From: "Fly, Lora B CIV NAVFAC MIDLANT, IPTNE" <lora.fly@navy.mil>
To: Steven Scharf <sxscharf@gw.dec.state.ny.us>, "sxk23@health.state.ny.us" <sxk23@health.state.ny.us>
CC: "Hannon, ED (AS)" <Edward.Hannon@ngc.com>
Date: 11/20/2013 10:24 AM
Subject: Radiological Data
Attachments: Bethpage GM38 Radiochem AnalyRes_BWD Split Samples_June13_validated.xlsx; 19556R_Tier1.pdf

Steve,
As requested attached is the radiological data from GM-38 (Navy) and Bethpage Water District on wells 116, 37D2 & 71D2 (NG).
R/
Lora Fly
Remedial Program Manager
NAVFAC Mid-Atlantic
Northeast IPT
Phone: 757-341-2012
Fax: 757-341-2096
DSN: 341-2012

Summary of Radiochemistry Analytical Results
Sample Locations Split with BWD
June 2013
NWIRP Bethpage GM-38 Area
Bethpage, NY

Sample Location ID	Sample ID	Sample Date	Gross Alpha (pCi/L)			Gross Beta (pCi/L)			Radium 226 (pCi/L)			Radium 228 (pCi/L)			Uranium (ug/L)		
			Result	Uncertainty (+/-)	MDC	Result	Uncertainty (+/-)	MDC	Result	Uncertainty (+/-)	MDC	Result	Uncertainty (+/-)	MDC	Result	Uncertainty (+/-)	MDC
Monitoring Wells - Quarterly LTM																	
RW1-MW1	NWIRP-Bethpage-GM-38-GW-RW1-MW1-061913	6/19/2013	**5.94**	3.05	3.03	**4.11**	2.65	3.94	**2.43**	0.500	0.305	0.0924 U	0.784	1.26	0.116 U	0.017	0.247
RW1-MW3	NWIRP-Bethpage-GM-38-GW-RW1-MW3-061913	6/19/2013	1.64 U	2.31	3.92	3.14 U	2.98	4.88	**1.07**	0.347	0.354	**1.79**	0.873	1.21	0.00 U	0.00	0.247
RW2-MW1	NWIRP-Bethpage-GM-38-GW-RW2-MW1-061713	6/17/2013	**9.63**	4.04	3.97	**8.52**	3.52	4.88	**3.99**	0.637	0.391	**2.81**	0.886	0.997	0.00 U	0.00	0.247
RW3-MW1	NWIRP-Bethpage-GM-38-GW-RW3-MW1-062013	6/20/2013	0.520 U	1.44	2.90	**5.62**	2.64	3.60	**1.11**	0.350	0.353	0.957 U	0.813	1.30	0.0701 U	0.00975	0.247
RW3-MW1 - Field Duplicate	NWIRP-Bethpage-GM-38-GW-DUP01-062013	6/20/2013	0.202 U	1.55	3.45	-0.117 U	1.69	3.35	**1.02**	0.369	0.403	**1.35**	0.846	1.26	0.0124 U	0.00307	0.247
RW3-MW2	NWIRP-Bethpage-GM-38-GW-RW3-MW2-062013	6/20/2013	0.256 U	1.45	3.17	0.953 U	1.97	3.52	**0.772**	0.309	0.357	0.539 U	0.683	1.16	0.0151 U	0.00397	0.247
RW3-MW3	NWIRP-Bethpage-GM-38-GW-RW3-MW3-062113	6/21/2013	**5.00**	3.05	3.47	**5.95**	3.32	5.00	**1.40**	0.449	0.430	**1.58**	0.784	1.05	0.00 U	0.00	0.247
RW3-MW4	NWIRP-Bethpage-GM-38-GW-RW3-MW4-062113	6/21/2013	**11.0**	4.35	2.91	**8.70**	3.41	4.61	**2.17**	0.483	0.385	**2.81**	1.31	1.93	0.131 U	0.0181	0.247
Equipment/Rinsate Blank	NWIRP-Bethpage-GM-38-GW-FB01-062113	6/21/2013	-0.351 U	0.941	2.85	0.830 U	2.93	5.23	0.101 U	0.222	0.408	1.10 U	1.01	1.66	0.00 U	0.00	0.247

Notes:
LTM = long-term monitoring
MDC = minimum detectable concentration
ug/L = micrograms per liter
pCi/L = picoCurie per liter
U = Analyte not detected above associated MDC, MDL, MDA, or LOD.

Gross Alpha analyzed by EPA 900.0/SW846 9310 with a reporting limit (RL) of 5.00 pCi/L.
Gross Beta analyzed by EPA 900.0/SW846 9310 with a RL of 5.00 pCi/L.
Radium 226 analyzed by EPA 903.1 Modified with a RL of 1.00 pCi/L.
Radium 228 analyzed by EPA 904.0/SW846 9320 Modified with a RL of 3.00 pCi/L.
Uranium analyzed by ASTM D 5174 with a RL of 1.00 ug/L.

Bold highlight indicates detected compound.
Uncertainty is calculated at the 95% confidence interval.

Northrop Grumman Corporation-OU2

Data Review

BETHPAGE, NEW YORK

Radiochemistry Analysis

SDG#3096332 (ALS #R1304025)

Analyses Performed By:
Pace Analytical Services, Inc.
Greenburg, Pennsylvania

Report: #19556
Review Level: Tier I
Project: NY001496.1312.GWMI4

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) #3096332 (ALS #R1304025) for samples collected in association with the Northrop Grumman-Bethpage Site. The review was conducted as a Tier I evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
					VOC	SVOC	PCB	MET	RAD
MW-116-5	3096332001 (R1304025-001)	WATER	6/4/2013						X
GM-37D2	3096332002 (R1304025-002)	WATER	6/5/2013						X
GM-71D2	3096332003 (R1304025-001)	WATER	6/5/2013						X

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA), methods 900.0m, 903.1, 904.0, and ASTM D5174.97. Data were reviewed in accordance with USEPA National Functional Guidelines of July 2002 and Multi-Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual of July 2004.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The analyte was analyzed for but not detected above the minimum detectable amount (MDA).

- Validation Qualifiers

  J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

RADIOCHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Methods 900.0m 903.1 904.0 ASTM D5174.97	Water	180 days from collection to analysis	Cool to < 6°C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the minimum detection concentration (MDC). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the minimum detection concentration (MDC) in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for water matrices and 100% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not collected with the sample location associated with this SDG.

4. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR RADIOCHEMISTRY

Radiochem; 900.0m, 903.1, 904.0, ASTM D5174.97	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Tier I Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks					X
Field/Lab Duplicate (RPD)					X
Reporting Limit Verification		X		X	

RPD - relative percent difference

VALIDATION PERFORMED BY: Lisa Horton

SIGNATURE: 

DATE: June 20, 2013

PEER REVIEW BY: Todd Church

DATE: June 20, 2013

CHAIN OF CUSTODY/
CORRECTED SAMPLE ANALYSIS DATA SHEETS

ALS Environmental Chain of Custody

1565 Jefferson Rd, Building 300 • Rochester, NY 14623 • 585-288-5380 • FAX 585-288-8475

ALS Contact: Michael Perry

Project Number: R1304025
Project Manager: Michael Perry

<13060177P1>
130601771

3096332

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	~~Misc Out 1~~ None Alpha Beta	~~Misc Out 2~~ None 226 + 228 Rad.	~~Misc Out 3~~ ~~None~~ Uranium	
R1304025-001	MW-116-5	3	Water	6/4/13	1246	Pace PA	X	X	X	001
R1304025-002	GM-37D2	3	Water	6/5/13	1718	Pace PA	X	X	X	002
R1304025-003	GM-71D2	3	Water	6/5/13	1236	Pace PA	X	X	X	003

Special Instructions/Comments
temp: 0.2°C (IR)

Turnaround Requirements
X RUSH (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 (5)-9 days
~~X~~ STANDARD
Requested FAX Date: ____
Requested Report Date: 06/14/13

Report Requirements
___ I. Results Only
___ II. Results + QC Summaries
___ III. Results + QC and Calibration Summaries
___ IV. Data Validation Report with Raw Data
PQL/MDL/J N
EDD Y

Invoice Information
PO# R1304025
Bill to

Relinquished By: [signature] 6/6/13 @ 1555
Received By: [signature] 6-11-13 0915
Airbill Number:

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: R1304025
Pace Project No.: 3096332

Sample: R1304025-001 **Lab ID: 3096332001** Collected: 06/04/13 12:46 Received: 06/11/13 09:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	**3.12 ± 1.56 (2.10)**	pCi/L	06/14/13 07:27	12587-46-1	
Gross Beta	EPA 900.0m	**2.54 ± 1.33 (2.24)**	pCi/L	06/14/13 07:27	12587-47-2	
Radium-226	EPA 903.1	**1.06 ± 0.709 (0.879)**	pCi/L	06/17/13 13:10	13982-63-3	
Radium-228	EPA 904.0	**0.421 ± 0.394 (0.805)**	pCi/L	06/17/13 14:54	15262-20-1	
Total Uranium	ASTM D5174.97	**0.0447 ± 0.0011 (0.197)**	ug/L	06/19/13 11:42	7440-61-1	

Sample: R1304025-002 **Lab ID: 3096332002** Collected: 06/05/13 17:18 Received: 06/11/13 09:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	**3.04 ± 1.48 (1.58)**	pCi/L	06/14/13 07:27	12587-46-1	
Gross Beta	EPA 900.0m	**2.37 ± 1.30 (2.22)**	pCi/L	06/14/13 07:27	12587-47-2	
Radium-226	EPA 903.1	**1.00 ± 0.634 (0.716)**	pCi/L	06/17/13 13:09	13982-63-3	
Radium-228	EPA 904.0	**0.963 ± 0.412 (0.662)**	pCi/L	06/17/13 14:54	15262-20-1	
Total Uranium	ASTM D5174.97	**0.0452 ± 0.0009 (0.197)**	ug/L	06/19/13 11:45	7440-61-1	

Sample: R1304025-003 **Lab ID: 3096332003** Collected: 06/05/13 12:36 Received: 06/11/13 09:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	**5.43 ± 2.15 (1.89)**	pCi/L	06/14/13 07:27	12587-46-1	
Gross Beta	EPA 900.0m	**2.89 ± 1.44 (2.34)**	pCi/L	06/14/13 07:27	12587-47-2	
Radium-226	EPA 903.1	**2.28 ± 1.01 (0.729)**	pCi/L	06/17/13 12:52	13982-63-3	
Radium-228	EPA 904.0	**1.14 ± 0.511 (0.897)**	pCi/L	06/17/13 14:54	15262-20-1	
Total Uranium	ASTM D5174.97	**0.134 ± 0.0023 (0.197)**	ug/L	06/19/13 11:47	7440-61-1	

REPORT OF LABORATORY ANALYSIS