deliv.
24 Hours (100%)	Data Summary	Hazsite/CSV
48 Hours (75%)	Waste	EQuIS 4-File / EZ / NYS
72 Hours (50%)	Red - NJ / NY / PA	EQuIS EPA Region 2 or 5
4 Days (35%; TPH)	CLP	Excel - NJ Regulatory
1 Week (25%; EPH)	Full / Category B	Excel - NY Regulatory
10 Days (10%)	Category A	Excel - PA Regulatory
2 Weeks	Other: ____	PDF
Other: STD		Other: ____

Expedited TAT Not Always Available. Please Check with Lab.

FOR LAB USE ONLY

Batch #

Check If Contingent ==>

Matrix Codes

DW - Drinking Water S - Soil A - Air
GW - Ground Water SL - Sludge
WW - Waste Water OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis Request

<== Check If Contingent

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	BTEX + MTBE	HCO_3 (2)	Total Alkalinity	meta (5-lab filtered Fe II, Mn II	NO_3, SO_4	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H_2SO_4	HNO_3	Other:	9) Comments
AC67262 -001/-002	MW-11	GW	7/24/12	1130		G	X	X	X	X	X	6				3				
-003/-004	PC-1	GW	7/24/12	1300		G	X	X	X	X	X	6				3				
-005	Trip Blank (1)		(7/23/12)				X													

10) Relinquished by: Marc Califano

Accepted by:

Date	Time
7/24/12	1515
7/24/12	1725

Comments, Notes, Special Requirements, HAZARDS

Note: Check if low-level groundwater methods required to meet current standards in NJ or PA:

- [ ] BN or BNA (8270C SIM)
- [ ] VOC (8260B SIM or 8011)
- [ ] Metals (ICP-MS 200.8 or 6020)
- [ ] Metals-Soil (ICP-MS 6020 for Be & Ag)

(1) Trip Blank info. added to COC per M. Califano request. DP 7/25/12

(2) clarification: HCO_3 = Bicarbonate alkalinity (per M. Califano) DP 7/25/12

Note: Check if applicable:

- [ ] Project-Specific Reporting Limits
- [ ] High Contaminant Concentrations
- [ ] NJ LSRP Project

Cooler Temperature: 5.8

Additional Notes: (3) Proj. # changed from 9051.003 to 9051.011 per M. Califano 7/26/2012. DP 7/26/12.

11) Sampler (print name): ____ Date: ____

Please circle required parameter list (refer to HC-V summary): i) NJ 2008 SRS; ii) Current TCL; iii) HC-V 2010 Merged; iv) PA; v) NY; vi) Project-Specific

Please note NUMBERED items. If not completed your analytical work may be delayed.

A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

CONDITION UPON RECEIPT

Batch Number AC67262 Entered By: Ricardo

Date Entered 7/24/2012 6:33:00 PM

1	Yes	Is there a corresponding COC included with the samples?
2	Yes	Are the samples in a container such as a cooler or Ice chest?
3	NO	Are the COC seals intact?
4	Yes	Please specify the Temperature inside the container (in degC) 3.8C
5	Yes	Are the samples refrigerated (where required)/have they arrived on ice?
6	Yes	Are the samples within the holding times for the parameters listed on the COC? IF no, list parameters and samples:
7	Yes	Are all of the sample bottles intact? If no, specify sample numbers broken/leaking
8	Yes	Are all of the sample labels or numbers legible? If no specify:
9	NO	Do the contents match the COC? If no, specify TB 7/23/12 RECEIVED BUT NOT ON COC.
10	Yes	Is there enough sample sent for the analyses listed on the COC? If no, specify:
11	Yes	Are samples preserved correctly?
12	Yes	Was temperature blank present (Place comment below if not)? If not was temperature of samples verified?
13	NA	Other comments ...Specify
14	NA	Corrective actions (Specify item number and corrective action taken).

PRESERVATION DOCUMENT

Batch Number AC67262

Entered By: Ricardo

Date Entered 7/24/2012 6:34:00 PM

Lab#:	Container Siz	Container Typ	Parameter	Preservative	PH
AC67262-001	40ML	G	VO	HCL	1
AC67262-002	NA	NA	NA	NA	NA
AC67262-003	40ML	G	VO	HCL	1
AC67262-004	NA	NA	NA	NA	NA
AC67262-005	40ML	G	VO	HCL	1

Internal Chain of Custody

Lab#:	DateTime:	Loc or User	Bot Nu	A/M	Analysis
AC67262-001	07/24/12 17:25	RICAR	0	M	Received
AC67262-001	07/24/12 18:32	RICAR	0	M	Login
AC67262-001	07/25/12 08:14	JW	1	A	ic
AC67262-001	07/25/12 15:57	R12	1	A	NONE
AC67262-001	07/30/12 11:59	JW	2	A	ALKALINITY-M/P/BICARB/CARB
AC67262-001	07/30/12 16:38	R12	2	A	NONE
AC67262-001	07/25/12 14:13	R31	6	A	NONE
AC67262-001	07/25/12 14:13	R31	7	A	NONE
AC67262-001	07/25/12 14:13	R31	8	A	NONE
AC67262-001	07/31/12 13:15	WP	8	A	VOA
AC67262-001	08/01/12 08:15	R31	8	A	NONE
AC67262-001	08/01/12 08:38	WP	8	A	VOA
AC67262-001	08/01/12 10:10	SG	8	A	VOA
AC67262-002	07/24/12 17:25	RICAR	0	M	Received
AC67262-002	07/24/12 18:32	RICAR	0	M	Login
AC67262-002	07/27/12 17:14	RAMO	1	A	filter
AC67262-002	07/27/12 17:14	RAMO	1	A	r12
AC67262-002	07/30/12 09:50	JU	1	A	tdwi-hg
AC67262-002	07/30/12 14:57	R12	1	A	NONE
AC67262-003	07/24/12 17:25	RICAR	0	M	Received
AC67262-003	07/24/12 18:32	RICAR	0	M	Login
AC67262-003	07/25/12 08:14	JW	1	A	ic
AC67262-003	07/25/12 15:57	R12	1	A	NONE
AC67262-003	07/30/12 11:59	JW	4	A	ALKALINITY-M/P/BICARB/CARB
AC67262-003	07/30/12 16:38	R12	4	A	NONE
AC67262-003	07/25/12 14:13	R31	6	A	NONE
AC67262-003	07/25/12 14:13	R31	7	A	NONE
AC67262-003	07/25/12 14:13	R31	8	A	NONE
AC67262-003	07/31/12 13:15	WP	8	A	VOA
AC67262-003	08/01/12 08:15	R31	8	A	NONE
AC67262-003	08/01/12 08:38	WP	8	A	VOA
AC67262-003	08/01/12 10:10	SG	8	A	VOA
AC67262-004	07/24/12 17:25	RICAR	0	M	Received
AC67262-004	07/24/12 18:32	RICAR	0	M	Login
AC67262-004	07/27/12 17:14	RAMO	1	A	filter
AC67262-004	07/27/12 17:14	RAMO	1	A	r12
AC67262-004	07/30/12 09:50	JU	1	A	tdwi-hg
AC67262-004	07/30/12 14:57	R12	1	A	NONE
AC67262-005	07/24/12 17:25	RICAR	0	M	Received
AC67262-005	07/24/12 18:32	RICAR	0	M	Login
AC67262-005	07/25/12 14:13	R31	1	A	NONE
AC67262-005	07/25/12 14:13	R31	2	A	NONE
AC67262-005	07/25/12 14:13	R31	3	A	NONE
AC67262-005	07/31/12 13:15	WP	3	A	VOA

Lab#:	DateTime:	Loc or User	Bot Nu	A/M	Analysis

Samples marked as received are stored in coolers or refrigerator R12, or R24 at 4 deg C until Login

Laboratory Chronicle

Client: Cashin Associates

HCV Project #: 2072426

Project: 9051.011 Harrison Spill

Lab#: AC67262-001 **Sample ID: MW-11 U**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
Alkalinity-Bicarbonate (SM2320B-97)		07/30/12	Janee	SM2320B-97	7/30/12 00:00	Janee
Alkalinity-Total (SM2320B-97)		07/30/12	JW	SM2320B-97	7/30/12 00:00	JW
BTEX (8260)	EPA5030/5035			EPA 8260B	8/1/12 15:50	WP
Nitrate-N (Water) 300.0		07/25/12	Janee	300.0 rev2.1	7/25/12 12:53	Janee
Sulfate (Water) 300.0		07/25/12	Janee	300.0 rev2.1	7/25/12 12:53	Janee

Lab#: AC67262-002 **Sample ID: MW-11 F**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
Metals Pair 200.7	EPA 200.2	07/30/12	julijana	200.7	8/4/12 16:47	SRB

Lab#: AC67262-003 **Sample ID: PC-1 U**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
Alkalinity-Bicarbonate (SM2320B-97)		07/30/12	Janee	SM2320B-97	7/30/12 00:00	Janee
Alkalinity-Total (SM2320B-97)		07/30/12	JW	SM2320B-97	7/30/12 00:00	JW
BTEX (8260)	EPA5030/5035			EPA 8260B	8/1/12 16:06	WP
Nitrate-N (Water) 300.0		07/25/12	Janee	300.0 rev2.1	7/25/12 13:16	Janee
Sulfate (Water) 300.0		07/25/12	Janee	300.0 rev2.1	7/25/12 13:16	Janee

Lab#: AC67262-004 **Sample ID: PC-1 F**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
Metals Pair 200.7	EPA 200.2	07/30/12	julijana	200.7	8/4/12 16:51	SRB

Lab#: AC67262-005 **Sample ID: TB7/23**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
BTEX (8260)	EPA5030/5035			EPA 8260B	7/31/12 15:51	WP

HCV Reporting Limit Definitions/Data Qualifiers

REPORTING DEFINITIONS

DF = Dilution Factor

MDL = Method Detection Limit

RL* = Reporting Limit

ND = Not Detected

RT = Retention Time

NA = Not Applicable

**Samples with elevated Reporting Limits (RLs) as a result of a dilution may not achieve client reporting limits in some cases. The elevated RLs are unavoidable consequences of sample dilution required to quantitate target analytes that exceed the calibration range of the instrument.*

DATA QUALIFIERS

B- Indicates analyte was present in the Method Blank and sample.

d- For Pesticide and PCB analysis, the concentration between primary and secondary columns is greater than 40%. The lower concentration is generally reported.

E- Indicates the concentration exceeded the upper calibration range of the instrument.

J- Indicates the value is estimated because it is either a Tentatively Identified Compound (TIC) or the reported concentration is greater than the MDL but less than the RL. For samples results between the MDL and RL there is a possibility of false positives or misidentification at the quantitation levels. Additionally, the acceptance criteria for QC samples may not be met.

HCV Report Of Analysis

Client: Cashin Associates
Project: 9051.011 Harrison Spill

HCV Project #: 2072426

Sample ID: MW-11 U
Lab#: AC67262-001
Matrix: Aqueous

Collection Date: 7/24/2012
Receipt Date: 7/24/2012

Alkalinity-Bicarbonate (SM2320B-97)

Analyte	DF	Units	RL	Result
Alkalinity	1	mg/l	10	360

Alkalinity-Total (SM2320B-97)

Analyte	DF	Units	RL	Result
Alkalinity	1	mg caco3/l	10	360

BTEX (8260)

Analyte	DF	Units	RL	Result
Benzene	1	ug/l	0.50	1.9
Ethylbenzene	1	ug/l	1.0	32
m&p-Xylenes	1	ug/l	1.0	11
Methyl-t-butyl ether	1	ug/l	0.50	ND
o-Xylene	1	ug/l	1.0	2.3
t-Butyl Alcohol	1	ug/l	5.0	ND
Toluene	1	ug/l	1.0	1.2
Xylenes (Total)	1	ug/l	1.0	13.3

Nitrate-N (Water) 300.0

Analyte	DF	Units	RL	Result
Nitrate	1	mg/l	1.0	ND

Sulfate (Water) 300.0

Analyte	DF	Units	RL	Result
Sulfate	1	mg/l	2.0	3.3

Sample ID: MW-11 F
Lab#: AC67262-002
Matrix: Aqueous

Collection Date: 7/24/2012
Receipt Date: 7/24/2012

Metals Pair 200.7

Analyte	DF	Units	RL	Result
Iron	1	ug/l	150	5500
Manganese	1	ug/l	25	8800

Sample ID: PC-1 U
Lab#: AC67262-003
Matrix: Aqueous

Collection Date: 7/24/2012
Receipt Date: 7/24/2012

Alkalinity-Bicarbonate (SM2320B-97)

Analyte	DF	Units	RL	Result
Alkalinity	1	mg/l	10	200

Alkalinity-Total (SM2320B-97)

Analyte	DF	Units	RL	Result
Alkalinity	1	mg caco3/l	10	210

BTEX (8260)

Analyte	DF	Units	RL	Result
Benzene	1	ug/l	0.50	ND
Ethylbenzene	1	ug/l	1.0	ND
m&p-Xylenes	1	ug/l	1.0	ND
Methyl-t-butyl ether	1	ug/l	0.50	ND
o-Xylene	1	ug/l	1.0	ND
t-Butyl Alcohol	1	ug/l	5.0	ND
Toluene	1	ug/l	1.0	ND
Xylenes (Total)	1	ug/l	1.0	ND

Nitrate-N (Water) 300.0

Analyte	DF	Units	RL	Result
Nitrate	1	mg/l	1.0	ND

Sulfate (Water) 300.0

Analyte	DF	Units	RL	Result
Sulfate	1	mg/l	2.0	14

Sample ID: PC-1 F
Lab#: AC67262-004
Matrix: Aqueous

Collection Date: 7/24/2012
Receipt Date: 7/24/2012

Metals Pair 200.7

Analyte	DF	Units	RL	Result
Iron	1	ug/l	150	ND
Manganese	**1**	**ug/l**	**25**	**790**

Sample ID: TB7/23
Lab#: AC67262-005
Matrix: Aqueous

Collection Date: 7/24/2012
Receipt Date: 7/24/2012

BTEX (8260)

Analyte	DF	Units	RL	Result
Benzene	1	ug/l	0.50	ND
Ethylbenzene	1	ug/l	1.0	ND
m&p-Xylenes	1	ug/l	1.0	ND
Methyl-t-butyl ether	1	ug/l	0.50	ND
o-Xylene	1	ug/l	1.0	ND
t-Butyl Alcohol	1	ug/l	5.0	ND
Toluene	1	ug/l	1.0	ND
Xylenes (Total)	1	ug/l	1.0	ND

Form1

ORGANICS VOLATILE REPORT

Sample Number: DAILY BLANK
Client Id:
Data File: 2M88243.D
Analysis Date: 07/31/12 11:17
Date Rec/Extracted:
Column: DB-624 25M 0.200mm ID 1.12um film

Method: EPA 8260B
Matrix: Aqueous
Initial Vol: 5ml
Final Vol: NA
Dilution: 1.00
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
71-43-2	Benzene	0.50	U	95-47-6	o-Xylene	1.0	U
100-41-4	Ethylbenzene	1.0	U	75-65-0	t-Butyl Alcohol	5.0	U
136777612	m&p-Xylenes	1.0	U	108-88-3	Toluene	1.0	U
1634-04-4	Methyl-t-butyl ether	0.50	U				

Worksheet #: 236010

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used

Form1

ORGANICS VOLATILE REPORT

Sample Number: DAILY BLANK
Client Id:
Data File: 2M88274.D
Analysis Date: 08/01/12 09:26
Date Rec/Extracted:
Column: DB-624 25M 0.200mm ID 1.12um film

Method: EPA 8260B
Matrix: Aqueous
Initial Vol: 5ml
Final Vol: NA
Dilution: 1.00
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
71-43-2	Benzene	0.50	U	95-47-6	o-Xylene	1.0	U
100-41-4	Ethylbenzene	1.0	U	75-65-0	t-Butyl Alcohol	5.0	U
136777612	m&p-Xylenes	1.0	U	108-88-3	Toluene	1.0	U
1634-04-4	Methyl-t-butyl ether	0.50	U				

Worksheet #: 236010

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used

Form1

ORGANICS VOLATILE REPORT

Sample Number: AC67262-001
Client Id: MW-11 U
Data File: 2M88298.D
Analysis Date: 08/01/12 15:50
Date Rec/Extracted: 07/24/12-NA
Column: DB-624 25M 0.200mm ID 1.12um film

Method: EPA 8260B
Matrix: Aqueous
Initial Vol: 5ml
Final Vol: NA
Dilution: 1.00
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
71-43-2	**Benzene**	**0.50**	**1.9**	**95-47-6**	**o-Xylene**	**1.0**	**2.3**
100-41-4	**Ethylbenzene**	**1.0**	**32**	75-65-0	t-Butyl Alcohol	5.0	U
136777612	**m&p-Xylenes**	**1.0**	**11**	**108-88-3**	**Toluene**	**1.0**	**1.2**
1634-04-4	Methyl-t-butyl ether	0.50	U	**1330-20-7**	**Xylenes (Total)**	**1.0**	**13.3**

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used

Form1

ORGANICS VOLATILE REPORT

Sample Number: AC67262-003
Client Id: PC-1 U
Data File: 2M88299.D
Analysis Date: 08/01/12 16:06
Date Rec/Extracted: 07/24/12-NA
Column: DB-624 25M 0.200mm ID 1.12um film

Method: EPA 8260B
Matrix: Aqueous
Initial Vol: 5ml
Final Vol: NA
Dilution: 1.00
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
71-43-2	Benzene	0.50	U	95-47-6	o-Xylene	1.0	U
100-41-4	Ethylbenzene	1.0	U	75-65-0	t-Butyl Alcohol	5.0	U
136777612	m&p-Xylenes	1.0	U	108-88-3	Toluene	1.0	U
1634-04-4	Methyl-t-butyl ether	0.50	U	1330-20-7	Xylenes (Total)	1.0	U

Worksheet #: 236010

Total Target Concentration 0

ColumnID (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used

Form1

ORGANICS VOLATILE REPORT

Sample Number: AC67262-005
Client Id: TB7/23
Data File: 2M88260.D
Analysis Date: 07/31/12 15:51
Date Rec/Extracted: 07/24/12-NA
Column: DB-624 25M 0.200mm ID 1.12um film

Method: EPA 8260B
Matrix: Aqueous
Initial Vol: 5ml
Final Vol: NA
Dilution: 1.00
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
71-43-2	Benzene	0.50	U	95-47-6	o-Xylene	1.0	U
100-41-4	Ethylbenzene	1.0	U	75-65-0	t-Butyl Alcohol	5.0	U
136777612	m&p-Xylenes	1.0	U	108-88-3	Toluene	1.0	U
1634-04-4	Methyl-t-butyl ether	0.50	U	1330-20-7	Xylenes (Total)	1.0	U

Worksheet #: 236010

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used

Form1
Inorganic Analysis Data Sheet

Sample ID: MB 18155 (0.5)
Client Id: MB 18155 (0.5)
Matrix: AQUEOUS
Level: LOW

% Solid: 0
Units: UG/L

Lab Name: Veritech
Lab Code:

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7429-90-5	Aluminum	100	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7440-36-0	Antimony	7.5	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7440-38-2	Arsenic	20	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7440-39-3	Barium	25	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7440-41-7	Beryllium	4.0	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7440-43-9	Cadmium	2.0	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7440-70-2	Calcium	1000	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7440-47-3	Chromium	25	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7440-48-4	Cobalt	10	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7440-50-8	Copper	25	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7439-89-6	Iron	150	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7439-92-1	Lead	5.0	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7439-95-4	Magnesium	1000	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7439-96-5	Manganese	25	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7439-98-7	Molybdenum	10	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7440-02-0	Nickel	10	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7440-09-7	Potassium	2500	ND	1	100	50	08/03/12	18155	A14190A2	10	P	PEICPRAD2A
7782-49-2	Selenium	25	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7440-22-4	Silver	10	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7440-23-5	Sodium	2500	ND	1	100	50	08/03/12	18155	A14190A2	10	P	PEICPRAD2A
7440-28-0	Thallium	5.0	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7440-31-5	Tin	25	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7440-32-6	Titanium	25	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7440-62-2	Vanadium	25	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A
7440-66-6	Zinc	25	ND	1	100	50	08/04/12	18155	A14190B2	11	P	PEICP2A

Comments: _____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC67262-002	% Solid:	0	Lab Name:	Veritech	Nras No:	
Client Id:	MW-11 F	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	7/25/2012	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7439-89-6	Iron	150	5500	1	100	50	08/04/12	18155	A14190B2	45	P	PEICP2A
7439-96-5	Manganese	25	8800	1	100	50	08/04/12	18155	A14190B2	45	P	PEICP2A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC67262-004	% Solid:	0	Lab Name:	Veritech	Nras No:	
Client Id:	PC-1 F	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	7/25/2012	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7439-89-6	Iron	150	ND	1	100	50	08/04/12	18155	A14190B2	46	P	PEICP2A
7439-96-5	Manganese	25	790	1	100	50	08/04/12	18155	A14190B2	46	P	PEICP2A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

FORM 3
(ICB/CCB/MB Summary)

Date Analyzed: 08/04/12
Data File: A14190B2
Prep Batch: 18155
Reporting Limits Used: AQUEOUS,200.7(ICP)/200.8(ICPMS)/245.1(Hg)
Instrument: PEICP2A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 2072426

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:

Analyte	ICB V-143551-8	CCB-20	CCB-31	CCB-40	CCB-50	MB 18155 (0.5)-11		
Antimony	.015 U	.015 U	.015 U	.015 U	.015 U	.0075 U		
Arsenic	.04 U	.04 U	.04 U	.04 U	.04 U	.02 U		
Barium	.05 U	.05 U	.05 U	.05 U	.05 U	.025 U		
Beryllium	.008 U	.008 U	.008 U	.008 U	.008 U	.004 U		
Cadmium	.004 U	.004 U	.004 U	.004 U	.004 U	.002 U		
Chromium	.05 U	.05 U	.05 U	.05 U	.05 U	.025 U		
Copper	.05 U	.05 U	.05 U	.05 U	.05 U	.025 U		
Iron	.3 U	.3 U	.3 U	.3 U	.3 U	.15 U		
Lead	.01 U	.01 U	.01 U	.01 U	.01 U	.005 U		
Manganese	.05 U	.05 U	.05 U	.05 U	.05 U	.025 U		
Nickel	.02 U	.02 U	.02 U	.02 U	.02 U	.01 U		
Selenium	.05 U	.05 U	.05 U	.05 U	.05 U	.025 U		
Silver	.02 U	.02 U	.02 U	.02 U	.02 U	.01 U		
Thallium	.01 U	.01 U	.01 U	.01 U	.01 U	.005 U		
Zinc	.05 U	.05 U	.05 U	.05 U	.05 U	.025 U		

Notes: a-indicates absolute value of result found above the reporting limits in CCB/ICB or result found above reporting limit in the MB
u-indicates result below reporting limit

VERITECH Wet Chem Form1 Analysis Summary

Lab#: AC67262-001
Matrix Aqueous
Client SampleID: MW-11 U

Project Number: 2072426
Received Date: 7/24/2012
Collect Date: 7/24/2012

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
Alkalinity	ALKALIN-MUR	**1**	**360**	**mg CaCO3/l**	**10**	07/30/12	07/30/12
Alkalinity	ALK-BICARB	**1**	**360**	**mg/L**	**10**	07/30/12	07/30/12
Nitrate	NO3-ICW	1	ND	mg/L	1.0	07/25/12	07/25/12
Sulfate	SO4-ICW	**1**	**3.3**	**mg/L**	**2.0**	07/25/12	07/25/12

Lab#: AC67262-003
Matrix Aqueous
Client SampleID: PC-1 U

Project Number: 2072426
Received Date: 7/24/2012
Collect Date: 7/24/2012

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
Alkalinity	ALKALIN-MUR	**1**	**210**	**mg CaCO3/l**	**10**	07/30/12	07/30/12
Alkalinity	ALK-BICARB	**1**	**200**	**mg/L**	**10**	07/30/12	07/30/12
Nitrate	NO3-ICW	1	ND	mg/L	1.0	07/25/12	07/25/12
Sulfate	SO4-ICW	**1**	**14**	**mg/L**	**2.0**	07/25/12	07/25/12

Blank Summary

Instrument: IC1

Qc Type: Method Blank Summary Prep Date: 7/25/12

Run Batch ID	Analysis Date/Time	Sample ID	Run#	Analyte	Conc	RL
20120713083	7/25/12 09:55	MBW-1266	281	Nitrate	ND	1.0
20120713083	7/25/12 09:55	MBW-1266	281	Sulfate	ND	2.0

Qc Type: ICB Summary Prep Date: NA

Run Batch ID	Analysis Date/Time	Sample ID	Run#	Analyte	Conc	RL
20120713083	7/13/12 11:31	ICB	8	Nitrate	ND	1.0
20120713083	7/13/12 11:31	ICB	8	Sulfate	ND	2.0

Qc Type: CCB Summary Prep Date: NA

Run Batch ID	Analysis Date/Time	Sample ID	Run#	Analyte	Conc	RL
20120713083	7/25/12 09:32	CCB	280	Nitrate	ND	1.0
20120713083	7/25/12 14:01	CCB	292	Nitrate	ND	1.0
20120713083	7/25/12 18:10	CCB	303	Nitrate	ND	1.0
20120713083	7/25/12 09:32	CCB	280	Sulfate	ND	2.0
20120713083	7/25/12 14:01	CCB	292	Sulfate	ND	2.0
20120713083	7/25/12 18:10	CCB	303	Sulfate	ND	2.0

Carbonate / Bicarbonate

Analysis	Carbonate / Bicarbonate			Q.C. DATA			
Batch#	36						Limits
Date	7/30/2012			LCS RPD			
Analyst	JJW			LCS	107.48	RPD	
				LCSD	107.48	0.0	20
				Carbonate RPD			
	Titrant Result	Carbonate	Bicarbonate	Sample	0.00	RPD	
	P = 0	0	M	Sample Dup	0.00	NA	20
	P < (1/2) M	2P	M-2P				
	P = (1/2) M	2P	0				
	P > (1/2) M	2 (M-P)	0	Bicarbonate RPD			
	P = M	0	0	Sample	236.87	RPD	
				Sample Dup	229.56	3.13	20

Samples #	M-Alkalinity (Total)	P-Alkalinity	Carbonate CO3-2 as mg CaCO3/L	Bicarbonate HCO3 as mg CaCO3/L	RL		% Recovery 75-125%
MB	4.17	0.00	0.00	4.17	10		
LCS	107.48	97.04	20.87	0.00	10		107
LCSD	107.48	94.96	25.05	0.00	10		107
AC67153-002 Dup	229.56	0.00	0.00	229.56	10		
AC67153-002	236.87	0.00	0.00	236.87	10		
AC67153-016	69.91	0.00	0.00	69.91	10		
AC67178-006	358.95	11.48	22.96	335.99	10		
AC67178-010	325.56	7.30	14.61	310.95	10		
AC67178-012	291.13	4.17	8.35	282.78	10		
AC67198-001	829.56	0.00	0.00	829.56	10		
AC67198-003	234.78	0.00	0.00	234.78	10		
AC67198-005	358.95	0.00	0.00	358.95	10		
AC67262-001	360.00	0.00	0.00	360.00	10		
AC67262-003	206.61	3.13	6.26	200.35	10		

* Recovery is outside specified QC limits

JW
7/31/12

7/31/12

Analysis Type: ALKAL-P

Batch Number: ALKAL-P-31

Units: mg CaCO3/l

Calibration Curve Information

Qc Summary Results

Qc Type	Qc Name	SpkAmt	Rec Lim	Rpd Lim	Raw Result	Recov	Rpd	Flags
DUP	AC67153-002	0	NA	20	0	NA	NA	Nc
LCS	LCS	100	75-125	NA	97.042524	97	NA	
LCSD	LCSD	100	75-125	20	94.955588	95	2.2	

Analytical Method(s)

SM2320B-97

Sam #	Type	MB	Result	RL	Per Sol	Full Result	ml h2so4	h2so4 (N)	Sam Vol (ml)	Prep Date	Prep By	Anal Date	Anal By
MB-1-07/30/12	MB	MB-1-07/30/12	ND	10	100	0	0	0.020869	50	07/30/12	JW	07/30/12	JW
LCS	LCS	MB-1-07/30/12	97	10	100	97.043	4.65	0.020869	50	07/30/12	JW	07/30/12	JW
LCSD	LCSD	MB-1-07/30/12	95	10	100	94.956	4.55	0.020869	50	07/30/12	JW	07/30/12	JW
AC67153-002	DUP	MB-1-07/30/12	ND	10	100	0	0	0.020869	50	07/30/12	JW	07/30/12	JW
AC67153-002	Sample	MB-1-07/30/12	ND	10	100	0	0	0.020869	50	07/30/12	JW	07/30/12	JW
AC67153-016	Sample	MB-1-07/30/12	ND	10	100	0	0	0.020869	50	07/30/12	JW	07/30/12	JW
AC67178-006	Sample	MB-1-07/30/12	11	10	100	11.478	0.55	0.020869	50	07/30/12	JW	07/30/12	JW
AC67178-010	Sample	MB-1-07/30/12	ND	10	100	7.3043	0.35	0.020869	50	07/30/12	JW	07/30/12	JW
AC67178-012	Sample	MB-1-07/30/12	ND	10	100	4.1739	0.20	0.020869	50	07/30/12	JW	07/30/12	JW
AC67262-001	Sample	MB-1-07/30/12	ND	10	100	0	0	0.020869	50	07/30/12	JW	07/30/12	JW
AC67262-003	Sample	MB-1-07/30/12	ND	10	100	3.1304	0.15	0.020869	50	07/30/12	JW	07/30/12	JW
AC67198-001	Sample	MB-1-07/30/12	ND	10	100	0	0	0.020869	50	07/30/12	JW	07/30/12	JW
AC67198-003	Sample	MB-1-07/30/12	ND	10	100	0	0	0.020869	50	07/30/12	JW	07/30/12	JW
AC67198-005	Sample	MB-1-07/30/12	ND	10	100	0	0	0.020869	50	07/30/12	JW	07/30/12	JW

JW 7/31/12

7/31/12

Flag Codes: Ra - Recovery failed specified criteria (PVS/LCS/MS/MSD/ICV/CAL) Rp - RPD failed specified criteria.

Na - Not Applicable

Nc - Not Checked ..either one or both values =ND

Analysis Type: ALKAL-M

Batch Number: ALKAL-M-302

Units: mg CaCO3/l

Calibration Curve Information

Qc Summary Results

Qc Type	Qc Name	SpkAmt	Rec Lim	Rpd Lim	Raw Result	Recov	Rpd	Flags
DUP	AC67153-002	0	NA	20	229.56296	NA	3.1	
LCS	LCS	100	75-125	NA	107.477204	107	NA	
LCSD	LCSD	100	75-125	20	107.477204	107	0	

Analytical Method(s)

SM2320B-97

Sam #	Type	MB	Result	RL	Per Sol	Full Result	ml h2so4	h2so4 (N)	Sam Vol (ml)	Prep Date	Prep By	Anal Date	Anal By
MB-1-07/30/12	MB	MB-1-07/30/12	ND	10	100	4.1739	0.20	0.020869	50	07/30/12	JW	07/30/12	JW
LCS	LCS	MB-1-07/30/12	110	10	100	107.48	5.15	0.020869	50	07/30/12	JW	07/30/12	JW
LCSD	LCSD	MB-1-07/30/12	110	10	100	107.48	5.15	0.020869	50	07/30/12	JW	07/30/12	JW
AC67153-002	DUP	MB-1-07/30/12	230	10	100	229.56	11.00	0.020869	50	07/30/12	JW	07/30/12	JW
AC67153-002	Sample	MB-1-07/30/12	240	10	100	236.87	11.35	0.020869	50	07/30/12	JW	07/30/12	JW
AC67153-016	Sample	MB-1-07/30/12	70	10	100	69.912	3.35	0.020869	50	07/30/12	JW	07/30/12	JW
AC67178-006	Sample	MB-1-07/30/12	360	10	100	358.95	17.20	0.020869	50	07/30/12	JW	07/30/12	JW
AC67178-010	Sample	MB-1-07/30/12	330	10	100	325.56	15.60	0.020869	50	07/30/12	JW	07/30/12	JW
AC67178-012	Sample	MB-1-07/30/12	290	10	100	291.13	13.95	0.020869	50	07/30/12	JW	07/30/12	JW
AC67198-001	Sample	MB-1-07/30/12	830	10	100	829.56	39.75	0.020869	50	07/30/12	JW	07/30/12	JW
AC67198-003	Sample	MB-1-07/30/12	230	10	100	234.78	11.25	0.020869	50	07/30/12	JW	07/30/12	JW
AC67198-005	Sample	MB-1-07/30/12	360	10	100	358.95	17.20	0.020869	50	07/30/12	JW	07/30/12	JW
AC67262-001	Sample	MB-1-07/30/12	360	10	100	360	17.25	0.020869	50	07/30/12	JW	07/30/12	JW
AC67262-003	Sample	MB-1-07/30/12	210	10	100	206.61	9.90	0.020869	50	07/30/12	JW	07/30/12	JW

JW 7/31/12 7/31/12

Flag Codes: Ra - Recovery failed specified criteria (PVS/LCS/MS/MSD/ICV/CAL) Rp - RPD failed specified criteria.

Na - Not Applicable

Nc - Not Checked ..either one or both values =ND

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Last Page of Report