



RTI Laboratories, Inc.

Client Ref.: Fort Monmouth 1207071

Pace-Pittsburgh Project No. 3072058

Pace Analytical Services, Inc.-Pittsburgh
1638 Roseytown Road
Suites 2, 3, & 4
Greensburg, PA 15601

Table of Contents 3072058

Page Number	Section
1	Pace Analytical Services, Inc Report Cover Page
3	Case Narrative
13	Analytical Results
36	Qualifier Flags
37	Chain of Custody
43	Sample Receipt Form
45	Gross Alpha and Beta Sample Analysis Data-1
73	Gross Alpha and Beta Sample Analysis Data-2
102	Gross Alpha and Beta Sample Analysis Data-3
131	Gross Alpha and Beta Sample Analysis Data-4
161	Gross Alpha and Beta Sample Analysis Data-5
191	Gross Alpha and Beta Sample Analysis Data-6
222	Gross Alpha and Beta Calibration Data
278	Gross Alpha and Beta LCS Data
284	GFPC Routine Checks

Case Narrative for Pace Analytical Job Number 3072058

7/31/2012

Four hundred and thirty one (431) contamination swipe samples were received in good condition at Pace Analytical on 06/25/12. One hundred and one (101) samples received were logged for radiochemical analyses under Pace Analytical Project number 3072058 with corresponding samples IDs of 3072058001 through 3072058101. This project narrative is for the analysis of all samples for Gross Alpha and Gross Beta content by Gas Flow Proportional Counting (GFPC).

Samples were analyzed as specified in the generic Scope of Work (SOW) for Analytical Chemistry Laboratory Services for Environmental Samples USACE, Baltimore District.

All work was performed under the Purchase Order (PO) agreement number 12E-183 by and between Pace Analytical Services, Inc. and RTI Laboratories, Inc.

Gross Alpha and Gross Beta by EPA 900.0 Modified

Each sample, as received, was removed from the corresponding filter holder and affixed to a shallow, stainless-steel counting planchet.

The prepared samples were counted in a GFPC system which was calibrated with NIST-traceable quantities of Th-230 and Sr-90/Y-90. Samples were counted for a duration sufficient to achieve the project-specified detection limit of 1 dpm/filter for gross alpha and 5 dpm/filter for gross beta.

Batch quality control analyses performed for each set of 20 samples consisted of one batch method blank (MB), one Laboratory Control Sample (LCS), and one LCS Duplicate (LCSD). The LCS and LCSD samples used were "static" sources that were prepared by Pace prior to the onset of analyses and consisted of a blank filter of the same lot as those used for sample analysis directly spiked with quantities of Th-230 as the alpha emitter and Sr-90/Y-90 as the beta emitter(s).

The prepared LCSs do not completely mimic the project samples provided as the materials spiked onto the filters may have evaporated on the top surface of the filter limiting the self-absorption of the alpha particles and creating closer proximity of the radioactivity to the detectors during counting.

For this project, Pace applied default acceptance criteria for gross alpha LCS control as within the range of 62% to 119%. The LCS limits for gross beta analysis were set at 79% to 130%. The precision limit for gross alpha was set at 35% and for gross beta at 17%. Pace's default acceptance criteria for LCSs is based on a group of aqueous LCSs which were spiked at a higher concentration than used for this project. The limits used are narrower than those typically used for LCSs at the utilized spike level.

Case Narrative for Pace Analytical Job Number 3072058

As a secondary measure, as accepted under the DOD QSM, LCSs and LCSDs were assessed using Numerical Indicators that measure the degree of overlap between measured spike concentrations with the measurement uncertainty and the spike target values. These assessments did not indicate any failures for LCSs or LCSDs related to the analysis of any project samples.

The gross alpha LCS and LCSD associated with the analysis of samples 3072058021 through 3072058040 failed high and outside of Pace's default acceptance criteria for LCS control. The calculated precision value between the LCS and LCSD was within Pace's default acceptance range. Results for these samples have been reported based on all observed gross alpha results being less than the required minimum detectable concentration (MDC) of 1 dpm/filter.

Additionally, the LCS associated with samples 3072058041 through 3072058060 was high and outside of Pace's default acceptance criteria for LCS control. All samples excluding samples 3072058044, 3072058055, 3072058057, and 3072058058 had measured gross alpha concentrations which were less than the required minimum detectable concentration (MDC) of 1 dpm/filter. Of the listed samples with observed gross alpha concentration greater than 1 dpm/filter, the maximum result was calculated to be 1.78 dpm/filter. Results for samples 3072058044, 3072058055, 3072058057, and 3072058058 have been reported with the narrative notation that the reported results may be biased high.

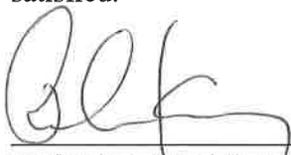
No further anomalous events were noted during the preparation or analysis of the samples for Gross Alpha and Gross Beta content. Unless indicated otherwise, all data quality objectives and quality control acceptance criteria were satisfied.

General Comments

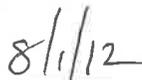
Please note that analytical results, as well as the CSU (Combined Standard Uncertainty – a.k.a. TPU) are reported at the 1.96 sigma level for all sample analyses.

No further anomalous events were noted during the preparation or analysis of the samples referenced in this project narrative.

Unless noted otherwise, all data quality objectives and quality control acceptance criteria were satisfied.



Radiochemistry Manager or Designate



Date

July 24, 2012

Mr. Chino Ortiz
RTI Laboratories, Inc.
31628 Glendale Street
Livonia, MI 48150

RE: Project: Fort Monmouth 1207071
Pace Project No.: 3072058

Dear Mr. Ortiz:

Enclosed are the analytical results for sample(s) received by the laboratory on June 25, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Carin Ferris

carin.ferris@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Fort Monmouth 1207071
Pace Project No.: 3072058

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601
ACCLASS DOD-ELAP Accreditation #: ADE-1544
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California/TNI Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH 0694
Delaware Certification
Florida/TNI Certification #: E87683
Guam/PADEP Certification
Hawaii/PADEP Certification
Idaho Certification
Illinois/PADEP Certification
Indiana/PADEP Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana/TNI Certification #: LA080002
Louisiana/TNI Certification #: 4086
Maine Certification #: PA0091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nevada Certification
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188
Utah/TNI Certification #: ANTE
Virgin Island/PADEP Certification
Virginia Certification #: 00112
Virginia VELAP (Cert # 460198)
Washington Certification #: C868
West Virginia Certification #: 143
Wisconsin/PADEP Certification
Wyoming Certification #: 8TMS-Q

REPORT OF LABORATORY ANALYSIS

Page 2 of 32

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SAMPLE SUMMARY

Project: Fort Monmouth 1207071

Pace Project No.: 3072058

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3072058001	2540-SU1-1	Wipe	06/14/12 00:01	06/25/12 10:15
3072058002	2540-SU1-2	Wipe	06/14/12 00:01	06/25/12 10:15
3072058003	2540-SU1-3	Wipe	06/14/12 00:01	06/25/12 10:15
3072058004	2540-SU1-4	Wipe	06/14/12 00:01	06/25/12 10:15
3072058005	2540-SU1-5	Wipe	06/14/12 00:01	06/25/12 10:15
3072058006	2540-SU1-5D	Wipe	06/14/12 00:01	06/25/12 10:15
3072058007	2540-SU1-6	Wipe	06/14/12 00:01	06/25/12 10:15
3072058008	2540-SU1-7	Wipe	06/14/12 00:01	06/25/12 10:15
3072058009	2540-SU1-8	Wipe	06/14/12 00:01	06/25/12 10:15
3072058010	2540-SU1-9	Wipe	06/14/12 00:01	06/25/12 10:15
3072058011	2540-SU1-10	Wipe	06/14/12 00:01	06/25/12 10:15
3072058012	2540-SU1-11	Wipe	06/14/12 00:01	06/25/12 10:15
3072058013	2540-SU1-12	Wipe	06/14/12 00:01	06/25/12 10:15
3072058014	2540-SU1-12D	Wipe	06/14/12 00:01	06/25/12 10:15
3072058015	2540-SU1-13	Wipe	06/14/12 00:01	06/25/12 10:15
3072058016	2540-SU1-14	Wipe	06/14/12 00:01	06/25/12 10:15
3072058017	2540-SU1-15	Wipe	06/14/12 00:01	06/25/12 10:15
3072058018	2540-SU1-16	Wipe	06/14/12 00:01	06/25/12 10:15
3072058019	2540-SU1-17	Wipe	06/14/12 00:01	06/25/12 10:15
3072058020	2540-SU1-18	Wipe	06/14/12 00:01	06/25/12 10:15
3072058021	2540-SU1-19	Wipe	06/14/12 00:01	06/25/12 10:15
3072058022	2540-SU1-20	Wipe	06/14/12 00:01	06/25/12 10:15
3072058023	2540-SU1-21	Wipe	06/14/12 00:01	06/25/12 10:15
3072058024	2540-SU1-22	Wipe	06/14/12 00:01	06/25/12 10:15
3072058025	2540-SU1-23	Wipe	06/14/12 00:01	06/25/12 10:15
3072058026	2540-SU1-24	Wipe	06/14/12 00:01	06/25/12 10:15
3072058027	2540-SU1-24D	Wipe	06/14/12 00:01	06/25/12 10:15
3072058028	2540-SU1-25	Wipe	06/14/12 00:01	06/25/12 10:15
3072058029	2540-SU1-26	Wipe	06/14/12 00:01	06/25/12 10:15
3072058030	2540-SU1-27	Wipe	06/14/12 00:01	06/25/12 10:15
3072058031	2540-SU1-28	Wipe	06/14/12 00:01	06/25/12 10:15
3072058032	2540-SU1-29	Wipe	06/14/12 00:01	06/25/12 10:15
3072058033	2540-SU1-30	Wipe	06/14/12 00:01	06/25/12 10:15
3072058034	2540-SU1-31	Wipe	06/14/12 00:01	06/25/12 10:15
3072058035	2540-SU1-32	Wipe	06/14/12 00:01	06/25/12 10:15
3072058036	2540-SU2-1	Wipe	06/14/12 00:01	06/25/12 10:15
3072058037	2540-SU2-2	Wipe	06/14/12 00:01	06/25/12 10:15

REPORT OF LABORATORY ANALYSIS

Page 3 of 32

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SAMPLE SUMMARY

Project: Fort Monmouth 1207071

Pace Project No.: 3072058

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3072058038	2540-SU2-3	Wipe	06/14/12 00:01	06/25/12 10:15
3072058039	2540-SU2-4	Wipe	06/14/12 00:01	06/25/12 10:15
3072058040	2540-SU2-5	Wipe	06/14/12 00:01	06/25/12 10:15
3072058041	2540-SU2-6	Wipe	06/14/12 00:01	06/25/12 10:15
3072058042	2540-SU2-7	Wipe	06/14/12 00:01	06/25/12 10:15
3072058043	2540-SU2-7D	Wipe	06/14/12 00:01	06/25/12 10:15
3072058044	2540-SU2-8	Wipe	06/14/12 00:01	06/25/12 10:15
3072058045	2540-SU2-9	Wipe	06/14/12 00:01	06/25/12 10:15
3072058046	2540-SU2-10	Wipe	06/14/12 00:01	06/25/12 10:15
3072058047	2540-SU2-11	Wipe	06/14/12 00:01	06/25/12 10:15
3072058048	2540-SU2-12	Wipe	06/14/12 00:01	06/25/12 10:15
3072058049	2540-SU2-13	Wipe	06/14/12 00:01	06/25/12 10:15
3072058050	2540-SU2-14	Wipe	06/14/12 00:01	06/25/12 10:15
3072058051	2540-SU2-15	Wipe	06/14/12 00:01	06/25/12 10:15
3072058052	2540-SU2-16	Wipe	06/14/12 00:01	06/25/12 10:15
3072058053	2540-SU2-17	Wipe	06/14/12 00:01	06/25/12 10:15
3072058054	2540-SU2-17D	Wipe	06/14/12 00:01	06/25/12 10:15
3072058055	2540-SU2-18	Wipe	06/14/12 00:01	06/25/12 10:15
3072058056	2540-SU2-19	Wipe	06/14/12 00:01	06/25/12 10:15
3072058057	2540-SU2-20	Wipe	06/14/12 00:01	06/25/12 10:15
3072058058	2540-SU2-21	Wipe	06/14/12 00:01	06/25/12 10:15
3072058059	2540-SU3-1	Wipe	06/14/12 00:01	06/25/12 10:15
3072058060	2540-SU3-2	Wipe	06/14/12 00:01	06/25/12 10:15
3072058061	2540-SU3-2D	Wipe	06/14/12 00:01	06/25/12 10:15
3072058062	2540-SU3-3	Wipe	06/14/12 00:01	06/25/12 10:15
3072058063	2540-SU3-4	Wipe	06/14/12 00:01	06/25/12 10:15
3072058064	2540-SU3-5	Wipe	06/14/12 00:01	06/25/12 10:15
3072058065	2540-SU3-6	Wipe	06/14/12 00:01	06/25/12 10:15
3072058066	2540-SU3-7	Wipe	06/14/12 00:01	06/25/12 10:15
3072058067	2540-SU3-8	Wipe	06/14/12 00:01	06/25/12 10:15
3072058068	2540-SU3-9	Wipe	06/14/12 00:01	06/25/12 10:15
3072058069	2540-SU3-10	Wipe	06/14/12 00:01	06/25/12 10:15
3072058070	2540-SU3-11	Wipe	06/14/12 00:01	06/25/12 10:15
3072058071	2540-SU3-12	Wipe	06/14/12 00:01	06/25/12 10:15
3072058072	2540-SU3-13	Wipe	06/14/12 00:01	06/25/12 10:15
3072058073	2540-SU3-14	Wipe	06/14/12 00:01	06/25/12 10:15
3072058074	2540-SU3-15	Wipe	06/14/12 00:01	06/25/12 10:15

REPORT OF LABORATORY ANALYSIS

Page 4 of 32

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SAMPLE SUMMARY

Project: Fort Monmouth 1207071

Pace Project No.: 3072058

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3072058075	2540-SU3-16	Wipe	06/14/12 00:01	06/25/12 10:15
3072058076	2540-SU3-16D	Wipe	06/14/12 00:01	06/25/12 10:15
3072058077	2540-SU3-17	Wipe	06/14/12 00:01	06/25/12 10:15
3072058078	2540-SU3-18	Wipe	06/14/12 00:01	06/25/12 10:15
3072058079	2540-SU3-19	Wipe	06/14/12 00:01	06/25/12 10:15
3072058080	2540-SU3-20	Wipe	06/14/12 00:01	06/25/12 10:15
3072058081	2540-SU3-21	Wipe	06/14/12 00:01	06/25/12 10:15
3072058082	2540-SU3-22	Wipe	06/14/12 00:01	06/25/12 10:15
3072058083	2540-SU3-23	Wipe	06/14/12 00:01	06/25/12 10:15
3072058084	2540-SU3-24	Wipe	06/14/12 00:01	06/25/12 10:15
3072058085	2540-SU3-25	Wipe	06/14/12 00:01	06/25/12 10:15
3072058086	2540-SU3-26	Wipe	06/14/12 00:01	06/25/12 10:15
3072058087	2540-SU3-26D	Wipe	06/14/12 00:01	06/25/12 10:15
3072058088	2540-SU3-27	Wipe	06/14/12 00:01	06/25/12 10:15
3072058089	2540-SU3-28	Wipe	06/14/12 00:01	06/25/12 10:15
3072058090	2540-SU3-29	Wipe	06/14/12 00:01	06/25/12 10:15
3072058091	2540-SU3-30	Wipe	06/14/12 00:01	06/25/12 10:15
3072058092	2540-SU3-31	Wipe	06/14/12 00:01	06/25/12 10:15
3072058093	2540-SU3-32	Wipe	06/14/12 00:01	06/25/12 10:15
3072058094	2540-SU3-33	Wipe	06/14/12 00:01	06/25/12 10:15
3072058095	2540-SU3-34	Wipe	06/14/12 00:01	06/25/12 10:15
3072058096	2540-SU3-35	Wipe	06/14/12 00:01	06/25/12 10:15
3072058097	2540-SU3-36	Wipe	06/14/12 00:01	06/25/12 10:15
3072058098	2540-SU3-37	Wipe	06/14/12 00:01	06/25/12 10:15
3072058099	2540-SU3-38	Wipe	06/14/12 00:01	06/25/12 10:15
3072058100	2540-SU3-38D	Wipe	06/14/12 00:01	06/25/12 10:15
3072058101	2540-SU3-39	Wipe	06/14/12 00:01	06/25/12 10:15

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SAMPLE ANALYTE COUNT

Project: Fort Monmouth 1207071

Pace Project No.: 3072058

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3072058001	2540-SU1-1	EPA 900.0m	MBT	2	PASI-PA
3072058002	2540-SU1-2	EPA 900.0m	MBT	2	PASI-PA
3072058003	2540-SU1-3	EPA 900.0m	MBT	2	PASI-PA
3072058004	2540-SU1-4	EPA 900.0m	MBT	2	PASI-PA
3072058005	2540-SU1-5	EPA 900.0m	MBT	2	PASI-PA
3072058006	2540-SU1-5D	EPA 900.0m	MBT	2	PASI-PA
3072058007	2540-SU1-6	EPA 900.0m	MBT	2	PASI-PA
3072058008	2540-SU1-7	EPA 900.0m	MBT	2	PASI-PA
3072058009	2540-SU1-8	EPA 900.0m	MBT	2	PASI-PA
3072058010	2540-SU1-9	EPA 900.0m	MBT	2	PASI-PA
3072058011	2540-SU1-10	EPA 900.0m	MBT	2	PASI-PA
3072058012	2540-SU1-11	EPA 900.0m	MBT	2	PASI-PA
3072058013	2540-SU1-12	EPA 900.0m	MBT	2	PASI-PA
3072058014	2540-SU1-12D	EPA 900.0m	MBT	2	PASI-PA
3072058015	2540-SU1-13	EPA 900.0m	MBT	2	PASI-PA
3072058016	2540-SU1-14	EPA 900.0m	MBT	2	PASI-PA
3072058017	2540-SU1-15	EPA 900.0m	MBT	2	PASI-PA
3072058018	2540-SU1-16	EPA 900.0m	MBT	2	PASI-PA
3072058019	2540-SU1-17	EPA 900.0m	MBT	2	PASI-PA
3072058020	2540-SU1-18	EPA 900.0m	MBT	2	PASI-PA
3072058021	2540-SU1-19	EPA 900.0m	MBT	2	PASI-PA
3072058022	2540-SU1-20	EPA 900.0m	MBT	2	PASI-PA
3072058023	2540-SU1-21	EPA 900.0m	MBT	2	PASI-PA
3072058024	2540-SU1-22	EPA 900.0m	MBT	2	PASI-PA
3072058025	2540-SU1-23	EPA 900.0m	MBT	2	PASI-PA
3072058026	2540-SU1-24	EPA 900.0m	MBT	2	PASI-PA
3072058027	2540-SU1-24D	EPA 900.0m	MBT	2	PASI-PA
3072058028	2540-SU1-25	EPA 900.0m	MBT	2	PASI-PA
3072058029	2540-SU1-26	EPA 900.0m	MBT	2	PASI-PA
3072058030	2540-SU1-27	EPA 900.0m	MBT	2	PASI-PA
3072058031	2540-SU1-28	EPA 900.0m	MBT	2	PASI-PA
3072058032	2540-SU1-29	EPA 900.0m	MBT	2	PASI-PA
3072058033	2540-SU1-30	EPA 900.0m	MBT	2	PASI-PA
3072058034	2540-SU1-31	EPA 900.0m	MBT	2	PASI-PA
3072058035	2540-SU1-32	EPA 900.0m	MBT	2	PASI-PA
3072058036	2540-SU2-1	EPA 900.0m	MBT	2	PASI-PA
3072058037	2540-SU2-2	EPA 900.0m	MBT	2	PASI-PA

REPORT OF LABORATORY ANALYSIS

Page 6 of 32

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SAMPLE ANALYTE COUNT

Project: Fort Monmouth 1207071

Pace Project No.: 3072058

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3072058038	2540-SU2-3	EPA 900.0m	MBT	2	PASI-PA
3072058039	2540-SU2-4	EPA 900.0m	MBT	2	PASI-PA
3072058040	2540-SU2-5	EPA 900.0m	MBT	2	PASI-PA
3072058041	2540-SU2-6	EPA 900.0m	MBT	2	PASI-PA
3072058042	2540-SU2-7	EPA 900.0m	MBT	2	PASI-PA
3072058043	2540-SU2-7D	EPA 900.0m	MBT	2	PASI-PA
3072058044	2540-SU2-8	EPA 900.0m	MBT	2	PASI-PA
3072058045	2540-SU2-9	EPA 900.0m	MBT	2	PASI-PA
3072058046	2540-SU2-10	EPA 900.0m	MBT	2	PASI-PA
3072058047	2540-SU2-11	EPA 900.0m	MBT	2	PASI-PA
3072058048	2540-SU2-12	EPA 900.0m	MBT	2	PASI-PA
3072058049	2540-SU2-13	EPA 900.0m	MBT	2	PASI-PA
3072058050	2540-SU2-14	EPA 900.0m	MBT	2	PASI-PA
3072058051	2540-SU2-15	EPA 900.0m	MBT	2	PASI-PA
3072058052	2540-SU2-16	EPA 900.0m	MBT	2	PASI-PA
3072058053	2540-SU2-17	EPA 900.0m	MBT	2	PASI-PA
3072058054	2540-SU2-17D	EPA 900.0m	MBT	2	PASI-PA
3072058055	2540-SU2-18	EPA 900.0m	MBT	2	PASI-PA
3072058056	2540-SU2-19	EPA 900.0m	MBT	2	PASI-PA
3072058057	2540-SU2-20	EPA 900.0m	MBT	2	PASI-PA
3072058058	2540-SU2-21	EPA 900.0m	MBT	2	PASI-PA
3072058059	2540-SU3-1	EPA 900.0m	MBT	2	PASI-PA
3072058060	2540-SU3-2	EPA 900.0m	MBT	2	PASI-PA
3072058061	2540-SU3-2D	EPA 900.0m	MBT	2	PASI-PA
3072058062	2540-SU3-3	EPA 900.0m	MBT	2	PASI-PA
3072058063	2540-SU3-4	EPA 900.0m	MBT	2	PASI-PA
3072058064	2540-SU3-5	EPA 900.0m	MBT	2	PASI-PA
3072058065	2540-SU3-6	EPA 900.0m	MBT	2	PASI-PA
3072058066	2540-SU3-7	EPA 900.0m	MBT	2	PASI-PA
3072058067	2540-SU3-8	EPA 900.0m	MBT	2	PASI-PA
3072058068	2540-SU3-9	EPA 900.0m	MBT	2	PASI-PA
3072058069	2540-SU3-10	EPA 900.0m	MBT	2	PASI-PA
3072058070	2540-SU3-11	EPA 900.0m	MBT	2	PASI-PA
3072058071	2540-SU3-12	EPA 900.0m	MBT	2	PASI-PA
3072058072	2540-SU3-13	EPA 900.0m	MBT	2	PASI-PA
3072058073	2540-SU3-14	EPA 900.0m	MBT	2	PASI-PA
3072058074	2540-SU3-15	EPA 900.0m	MBT	2	PASI-PA

REPORT OF LABORATORY ANALYSIS

Page 7 of 32

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SAMPLE ANALYTE COUNT

Project: Fort Monmouth 1207071

Pace Project No.: 3072058

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3072058075	2540-SU3-16	EPA 900.0m	MBT	2	PASI-PA
3072058076	2540-SU3-16D	EPA 900.0m	MBT	2	PASI-PA
3072058077	2540-SU3-17	EPA 900.0m	MBT	2	PASI-PA
3072058078	2540-SU3-18	EPA 900.0m	MBT	2	PASI-PA
3072058079	2540-SU3-19	EPA 900.0m	MBT	2	PASI-PA
3072058080	2540-SU3-20	EPA 900.0m	MBT	2	PASI-PA
3072058081	2540-SU3-21	EPA 900.0m	MBT	2	PASI-PA
3072058082	2540-SU3-22	EPA 900.0m	MBT	2	PASI-PA
3072058083	2540-SU3-23	EPA 900.0m	MBT	2	PASI-PA
3072058084	2540-SU3-24	EPA 900.0m	MBT	2	PASI-PA
3072058085	2540-SU3-25	EPA 900.0m	MBT	2	PASI-PA
3072058086	2540-SU3-26	EPA 900.0m	MBT	2	PASI-PA
3072058087	2540-SU3-26D	EPA 900.0m	MBT	2	PASI-PA
3072058088	2540-SU3-27	EPA 900.0m	MBT	2	PASI-PA
3072058089	2540-SU3-28	EPA 900.0m	MBT	2	PASI-PA
3072058090	2540-SU3-29	EPA 900.0m	MBT	2	PASI-PA
3072058091	2540-SU3-30	EPA 900.0m	MBT	2	PASI-PA
3072058092	2540-SU3-31	EPA 900.0m	MBT	2	PASI-PA
3072058093	2540-SU3-32	EPA 900.0m	MBT	2	PASI-PA
3072058094	2540-SU3-33	EPA 900.0m	MBT	2	PASI-PA
3072058095	2540-SU3-34	EPA 900.0m	MBT	2	PASI-PA
3072058096	2540-SU3-35	EPA 900.0m	MBT	2	PASI-PA
3072058097	2540-SU3-36	EPA 900.0m	MBT	2	PASI-PA
3072058098	2540-SU3-37	EPA 900.0m	MBT	2	PASI-PA
3072058099	2540-SU3-38	EPA 900.0m	MBT	2	PASI-PA
3072058100	2540-SU3-38D	EPA 900.0m	MBT	2	PASI-PA
3072058101	2540-SU3-39	EPA 900.0m	MBT	2	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Fort Monmouth 1207071
Pace Project No.: 3072058

Sample: 2540-SU1-1		Lab ID: 3072058001	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.814J ± 0.578 (0.971)	dpm/sample	07/10/12 09:06	12587-46-1	N2
Gross Beta	EPA 900.0m	1.15 ± 0.487 (0.754)	dpm/sample	07/10/12 09:06	12587-47-2	N2

Sample: 2540-SU1-2		Lab ID: 3072058002	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.471J ± 0.508 (0.984)	dpm/sample	07/10/12 09:04	12587-46-1	N2
Gross Beta	EPA 900.0m	0.797 ± 0.445 (0.766)	dpm/sample	07/10/12 09:04	12587-47-2	N2

Sample: 2540-SU1-3		Lab ID: 3072058003	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.096U ± 0.362 (0.926)	dpm/sample	07/10/12 09:04	12587-46-1	N2
Gross Beta	EPA 900.0m	0.316J ± 0.258 (0.516)	dpm/sample	07/10/12 09:04	12587-47-2	N2

Sample: 2540-SU1-4		Lab ID: 3072058004	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.111U ± 0.378 (0.942)	dpm/sample	07/10/12 09:05	12587-46-1	N2
Gross Beta	EPA 900.0m	0.364J ± 0.345 (0.708)	dpm/sample	07/10/12 09:05	12587-47-2	N2

Sample: 2540-SU1-5		Lab ID: 3072058005	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.504J ± 0.498 (0.959)	dpm/sample	07/10/12 09:05	12587-46-1	N2
Gross Beta	EPA 900.0m	0.406J ± 0.355 (0.708)	dpm/sample	07/10/12 09:05	12587-47-2	N2

Sample: 2540-SU1-5D		Lab ID: 3072058006	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.073U ± 0.397 (0.992)	dpm/sample	07/10/12 09:05	12587-46-1	N2
Gross Beta	EPA 900.0m	0.125U ± 0.283 (0.643)	dpm/sample	07/10/12 09:05	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207071
Pace Project No.: 3072058

Sample: 2540-SU1-6		Lab ID: 3072058007	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.163U ± 0.419 (0.997)	dpm/sample	07/10/12 09:05	12587-46-1	N2
Gross Beta	EPA 900.0m	0.466J ± 0.330 (0.625)	dpm/sample	07/10/12 09:05	12587-47-2	N2

Sample: 2540-SU1-7		Lab ID: 3072058008	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.397J ± 0.473 (0.972)	dpm/sample	07/10/12 09:05	12587-46-1	N2
Gross Beta	EPA 900.0m	0.248J ± 0.297 (0.623)	dpm/sample	07/10/12 09:05	12587-47-2	N2

Sample: 2540-SU1-8		Lab ID: 3072058009	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.630J ± 0.511 (0.929)	dpm/sample	07/10/12 09:06	12587-46-1	N2
Gross Beta	EPA 900.0m	0.461J ± 0.332 (0.626)	dpm/sample	07/10/12 09:06	12587-47-2	N2

Sample: 2540-SU1-9		Lab ID: 3072058010	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.211U ± 0.419 (0.964)	dpm/sample	07/10/12 09:06	12587-46-1	N2
Gross Beta	EPA 900.0m	0.525J ± 0.376 (0.722)	dpm/sample	07/10/12 09:06	12587-47-2	N2

Sample: 2540-SU1-10		Lab ID: 3072058011	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.989 ± 0.684 (0.955)	dpm/sample	07/10/12 09:06	12587-46-1	N2
Gross Beta	EPA 900.0m	1.12 ± 0.535 (0.789)	dpm/sample	07/10/12 09:06	12587-47-2	N2

Sample: 2540-SU1-11		Lab ID: 3072058012	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.415J ± 0.463 (0.944)	dpm/sample	07/10/12 09:06	12587-46-1	N2
Gross Beta	EPA 900.0m	0.374J ± 0.298 (0.582)	dpm/sample	07/10/12 09:06	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207071

Pace Project No.: 3072058

Sample: 2540-SU1-12		Lab ID: 3072058013	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.267U ± 0.431 (0.948)	dpm/sample	07/10/12 16:53	12587-46-1	N2
Gross Beta	EPA 900.0m	0.201U ± 0.278 (0.596)	dpm/sample	07/10/12 16:53	12587-47-2	N2

Sample: 2540-SU1-12D		Lab ID: 3072058014	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.616J ± 0.526 (0.974)	dpm/sample	07/10/12 16:56	12587-46-1	N2
Gross Beta	EPA 900.0m	0.280J ± 0.303 (0.619)	dpm/sample	07/10/12 16:56	12587-47-2	N2

Sample: 2540-SU1-13		Lab ID: 3072058015	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.621J ± 0.489 (0.853)	dpm/sample	07/10/12 16:56	12587-46-1	N2
Gross Beta	EPA 900.0m	0.228J ± 0.303 (0.637)	dpm/sample	07/10/12 16:56	12587-47-2	N2

Sample: 2540-SU1-14		Lab ID: 3072058016	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.543J ± 0.491 (0.924)	dpm/sample	07/10/12 16:56	12587-46-1	N2
Gross Beta	EPA 900.0m	0.244U ± 0.336 (0.719)	dpm/sample	07/10/12 16:56	12587-47-2	N2

Sample: 2540-SU1-15		Lab ID: 3072058017	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	1.18 ± 0.618 (0.829)	dpm/sample	07/10/12 16:57	12587-46-1	N2
Gross Beta	EPA 900.0m	0.596J ± 0.372 (0.656)	dpm/sample	07/10/12 16:57	12587-47-2	N2

Sample: 2540-SU1-16		Lab ID: 3072058018	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.461J ± 0.447 (0.845)	dpm/sample	07/10/12 16:57	12587-46-1	N2
Gross Beta	EPA 900.0m	0.471J ± 0.339 (0.641)	dpm/sample	07/10/12 16:57	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207071

Pace Project No.: 3072058

Sample: 2540-SU1-17		Lab ID: 3072058019	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.553J ± 0.516 (0.992)	dpm/sample	07/10/12 17:13	12587-46-1	N2
Gross Beta	EPA 900.0m	0.382J ± 0.327 (0.643)	dpm/sample	07/10/12 17:13	12587-47-2	N2

Sample: 2540-SU1-18		Lab ID: 3072058020	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.475J ± 0.474 (0.929)	dpm/sample	07/10/12 17:14	12587-46-1	N2
Gross Beta	EPA 900.0m	0.552J ± 0.344 (0.626)	dpm/sample	07/10/12 17:14	12587-47-2	N2

Sample: 2540-SU1-19		Lab ID: 3072058021	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.139J ± 0.225 (0.563)	dpm/sample	07/10/12 15:58	12587-46-1	N2
Gross Beta	EPA 900.0m	0.503J ± 0.320 (0.611)	dpm/sample	07/10/12 15:58	12587-47-2	N2

Sample: 2540-SU1-20		Lab ID: 3072058022	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.487J ± 0.356 (0.650)	dpm/sample	07/10/12 15:58	12587-46-1	N2
Gross Beta	EPA 900.0m	0.388J ± 0.413 (0.835)	dpm/sample	07/10/12 15:58	12587-47-2	N2

Sample: 2540-SU1-21		Lab ID: 3072058023	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.160J ± 0.364 (0.844)	dpm/sample	07/10/12 15:58	12587-46-1	N2
Gross Beta	EPA 900.0m	0.500J ± 0.322 (0.615)	dpm/sample	07/10/12 15:58	12587-47-2	N2

Sample: 2540-SU1-22		Lab ID: 3072058024	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.791 ± 0.363 (0.531)	dpm/sample	07/10/12 16:15	12587-46-1	N2
Gross Beta	EPA 900.0m	0.872 ± 0.378 (0.652)	dpm/sample	07/10/12 16:15	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207071
Pace Project No.: 3072058

Sample: 2540-SU1-23		Lab ID: 3072058025	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.082U ± 0.296 (0.645)	dpm/sample	07/10/12 16:15	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.092U ± 0.394 (0.845)	dpm/sample	07/10/12 16:15	12587-47-2	N2

Sample: 2540-SU1-24		Lab ID: 3072058026	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.194U ± 0.423 (0.965)	dpm/sample	07/10/12 16:15	12587-46-1	N2
Gross Beta	EPA 900.0m	1.19 ± 0.441 (0.725)	dpm/sample	07/10/12 16:15	12587-47-2	N2

Sample: 2540-SU1-24D		Lab ID: 3072058027	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.030U ± 0.355 (0.787)	dpm/sample	07/10/12 16:15	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.377U ± 0.334 (0.734)	dpm/sample	07/10/12 16:15	12587-47-2	N2

Sample: 2540-SU1-25		Lab ID: 3072058028	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.410J ± 0.336 (0.632)	dpm/sample	07/10/12 15:23	12587-46-1	N2
Gross Beta	EPA 900.0m	1.24 ± 0.441 (0.710)	dpm/sample	07/10/12 15:23	12587-47-2	N2

Sample: 2540-SU1-26		Lab ID: 3072058029	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.555 ± 0.323 (0.539)	dpm/sample	07/10/12 15:23	12587-46-1	N2
Gross Beta	EPA 900.0m	0.657 ± 0.354 (0.650)	dpm/sample	07/10/12 15:23	12587-47-2	N2

Sample: 2540-SU1-27		Lab ID: 3072058030	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.336J ± 0.290 (0.545)	dpm/sample	07/10/12 15:23	12587-46-1	N2
Gross Beta	EPA 900.0m	0.707 ± 0.375 (0.693)	dpm/sample	07/10/12 15:23	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207071

Pace Project No.: 3072058

Sample: 2540-SU1-28		Lab ID: 3072058031	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.910 ± 0.428 (0.674)	dpm/sample	07/10/12 15:23	12587-46-1	N2
Gross Beta	EPA 900.0m	1.96 ± 0.528 (0.670)	dpm/sample	07/10/12 15:23	12587-47-2	N2

Sample: 2540-SU1-29		Lab ID: 3072058032	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.889 ± 0.388 (0.563)	dpm/sample	07/11/12 15:20	12587-46-1	N2
Gross Beta	EPA 900.0m	1.96 ± 0.511 (0.611)	dpm/sample	07/11/12 15:20	12587-47-2	N2

Sample: 2540-SU1-30		Lab ID: 3072058033	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.783 ± 0.402 (0.650)	dpm/sample	07/11/12 15:20	12587-46-1	N2
Gross Beta	EPA 900.0m	0.074U ± 0.397 (0.835)	dpm/sample	07/11/12 15:20	12587-47-2	N2

Sample: 2540-SU1-31		Lab ID: 3072058034	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.002U ± 0.380 (0.844)	dpm/sample	07/11/12 15:20	12587-46-1	N2
Gross Beta	EPA 900.0m	0.713 ± 0.344 (0.615)	dpm/sample	07/11/12 15:20	12587-47-2	N2

Sample: 2540-SU1-32		Lab ID: 3072058035	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.616 ± 0.333 (0.531)	dpm/sample	07/11/12 15:20	12587-46-1	N2
Gross Beta	EPA 900.0m	0.934 ± 0.385 (0.652)	dpm/sample	07/11/12 15:20	12587-47-2	N2

Sample: 2540-SU2-1		Lab ID: 3072058036	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.209U ± 0.313 (0.645)	dpm/sample	07/11/12 15:20	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.610U ± 0.392 (0.845)	dpm/sample	07/11/12 15:20	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207071

Pace Project No.: 3072058

Sample: 2540-SU2-2		Lab ID: 3072058037	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.567U ± 0.399 (0.965)	dpm/sample	07/11/12 15:20	12587-46-1	N2
Gross Beta	EPA 900.0m	0.241U ± 0.349 (0.725)	dpm/sample	07/11/12 15:20	12587-47-2	N2

Sample: 2540-SU2-3		Lab ID: 3072058038	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.050U ± 0.347 (0.787)	dpm/sample	07/11/12 15:20	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.010U ± 0.343 (0.734)	dpm/sample	07/11/12 15:20	12587-47-2	N2

Sample: 2540-SU2-4		Lab ID: 3072058039	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.466J ± 0.344 (0.632)	dpm/sample	07/11/12 15:20	12587-46-1	N2
Gross Beta	EPA 900.0m	0.917 ± 0.405 (0.710)	dpm/sample	07/11/12 15:20	12587-47-2	N2

Sample: 2540-SU2-5		Lab ID: 3072058040	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.406J ± 0.299 (0.539)	dpm/sample	07/11/12 15:20	12587-46-1	N2
Gross Beta	EPA 900.0m	0.418J ± 0.332 (0.650)	dpm/sample	07/11/12 15:20	12587-47-2	N2

Sample: 2540-SU2-6		Lab ID: 3072058041	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.693J ± 0.517 (0.888)	dpm/sample	07/10/12 18:24	12587-46-1	N2
Gross Beta	EPA 900.0m	0.156U ± 0.317 (0.694)	dpm/sample	07/10/12 18:24	12587-47-2	N2

Sample: 2540-SU2-7		Lab ID: 3072058042	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.342J ± 0.426 (0.881)	dpm/sample	07/10/12 18:25	12587-46-1	N2
Gross Beta	EPA 900.0m	0.478J ± 0.343 (0.657)	dpm/sample	07/10/12 18:25	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207071

Pace Project No.: 3072058

Sample: 2540-SU2-7D		Lab ID: 3072058043	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.006U ± 0.322 (0.866)	dpm/sample	07/10/12 18:25	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.176U ± 0.247 (0.654)	dpm/sample	07/10/12 18:25	12587-47-2	N2

Sample: 2540-SU2-8		Lab ID: 3072058044	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	1.35 ± 0.624 (0.686)	dpm/sample	07/10/12 18:25	12587-46-1	N2
Gross Beta	EPA 900.0m	0.829 ± 0.387 (0.587)	dpm/sample	07/10/12 18:25	12587-47-2	N2

Sample: 2540-SU2-9		Lab ID: 3072058045	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.725J ± 0.552 (0.974)	dpm/sample	07/10/12 18:59	12587-46-1	N2
Gross Beta	EPA 900.0m	0.267J ± 0.303 (0.619)	dpm/sample	07/10/12 18:59	12587-47-2	N2

Sample: 2540-SU2-10		Lab ID: 3072058046	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.091U ± 0.345 (0.853)	dpm/sample	07/10/12 18:59	12587-46-1	N2
Gross Beta	EPA 900.0m	0.015U ± 0.265 (0.637)	dpm/sample	07/10/12 18:59	12587-47-2	N2

Sample: 2540-SU2-11		Lab ID: 3072058047	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.596J ± 0.504 (0.924)	dpm/sample	07/10/12 18:59	12587-46-1	N2
Gross Beta	EPA 900.0m	1.11 ± 0.462 (0.719)	dpm/sample	07/10/12 18:59	12587-47-2	N2

Sample: 2540-SU2-12		Lab ID: 3072058048	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.037U ± 0.317 (0.829)	dpm/sample	07/10/12 18:59	12587-46-1	N2
Gross Beta	EPA 900.0m	0.149U ± 0.291 (0.656)	dpm/sample	07/10/12 18:59	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207071

Pace Project No.: 3072058

Sample: 2540-SU2-13 **Lab ID: 3072058049** Collected: 06/14/12 00:01 Received: 06/25/12 10:15 Matrix: Wipe
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.351J ± 0.418 (0.845)	dpm/sample	07/10/12 18:59	12587-46-1	N2
Gross Beta	EPA 900.0m	0.597J ± 0.356 (0.641)	dpm/sample	07/10/12 18:59	12587-47-2	N2

Sample: 2540-SU2-14 **Lab ID: 3072058050** Collected: 06/14/12 00:01 Received: 06/25/12 10:15 Matrix: Wipe
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.484J ± 0.486 (0.948)	dpm/sample	07/10/12 19:00	12587-46-1	N2
Gross Beta	EPA 900.0m	0.514J ± 0.330 (0.596)	dpm/sample	07/10/12 19:00	12587-47-2	N2

Sample: 2540-SU2-15 **Lab ID: 3072058051** Collected: 06/14/12 00:01 Received: 06/25/12 10:15 Matrix: Wipe
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.616J ± 0.526 (0.974)	dpm/sample	07/10/12 21:33	12587-46-1	N2
Gross Beta	EPA 900.0m	0.607J ± 0.352 (0.619)	dpm/sample	07/10/12 21:33	12587-47-2	N2

Sample: 2540-SU2-16 **Lab ID: 3072058052** Collected: 06/14/12 00:01 Received: 06/25/12 10:15 Matrix: Wipe
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.939 ± 0.565 (0.853)	dpm/sample	07/10/12 21:33	12587-46-1	N2
Gross Beta	EPA 900.0m	0.804 ± 0.394 (0.637)	dpm/sample	07/10/12 21:33	12587-47-2	N2

Sample: 2540-SU2-17 **Lab ID: 3072058053** Collected: 06/14/12 00:01 Received: 06/25/12 10:15 Matrix: Wipe
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.276U ± 0.424 (0.924)	dpm/sample	07/10/12 21:33	12587-46-1	N2
Gross Beta	EPA 900.0m	0.276J ± 0.337 (0.719)	dpm/sample	07/10/12 21:33	12587-47-2	N2

Sample: 2540-SU2-17D **Lab ID: 3072058054** Collected: 06/14/12 00:01 Received: 06/25/12 10:15 Matrix: Wipe
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.254U ± 0.384 (0.829)	dpm/sample	07/10/12 21:34	12587-46-1	N2
Gross Beta	EPA 900.0m	0.122U ± 0.290 (0.656)	dpm/sample	07/10/12 21:34	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207071

Pace Project No.: 3072058

Sample: 2540-SU2-18		Lab ID: 3072058055	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	1.12 ± 0.609 (0.845)	dpm/sample	07/10/12 21:34	12587-46-1	N2
Gross Beta	EPA 900.0m	1.05 ± 0.436 (0.641)	dpm/sample	07/10/12 21:34	12587-47-2	N2

Sample: 2540-SU2-19		Lab ID: 3072058056	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.528J ± 0.485 (0.912)	dpm/sample	07/10/12 21:34	12587-46-1	N2
Gross Beta	EPA 900.0m	0.827 ± 0.403 (0.676)	dpm/sample	07/10/12 21:34	12587-47-2	N2

Sample: 2540-SU2-20		Lab ID: 3072058057	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	1.78 ± 0.781 (0.992)	dpm/sample	07/10/12 21:34	12587-46-1	N2
Gross Beta	EPA 900.0m	2.57 ± 0.696 (0.643)	dpm/sample	07/10/12 21:34	12587-47-2	N2

Sample: 2540-SU2-21		Lab ID: 3072058058	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	1.17 ± 0.628 (0.888)	dpm/sample	07/10/12 21:34	12587-46-1	N2
Gross Beta	EPA 900.0m	1.72 ± 0.558 (0.694)	dpm/sample	07/10/12 21:34	12587-47-2	N2

Sample: 2540-SU3-1		Lab ID: 3072058059	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.059U ± 0.340 (0.948)	dpm/sample	07/10/12 21:34	12587-46-1	N2
Gross Beta	EPA 900.0m	0.334J ± 0.294 (0.596)	dpm/sample	07/10/12 21:34	12587-47-2	N2

Sample: 2540-SU3-2		Lab ID: 3072058060	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.019U ± 0.334 (0.881)	dpm/sample	07/10/12 21:34	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.004U ± 0.270 (0.657)	dpm/sample	07/10/12 21:34	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207071
Pace Project No.: 3072058

Sample: 2540-SU3-2D		Lab ID: 3072058061	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.185U ± 0.274 (0.563)	dpm/sample	07/11/12 08:13	12587-46-1	N2
Gross Beta	EPA 900.0m	0.355J ± 0.309 (0.611)	dpm/sample	07/11/12 08:13	12587-47-2	N2

Sample: 2540-SU3-3		Lab ID: 3072058062	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.191U ± 0.313 (0.650)	dpm/sample	07/11/12 08:13	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.898U ± 0.391 (0.835)	dpm/sample	07/11/12 08:13	12587-47-2	N2

Sample: 2540-SU3-4		Lab ID: 3072058063	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.587U ± 0.330 (0.844)	dpm/sample	07/11/12 08:13	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.147U ± 0.277 (0.615)	dpm/sample	07/11/12 08:13	12587-47-2	N2

Sample: 2540-SU3-5		Lab ID: 3072058064	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.965 ± 0.393 (0.531)	dpm/sample	07/11/12 08:13	12587-46-1	N2
Gross Beta	EPA 900.0m	0.780 ± 0.369 (0.652)	dpm/sample	07/11/12 08:13	12587-47-2	N2

Sample: 2540-SU3-6		Lab ID: 3072058065	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.519J ± 0.356 (0.645)	dpm/sample	07/11/12 08:13	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.309U ± 0.392 (0.845)	dpm/sample	07/11/12 08:13	12587-47-2	N2

Sample: 2540-SU3-7		Lab ID: 3072058066	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.665U ± 0.395 (0.965)	dpm/sample	07/11/12 08:13	12587-46-1	N2
Gross Beta	EPA 900.0m	0.290J ± 0.352 (0.725)	dpm/sample	07/11/12 08:13	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207071

Pace Project No.: 3072058

Sample: 2540-SU3-8		Lab ID: 3072058067	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.211U ± 0.376 (0.787)	dpm/sample	07/11/12 08:13	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.088U ± 0.341 (0.734)	dpm/sample	07/11/12 08:13	12587-47-2	N2

Sample: 2540-SU3-9		Lab ID: 3072058068	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.112U ± 0.294 (0.632)	dpm/sample	07/11/12 08:13	12587-46-1	N2
Gross Beta	EPA 900.0m	0.203U ± 0.343 (0.710)	dpm/sample	07/11/12 08:13	12587-47-2	N2

Sample: 2540-SU3-10		Lab ID: 3072058069	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.072U ± 0.246 (0.539)	dpm/sample	07/11/12 08:13	12587-46-1	N2
Gross Beta	EPA 900.0m	0.113U ± 0.309 (0.650)	dpm/sample	07/11/12 08:13	12587-47-2	N2

Sample: 2540-SU3-11		Lab ID: 3072058070	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.223J ± 0.272 (0.545)	dpm/sample	07/11/12 08:13	12587-46-1	N2
Gross Beta	EPA 900.0m	0.302J ± 0.341 (0.693)	dpm/sample	07/11/12 08:13	12587-47-2	N2

Sample: 2540-SU3-12		Lab ID: 3072058071	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.203U ± 0.275 (0.674)	dpm/sample	07/12/12 07:58	12587-46-1	N2
Gross Beta	EPA 900.0m	0.519J ± 0.347 (0.670)	dpm/sample	07/12/12 07:58	12587-47-2	N2

Sample: 2540-SU3-13		Lab ID: 3072058072	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.242J ± 0.283 (0.563)	dpm/sample	07/12/12 07:58	12587-46-1	N2
Gross Beta	EPA 900.0m	0.482J ± 0.320 (0.611)	dpm/sample	07/12/12 07:58	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207071
Pace Project No.: 3072058

Sample: 2540-SU3-14		Lab ID: 3072058073	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.408J ± 0.344 (0.650)	dpm/sample	07/12/12 07:58	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.821U ± 0.390 (0.835)	dpm/sample	07/12/12 07:58	12587-47-2	N2

Sample: 2540-SU3-15		Lab ID: 3072058074	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.672J ± 0.459 (0.844)	dpm/sample	07/12/12 07:58	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.104U ± 0.285 (0.615)	dpm/sample	07/12/12 07:58	12587-47-2	N2

Sample: 2540-SU3-16		Lab ID: 3072058075	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.442J ± 0.303 (0.531)	dpm/sample	07/12/12 07:58	12587-46-1	N2
Gross Beta	EPA 900.0m	0.176U ± 0.315 (0.652)	dpm/sample	07/12/12 07:58	12587-47-2	N2

Sample: 2540-SU3-16D		Lab ID: 3072058076	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.209U ± 0.313 (0.645)	dpm/sample	07/12/12 07:58	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.624U ± 0.392 (0.845)	dpm/sample	07/12/12 07:58	12587-47-2	N2

Sample: 2540-SU3-17		Lab ID: 3072058077	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.508U ± 0.402 (0.965)	dpm/sample	07/12/12 07:58	12587-46-1	N2
Gross Beta	EPA 900.0m	0.174U ± 0.345 (0.725)	dpm/sample	07/12/12 07:58	12587-47-2	N2

Sample: 2540-SU3-18		Lab ID: 3072058078	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.030U ± 0.349 (0.787)	dpm/sample	07/12/12 07:58	12587-46-1	N2
Gross Beta	EPA 900.0m	0.157U ± 0.351 (0.734)	dpm/sample	07/12/12 07:58	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207071

Pace Project No.: 3072058

Sample: 2540-SU3-19		Lab ID: 3072058079	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.559J ± 0.358 (0.632)	dpm/sample	07/12/12 07:58	12587-46-1	N2
Gross Beta	EPA 900.0m	0.249U ± 0.347 (0.710)	dpm/sample	07/12/12 07:58	12587-47-2	N2

Sample: 2540-SU3-20		Lab ID: 3072058080	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.518J ± 0.317 (0.539)	dpm/sample	07/12/12 07:58	12587-46-1	N2
Gross Beta	EPA 900.0m	0.603J ± 0.349 (0.650)	dpm/sample	07/12/12 07:58	12587-47-2	N2

Sample: 2540-SU3-21		Lab ID: 3072058081	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.265J ± 0.378 (0.801)	dpm/sample	07/11/12 08:07	12587-46-1	N2
Gross Beta	EPA 900.0m	0.384J ± 0.380 (0.795)	dpm/sample	07/11/12 08:07	12587-47-2	N2

Sample: 2540-SU3-22		Lab ID: 3072058082	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.274U ± 0.446 (0.982)	dpm/sample	07/11/12 08:07	12587-46-1	N2
Gross Beta	EPA 900.0m	0.407J ± 0.388 (0.810)	dpm/sample	07/11/12 08:07	12587-47-2	N2

Sample: 2540-SU3-23		Lab ID: 3072058083	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.164U ± 0.372 (0.866)	dpm/sample	07/11/12 08:07	12587-46-1	N2
Gross Beta	EPA 900.0m	0.642J ± 0.406 (0.779)	dpm/sample	07/11/12 08:07	12587-47-2	N2

Sample: 2540-SU3-24		Lab ID: 3072058084	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	1.34 ± 0.674 (0.924)	dpm/sample	07/11/12 09:01	12587-46-1	N2
Gross Beta	EPA 900.0m	0.053U ± 0.323 (0.719)	dpm/sample	07/11/12 09:01	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207071
Pace Project No.: 3072058

Sample: 2540-SU3-25		Lab ID: 3072058085	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.578J ± 0.499 (0.929)	dpm/sample	07/11/12 09:01	12587-46-1	N2
Gross Beta	EPA 900.0m	0.121U ± 0.283 (0.626)	dpm/sample	07/11/12 09:01	12587-47-2	N2

Sample: 2540-SU3-26		Lab ID: 3072058086	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.038U ± 0.329 (0.853)	dpm/sample	07/11/12 09:04	12587-46-1	N2
Gross Beta	EPA 900.0m	0.003U ± 0.263 (0.637)	dpm/sample	07/11/12 09:04	12587-47-2	N2

Sample: 2540-SU3-26D		Lab ID: 3072058087	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.515J ± 0.462 (0.845)	dpm/sample	07/11/12 09:04	12587-46-1	N2
Gross Beta	EPA 900.0m	0.164U ± 0.294 (0.641)	dpm/sample	07/11/12 09:04	12587-47-2	N2

Sample: 2540-SU3-27		Lab ID: 3072058088	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.141U ± 0.338 (0.992)	dpm/sample	07/11/12 09:10	12587-46-1	N2
Gross Beta	EPA 900.0m	0.209U ± 0.291 (0.643)	dpm/sample	07/11/12 09:10	12587-47-2	N2

Sample: 2540-SU3-28		Lab ID: 3072058089	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.213U ± 0.394 (0.888)	dpm/sample	07/11/12 09:05	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.099U ± 0.278 (0.694)	dpm/sample	07/11/12 09:05	12587-47-2	N2

Sample: 2540-SU3-29		Lab ID: 3072058090	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	1.46 ± 0.647 (0.686)	dpm/sample	07/11/12 09:05	12587-46-1	N2
Gross Beta	EPA 900.0m	0.444J ± 0.327 (0.587)	dpm/sample	07/11/12 09:05	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207071

Pace Project No.: 3072058

Sample: 2540-SU3-30		Lab ID: 3072058091	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.934 ± 0.573 (0.881)	dpm/sample	07/11/12 09:29	12587-46-1	N2
Gross Beta	EPA 900.0m	0.388J ± 0.338 (0.657)	dpm/sample	07/11/12 09:29	12587-47-2	N2

Sample: 2540-SU3-31		Lab ID: 3072058092	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.041U ± 0.354 (0.912)	dpm/sample	07/11/12 09:37	12587-46-1	N2
Gross Beta	EPA 900.0m	0.271J ± 0.316 (0.676)	dpm/sample	07/11/12 09:37	12587-47-2	N2

Sample: 2540-SU3-32		Lab ID: 3072058093	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.452J ± 0.486 (0.972)	dpm/sample	07/11/12 09:42	12587-46-1	N2
Gross Beta	EPA 900.0m	0.075U ± 0.273 (0.623)	dpm/sample	07/11/12 09:42	12587-47-2	N2

Sample: 2540-SU3-33		Lab ID: 3072058094	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.201U ± 0.382 (0.866)	dpm/sample	07/11/12 09:42	12587-46-1	N2
Gross Beta	EPA 900.0m	0.284J ± 0.312 (0.654)	dpm/sample	07/11/12 09:42	12587-47-2	N2

Sample: 2540-SU3-34		Lab ID: 3072058095	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.113U ± 0.323 (0.948)	dpm/sample	07/11/12 10:22	12587-46-1	N2
Gross Beta	EPA 900.0m	0.303J ± 0.288 (0.596)	dpm/sample	07/11/12 10:22	12587-47-2	N2

Sample: 2540-SU3-35		Lab ID: 3072058096	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.013U ± 0.337 (0.912)	dpm/sample	07/11/12 17:09	12587-46-1	N2
Gross Beta	EPA 900.0m	0.187U ± 0.304 (0.676)	dpm/sample	07/11/12 17:09	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207071

Pace Project No.: 3072058

Sample: 2540-SU3-36		Lab ID: 3072058097	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.014U ± 0.320 (0.870)	dpm/sample	07/11/12 10:20	12587-46-1	N2
Gross Beta	EPA 900.0m	0.449J ± 0.405 (0.847)	dpm/sample	07/11/12 10:20	12587-47-2	N2

Sample: 2540-SU3-37		Lab ID: 3072058098	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	0.060U ± 0.316 (0.801)	dpm/sample	07/11/12 10:20	12587-46-1	N2
Gross Beta	EPA 900.0m	0.090U ± 0.345 (0.795)	dpm/sample	07/11/12 10:20	12587-47-2	N2

Sample: 2540-SU3-38		Lab ID: 3072058099	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.191U ± 0.332 (0.982)	dpm/sample	07/11/12 10:20	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.184U ± 0.323 (0.810)	dpm/sample	07/11/12 10:20	12587-47-2	N2

Sample: 2540-SU3-38D		Lab ID: 3072058100	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.067U ± 0.295 (0.866)	dpm/sample	07/11/12 10:20	12587-46-1	N2
Gross Beta	EPA 900.0m	0.441J ± 0.378 (0.779)	dpm/sample	07/11/12 10:20	12587-47-2	N2

Sample: 2540-SU3-39		Lab ID: 3072058101	Collected: 06/14/12 00:01	Received: 06/25/12 10:15	Matrix: Wipe	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.160U ± 0.279 (0.888)	dpm/sample	07/11/12 17:10	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.051U ± 0.278 (0.694)	dpm/sample	07/11/12 17:10	12587-47-2	N2

QUALITY CONTROL DATA

Project: Fort Monmouth 1207071

Pace Project No.: 3072058

QC Batch: RADC/12459

Analysis Method: EPA 900.0m

QC Batch Method: EPA 900.0m

Analysis Description: 900.0 Gross Alpha/Beta

Associated Lab Samples: 3072058101

METHOD BLANK: 458971

Matrix: Impact Plate

Associated Lab Samples: 3072058101

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Gross Alpha	-0.301U ± 0.290 (0.992)	dpm/sample	07/11/12 17:09	N2
Gross Beta	-0.108U ± 0.244 (0.643)	dpm/sample	07/11/12 17:09	N2

QUALIFIERS

Project: Fort Monmouth 1207071

Pace Project No.: 3072058

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty

(MDC) - Minimum Detectable Concentration

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

N2 The lab does not hold TNI accreditation for this parameter.

Project Number: 3072058

**Chain of Custody
And
Sample Receiving Conditions
Upon Receipt Form**



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 2 of 20

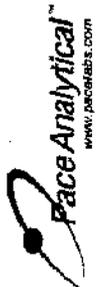
Section A Required Client Information: Company: <u>US Army Corps of Engineers</u> Address: <u>10 South Howard Street</u> Baltimore, MD Mail To: <u>david.j.walters@usace.army.mil</u> Phone: <u>443-253-0916</u> Fax: <u>none</u> Requested Due Date/TAT: <u>ASAP</u>		Section B Required Project Information: Report To: <u>David Walters</u> Copy To: <u>Alan Warminski</u> Purchase Order No.: Project Name: <u>Fort Monmouth Rad Survey</u> Project Number: Pace Project Manager: <u>Carin Ferris</u> Pace Profile #:		Section C Invoice Information: Attention: Address: Pace Quote Reference: Site Location: <u>NJ</u> STATE:	
REGULATORY AGENCY <input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER <input type="checkbox"/> NRC		Site Location: <u>NJ</u> STATE:			

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WW PRODUCT P SOIL/SOLID SL OIL OL WIPE WIP AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		DATE	TIME	DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved H ₂ SO ₄ HNO ₃ HCl NaOH Na ₂ S ₂ O ₃ Methanol Other	Analysis Test	Gross Alpha/Beta	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
				COMPOSITE START	COMPOSITE END/GRAB											
22		WP	G	NA	NA	08/14/12	NA	1	X							022
23		WP	G	NA	NA	08/14/12	NA	1	X							023
24		WP	G	NA	NA	08/14/12	NA	1	X							024
25		WP	G	NA	NA	08/14/12	NA	1	X							025
26		WP	G	NA	NA	08/14/12	NA	1	X							026
27		WP	G	NA	NA	08/14/12	NA	1	X							027
28		WP	G	NA	NA	08/14/12	NA	1	X							028
29		WP	G	NA	NA	08/14/12	NA	1	X							029
30		WP	G	NA	NA	08/14/12	NA	1	X							030
31		WP	G	NA	NA	08/14/12	NA	1	X							031
32		WP	G	NA	NA	08/14/12	NA	1	X							032
33		WP	G	NA	NA	08/14/12	NA	1	X							033
34		WP	G	NA	NA	08/14/12	NA	1	X							034
35		WP	G	NA	NA	08/14/12	NA	1	X							035
36		WP	G	NA	NA	08/14/12	NA	1	X							036
37		WP	G	NA	NA	08/14/12	NA	1	X							037
38		WP	G	NA	NA	08/14/12	NA	1	X							038
39		WP	G	NA	NA	08/14/12	NA	1	X							039
40		WP	G	NA	NA	08/14/12	NA	1	X							040
41		WP	G	NA	NA	08/14/12	NA	1	X							041
42		WP	G	NA	NA	08/14/12	NA	1	X							042
43		WP	G	NA	NA	08/14/12	NA	1	X							043

372058
Pace Project No./ Lab I.D.

6/25/12
038
040

Lab pace 6/25/12 1015



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	US Army Corps of Engineers	Report To:	David Watters	Attention:	
Address:	10 South Howard Street Baltimore, MD	Copy To:	Alan Warminski	Address:	
Mail To:	david.j.watters@usace.army.mil	Purchase Order No.:		Pace Quote Reference:	
Phone:	443-253-0916	Project Name:	Fort Monmouth Rad Survey	Pace Project Manager:	Carin Ferris
Requested Due Date/TAT:	ASAP	Project Number:		Pace Profile #:	

#	ITEM	Section D Required Client Information	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WT WATER PRODUCT WW SOIL/SOLID P OIL SL WIPE OL AIR WP OTHER AR TISSUE OT TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED		DATE	TIME	DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives Unpreserved H ₂ SO ₄ HNO ₃ HCl NaOH Na ₂ S ₂ O ₃ Methanol Other	Analysis Test Y/N	Gross Alpha/Beta	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
						COMPOSITE START	COMPOSITE END/GRAB											
68				WP	G	NA	NA	06/14/12	NA	1	X							0666
67				WP	G	NA	NA	06/14/12	NA	1	X							067
68				WP	G	NA	NA	06/14/12	NA	1	X							0658
69				WP	G	NA	NA	06/14/12	NA	1	X							069
70				WP	G	NA	NA	06/14/12	NA	1	X							070
71				WP	G	NA	NA	06/14/12	NA	1	X							071
72				WP	G	NA	NA	06/14/12	NA	1	X							072
73				WP	G	NA	NA	06/14/12	NA	1	X							073
74				WP	G	NA	NA	06/14/12	NA	1	X							074
75				WP	G	NA	NA	06/14/12	NA	1	X							075
76				WP	G	NA	NA	06/14/12	NA	1	X							076
77				WP	G	NA	NA	06/14/12	NA	1	X							077
78				WP	G	NA	NA	06/14/12	NA	1	X							078
79				WP	G	NA	NA	06/14/12	NA	1	X							079
80				WP	G	NA	NA	06/14/12	NA	1	X							080
81				WP	G	NA	NA	06/14/12	NA	1	X							081
82				WP	G	NA	NA	06/14/12	NA	1	X							082
83				WP	G	NA	NA	06/14/12	NA	1	X							083
84				WP	G	NA	NA	06/14/12	NA	1	X							084
85				WP	G	NA	NA	06/14/12	NA	1	X							085
86				WP	G	NA	NA	06/14/12	NA	1	X							086
87				WP	G	NA	NA	06/14/12	NA	1	X							087

35720586
Pace Project No./ Lab I.D.

Mont 6/25/12 1015 pile



Sample Condition Upon Receipt

Client Name: RTI

Project # 3072058

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 875928653773

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used 5 6 7 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature NA Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Optional
Proj. Due Date:
Proj. Name:

Date and Initials of person examining contents: WEL 6/23/12

Chain of Custody Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, W-DRO (water)	<input type="checkbox"/> Yes <input type="checkbox"/> No	initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Cesar Ferrero Date: 6/23/12

Gross Alpha and Beta Sample Analysis Data

Quality Control Review



Batch RADC/12454 HBN 91023
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

1 458959-BLANK for HBN 91023 [RADC/1245]

Type BLANK Matrix Impact Plate Collected % Moisture
 Client QCACCOUNT WO Work ID

Prep Information

Procedure 9000 I Batch RADC/12454 Prep Date 7/10/2012 09:03 Dilution
 Method EPA 900.0m HBN 91023 Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795603 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 09:03 Dilution
 Method EPA 900.0m CoI ID Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795603 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL
Rad Chemistry	OK				
Gross Alpha	OK	0.384J ± 0.466 (0.966)	pCi/sa 0.384J ± 0.466 (0.966)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					
Gross Beta	OK	0.359J ± 0.272 (0.527)	pCi/sa 0.359J ± 0.272 (0.527)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					

2 3072058001-2540-SU1-1

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

Prep Information

Procedure 9000 I Batch RADC/12454 Prep Date 7/10/2012 09:06 Dilution
 Method EPA 900.0m HBN 91023 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783845 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 09:06 Dilution
 Method EPA 900.0m CoI ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783845 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.814J ± 0.578 (0.971)	pCi/sa 0.814J ± 0.578 (0.971)		pCi/sam		dpm/sample
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12454 HBN 91023
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

2 3072058001-2540-SU1-1

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Beta	OK	1.15 ± 0.487 (0.754)	pCi/sa 1.15 ± 0.487 (0.754)		pCi/sam		

The lab does not hold TNI accreditation for this parameter.

3 3072058002-2540-SU1-2

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12454 Prep Date 7/10/2012 09:04 Dilution
 Method EPA 900.0m HBN 91023 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783848 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 09:04 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783848 File CC OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.471J ± 0.508 (0.984)	pCi/sa 0.471J ± 0.508 (0.984)		pCi/sam		

The lab does not hold TNI accreditation for this parameter.

Gross Beta	OK	0.797 ± 0.445 (0.766)	pCi/sa 0.797 ± 0.445 (0.766)		pCi/sam		
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The lab does not hold TNI accreditation for this parameter.

4 3072058003-2540-SU1-3

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12454 Prep Date 7/10/2012 09:04 Dilution
 Method EPA 900.0m HBN 91023 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783850 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12454 HBN 91023
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

4 3072058003-2540-SU1-3

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 09:04 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783850 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	-0.096U ± 0.362 (0.926)	pCi/sa -0.096U ± 0.362 (0.926)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.316J ± 0.258 (0.516)	pCi/sa 0.316J ± 0.258 (0.516)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

5 3072058004-2540-SU1-4

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

Prep Information

Procedure 9000 I Batch RADC/12454 Prep Date 7/10/2012 09:05 Dilution
 Method EPA 900.0m HBN 91023 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783852 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 09:05 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783852 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.111U ± 0.378 (0.942)	pCi/sa 0.111U ± 0.378 (0.942)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.364J ± 0.345 (0.708)	pCi/sa 0.364J ± 0.345 (0.708)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

6 3072058005-2540-SU1-5

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

** Indicates QC failure, For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12454 HBN 91023
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

6 3072058005-2540-SU1-5

Prep Information

Procedure 9000 I **Batch** RADC/12454 **Prep Date** 7/10/2012 09:05 **Dilution**
Method EPA 900.0m **HBN** 91023 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783856 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/10/2012 09:05 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783856 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.504J ± 0.498 (0.959)	pCi/sa 0.504J ± 0.498 (0.959)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.406J ± 0.355 (0.708)	pCi/sa 0.406J ± 0.355 (0.708)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

7 3072058006-2540-SU1-5D

Type PS **Matrix** Wipe **Collected** 6/14/2012 00:01 **% Moisture**
Client RTI **WO** 3072058 **Work ID** Fort Monmouth 1207071 **Location**

Prep Information

Procedure 9000 I **Batch** RADC/12454 **Prep Date** 7/10/2012 09:05 **Dilution**
Method EPA 900.0m **HBN** 91023 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783858 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/10/2012 09:05 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783858 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.073U ± 0.397 (0.992)	pCi/sa 0.073U ± 0.397 (0.992)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.125U ± 0.283 (0.643)	pCi/sa 0.125U ± 0.283 (0.643)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12454 HBN 91023
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

7 3072058006-2540-SU1-5D

8 3072058007-2540-SU1-6

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12454 Prep Date 7/10/2012 09:05 Dilution
 Method EPA 900.0m HBN 91023 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783860 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 09:05 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783860 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.163U ± 0.419 (0.997)	pCi/sa 0.163U ± 0.419 (0.997)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.466J ± 0.330 (0.625)	pCi/sa 0.466J ± 0.330 (0.625)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

9 3072058008-2540-SU1-7

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12454 Prep Date 7/10/2012 09:05 Dilution
 Method EPA 900.0m HBN 91023 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783862 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 09:05 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783862 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12454 HBN 91023
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

9 3072058008-2540-SU1-7

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Alpha	OK	0.397J ± 0.473 (0.972)	pCi/sa 0.397J ± 0.473 (0.972)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.248J ± 0.297 (0.623)	pCi/sa 0.248J ± 0.297 (0.623)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

10 3072058009-2540-SU1-8

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12454 Prep Date 7/10/2012 09:06 Dilution
 Method EPA 900.0m HBN 91023 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783864 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.630J ± 0.511 (0.929)	pCi/sa 0.630J ± 0.511 (0.929)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.461J ± 0.332 (0.626)	pCi/sa 0.461J ± 0.332 (0.626)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

11 3072058010-2540-SU1-9

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12454 Prep Date 7/10/2012 09:06 Dilution
 Method EPA 900.0m HBN 91023 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783866 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12454 HBN 91023
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

11 3072058010-2540-SU1-9

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 09:06 Dilution
 Method EPA 900.0m CoI ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783866 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.211U ± 0.419 (0.964)	pCi/sa 0.211U ± 0.419 (0.964)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.525J ± 0.376 (0.722)	pCi/sa 0.525J ± 0.376 (0.722)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

12 3072058011-2540-SU1-10

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12454 Prep Date 7/10/2012 09:06 Dilution
 Method EPA 900.0m HBN 91023 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783870 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 09:06 Dilution
 Method EPA 900.0m CoI ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783870 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.989 ± 0.684 (0.955)	pCi/sa 0.989 ± 0.684 (0.955)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	1.12 ± 0.535 (0.789)	pCi/sa 1.12 ± 0.535 (0.789)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

13 3072058012-2540-SU1-11

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12454 HBN 91023
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

13 3072058012-2540-SU1-11

Prep Information

Procedure 9000 I Batch RADC/12454 Prep Date 7/10/2012 09:06 Dilution
 Method EPA 900.0m HBN 91023 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783882 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 09:06 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783882 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.415J ± 0.463 (0.944)	pCi/sa 0.415J ± 0.463 (0.944)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.374J ± 0.298 (0.582)	pCi/sa 0.374J ± 0.298 (0.582)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

14 3072058013-2540-SU1-12

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

Prep Information

Procedure 9000 I Batch RADC/12454 Prep Date 7/10/2012 16:53 Dilution
 Method EPA 900.0m HBN 91023 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783884 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 16:53 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783884 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.267U ± 0.431 (0.948)	pCi/sa 0.267U ± 0.431 (0.948)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.201U ± 0.278 (0.596)	pCi/sa 0.201U ± 0.278 (0.596)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12454 HBN 91023
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

14 3072058013-2540-SU1-12

15 3072058014-2540-SU1-12D

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12454 Prep Date 7/10/2012 16:56 Dilution
 Method EPA 900.0m HBN 91023 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783886 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 16:56 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783886 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.616J ± 0.526 (0.974)	pCi/sa 0.616J ± 0.526 (0.974)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.280J ± 0.303 (0.619)	pCi/sa 0.280J ± 0.303 (0.619)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

16 3072058015-2540-SU1-13

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12454 Prep Date 7/10/2012 16:56 Dilution
 Method EPA 900.0m HBN 91023 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783889 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 16:56 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783889 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK						

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12454 HBN 91023
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

16 3072058015-2540-SU1-13

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Alpha	OK	0.621J ± 0.489 (0.853)	pCi/sa 0.621J ± 0.489 (0.853)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.228J ± 0.303 (0.637)	pCi/sa 0.228J ± 0.303 (0.637)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

17 3072058016-2540-SU1-14

Type PS Client RTI	Matrix Wipe WO 3072058	Collected 6/14/2012 00:01 Work ID Fort Monmouth 1207071	% Moisture Location
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Prep Information

Procedure 9000 I Method EPA 900.0m Schedule 2783891	Batch RADC/12454 HBN 91023 Instru NONE	Prep Date 7/10/2012 16:56 Hold Date 12/11/2012 23:59	Dilution Analyst MBT CC OK F
Initial Volume 1 mL Default	1 mL		
Final Volume, 1 mL Default	1 mL		

Analytical Information

Procedure 9000 I Method EPA 900.0m Schedule 2783891	Instru NONE Col ID File	Run Date 7/10/2012 16:56 Hold Date 12/11/2012 23:59	Dilution Analyst MBT CC OK F
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Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.543J ± 0.491 (0.924)	pCi/sa 0.543J ± 0.491 (0.924)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.244U ± 0.336 (0.719)	pCi/sa 0.244U ± 0.336 (0.719)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

18 3072058017-2540-SU1-15

Type PS Client RTI	Matrix Wipe WO 3072058	Collected 6/14/2012 00:01 Work ID Fort Monmouth 1207071	% Moisture Location
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Prep Information

Procedure 9000 I Method EPA 900.0m Schedule 2783891	Batch RADC/12454 HBN 91023 Instru NONE	Prep Date 7/10/2012 16:57 Hold Date 12/11/2012 23:59	Dilution Analyst MBT CC OK F
Initial Volume 1 mL Default	1 mL		
Final Volume, 1 mL Default	1 mL		

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12454 HBN 91023
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

18 3072058017-2540-SU1-15

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 16:57 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783894 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	1.18 ± 0.618 (0.829)	pCi/sa 1.18 ± 0.618 (0.829)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.596J ± 0.372 (0.656)	pCi/sa 0.596J ± 0.372 (0.656)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

19 3072058018-2540-SU1-16

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12454 Prep Date 7/10/2012 16:57 Dilution
 Method EPA 900.0m HBN 91023 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783896 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 16:57 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783896 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.461J ± 0.447 (0.845)	pCi/sa 0.461J ± 0.447 (0.845)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.471J ± 0.339 (0.641)	pCi/sa 0.471J ± 0.339 (0.641)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

20 3072058019-2540-SU1-17

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12454 HBN 91023
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

20 3072058019-2540-SU1-17

Prep Information

Procedure 9000 I **Batch** RADC/12454 **Prep Date** 7/10/2012 17:13 **Dilution**
Method EPA 900.0m **HBN** 91023 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783898 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/10/2012 17:13 **Dilution**
Method EPA 900.0m **Col ID** File **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783898 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.553J ± 0.516 (0.992)	pCi/sa 0.553J ± 0.516 (0.992)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.382J ± 0.327 (0.643)	pCi/sa 0.382J ± 0.327 (0.643)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

21 3072058020-2540-SU1-18

Type PS **Matrix** Wipe **Collected** 6/14/2012 00:01 **% Moisture**
Client RTI **WO** 3072058 **Work ID** Fort Monmouth 1207071 **Location**

Prep Information

Procedure 9000 I **Batch** RADC/12454 **Prep Date** 7/10/2012 17:14 **Dilution**
Method EPA 900.0m **HBN** 91023 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783900 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/10/2012 17:14 **Dilution**
Method EPA 900.0m **Col ID** File **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783900 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.475J ± 0.474 (0.929)	pCi/sa 0.475J ± 0.474 (0.929)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.552J ± 0.344 (0.626)	pCi/sa 0.552J ± 0.344 (0.626)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review

Batch	RADC/12454	HBN	91023
Rule	9000 I	Status	RE
Create Date	6/28/2012	Analyst	MBT



21	3072058020-2540-SU1-18
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** Indicates QC failure. For example, blank contamination or recoveries out of range.

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Creation Date 06/28/2012 13:01
Batch ID 12454
Assigned Analyst MBT
Earliest Due Date 07/04/2012 07:12
A-code 9000 I 9000W or NJ HBN
Method EPA 900.0m EPA 900.0 or NJAC7186 91023

Workorder	Sample ID	Sample Type	Matrix	Collection Date/Time	Client ID	Alpha Activity	Alpha Unc.	Alpha MDC	Beta Activity	Beta Unc.	Beta MDC	Analysis Date/Time	MCL Exceedance *	
													Alpha	Beta
	458959	BLANK	IP		QCACCOUNT	0.384J	0.466	0.966	0.359J	0.272	0.527	7/10/12 9:03		
3072058	3072058001	PS	WP	6/14/2012 0:01	RTI	0.814J	0.578	0.971	1.15	0.487	0.754	7/10/12 9:06		
3072058	3072058002	PS	WP	6/14/2012 0:01	RTI	0.471J	0.508	0.984	0.797	0.445	0.766	7/10/12 9:04		
3072058	3072058003	PS	WP	6/14/2012 0:01	RTI	-0.096J	0.362	0.926	0.316J	0.258	0.516	7/10/12 9:04		
3072058	3072058004	PS	WP	6/14/2012 0:01	RTI	0.111U	0.378	0.942	0.364J	0.345	0.708	7/10/12 9:05		
3072058	3072058005	PS	WP	6/14/2012 0:01	RTI	0.504J	0.498	0.959	0.406J	0.355	0.708	7/10/12 9:05		
3072058	3072058006	PS	WP	6/14/2012 0:01	RTI	0.073U	0.397	0.992	0.125U	0.283	0.643	7/10/12 9:05		
3072058	3072058007	PS	WP	6/14/2012 0:01	RTI	0.163U	0.419	0.997	0.466J	0.330	0.625	7/10/12 9:05		
3072058	3072058008	PS	WP	6/14/2012 0:01	RTI	0.397J	0.473	0.972	0.248J	0.297	0.623	7/10/12 9:05		
3072058	3072058009	PS	WP	6/14/2012 0:01	RTI	0.690J	0.511	0.929	0.461J	0.332	0.626	7/10/12 9:06		
3072058	3072058010	PS	WP	6/14/2012 0:01	RTI	0.211U	0.419	0.964	0.525J	0.376	0.722	7/10/12 9:06		
3072058	3072058011	PS	WP	6/14/2012 0:01	RTI	0.989	0.684	0.955	1.12	0.535	0.789	7/10/12 9:06		
3072058	3072058012	PS	WP	6/14/2012 0:01	RTI	0.415J	0.463	0.944	0.374J	0.298	0.582	7/10/12 9:06		
3072058	3072058013	PS	WP	6/14/2012 0:01	RTI	0.267U	0.431	0.948	0.201U	0.278	0.596	7/10/12 16:53		
3072058	3072058014	PS	WP	6/14/2012 0:01	RTI	0.616J	0.526	0.974	0.280J	0.303	0.619	7/10/12 16:56		
3072058	3072058015	PS	WP	6/14/2012 0:01	RTI	0.621J	0.489	0.853	0.228J	0.303	0.637	7/10/12 16:56		
3072058	3072058016	PS	WP	6/14/2012 0:01	RTI	0.543J	0.491	0.924	0.244U	0.336	0.719	7/10/12 16:56		
3072058	3072058017	PS	WP	6/14/2012 0:01	RTI	1.18	0.618	0.829	0.596J	0.372	0.656	7/10/12 16:57		
3072058	3072058018	PS	WP	6/14/2012 0:01	RTI	0.461J	0.447	0.845	0.471J	0.339	0.641	7/10/12 16:57		
3072058	3072058019	PS	WP	6/14/2012 0:01	RTI	0.553J	0.516	0.992	0.382J	0.327	0.643	7/10/12 17:13		
3072058	3072058020	PS	WP	6/14/2012 0:01	RTI	0.475J	0.474	0.929	0.552J	0.344	0.626	7/10/12 17:14		

* This indicates a possible MCL exceedance may exist for this sample. Results greater than 15.0 pCi/L gross alpha must be reviewed expeditiously and the PM, Radchem Supervisor, and QA Manager notified immediately upon validation of the result. If the gross beta result is above 50 pCi/L, this may also indicate a reportable exceedance.

MBT

Doc #12454

Gross Alpha and Gross Beta Preparation Sheet

Face Analytical
www.faceanaly.com

Batch: 12454
 Transfer Analyst: MBT
 Prep Date/Time: 7-11-12 12:00
 Matrix: Filter
 Logbook ID: 3-R021-5

Aliquot Balance ID: NA
 Aliquot Wgt. Date: _____
 Tare Balance ID: _____
 Tare Wgt. Date: _____
 Gross Balance ID: _____
 Gross Wgt. Date: _____

Spike Analyst: NA QC ID: a: NA b: _____
 LCS QC Vol (mL): a: _____ b: _____
 MS/MSD QC Vol (mL): a: _____ b: _____
 Pipette ID: _____

Bottle ID	Sample No.	Analyst Initials		Analyst Initials		Analyst Initials		Sample Comments
		Tare Mass (g)	5mL Test Mass (g)	Sample Volume (mL)	Gross Mass (g)			
NA	458959	NA	NA	1.0	NA	NA	NA	
	3072058001							
	3072058002							
	3072058003							
	3072058004							
	3072058005							
	3072058006							
	3072058007							
	3072058008							
	3072058009							
	3072058010							
	3072058011							
	3072058012							
	3072058013							
	3072058014							
	3072058015							
	3072058016							
	3072058017							
	3072058018							
	3072058019							
	3072058020							
	LCS 12454							
	LCS 12454							

8N HNO₃: _____ Date Removed: ____/____/____ @ _____ Conc HNO₃: _____
 Date Placed in oven: ____/____/____ @ _____ Date: _____
 Peer Review: _____ Date: _____

MBT 7-11-12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12454
Prep Start Date/Time: 7/11/2012 12:00
Prep Finish: 7/11/2012
Reporting Units: dpm

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

Sigma
Zero Factor

1.96
2.71

Sample ID	Aliquot	Units	Tare (g)	Gross (g)	Residue (mg)	Det. ID	Count Date	Alpha Gross CPM	Beta Gross CPM	Count Duration (min)	Alpha Bkg CPM	Beta Bkg CPM	Bkg Count Duration (min)	Req Activity Units
458959	1.00000	S	9.0000	9.0000	0.00	11	7/10/2012 9:03	0.2200	0.6550	200	0.1620	0.4690	1000	dpm
3072058001	1.00000	S	9.0000	9.0000	0.00	15	7/10/2012 9:06	0.2091	1.0545	110	0.0820	0.4950	1000	dpm
3072058002	1.00000	S	9.0000	9.0000	0.00	16	7/10/2012 9:04	0.1333	0.7667	90	0.0610	0.3910	1000	dpm
3072058003	1.00000	S	9.0000	9.0000	0.00	17	7/10/2012 9:04	0.1222	0.5222	180	0.1370	0.3860	1000	dpm
3072058004	1.00000	S	9.0000	9.0000	0.00	18	7/10/2012 9:05	0.0800	0.5500	100	0.0630	0.3820	1000	dpm
3072058005	1.00000	S	9.0000	9.0000	0.00	19	7/10/2012 9:05	0.1545	0.6727	110	0.0770	0.4570	1000	dpm
3072058006	1.00000	S	9.0000	9.0000	0.00	20	7/10/2012 9:05	0.1083	0.4417	120	0.0970	0.3820	1000	dpm
3072058007	1.00000	S	9.0000	9.0000	0.00	29	7/10/2012 9:05	0.1091	0.5364	110	0.0840	0.3220	1000	dpm
3072058008	1.00000	S	9.0000	9.0000	0.00	31	7/10/2012 9:05	0.1500	0.5000	120	0.0890	0.3670	1000	dpm
3072058009	1.00000	S	9.0000	9.0000	0.00	33	7/10/2012 9:06	0.1917	0.6333	120	0.0900	0.3870	1000	dpm
3072058010	1.00000	S	9.0000	9.0000	0.00	34	7/10/2012 9:06	0.1100	0.6500	100	0.0760	0.4040	1000	dpm
3072058011	1.00000	S	9.0000	9.0000	0.00	37	7/10/2012 9:06	0.2000	0.8714	70	0.0420	0.3190	1000	dpm
3072058012	1.00000	S	9.0000	9.0000	0.00	38	7/10/2012 9:06	0.1733	0.5867	150	0.1100	0.3990	1000	dpm
3072058013	1.00000	S	9.0000	9.0000	0.00	29	7/10/2012 16:53	0.1250	0.4250	120	0.0840	0.3220	1000	dpm
3072058014	1.00000	S	9.0000	9.0000	0.00	12	7/10/2012 16:56	0.1833	0.5417	120	0.0890	0.3780	1000	dpm
3072058015	1.00000	S	9.0000	9.0000	0.00	14	7/10/2012 16:56	0.1667	0.5167	120	0.0690	0.3800	1000	dpm
3072058016	1.00000	S	9.0000	9.0000	0.00	15	7/10/2012 16:56	0.1667	0.6333	120	0.0820	0.4950	1000	dpm
3072058017	1.00000	S	9.0000	9.0000	0.00	16	7/10/2012 16:57	0.2417	0.7167	120	0.0610	0.3910	1000	dpm
3072058018	1.00000	S	9.0000	9.0000	0.00	18	7/10/2012 16:57	0.1333	0.6167	120	0.0630	0.3820	1000	dpm
3072058019	1.00000	S	9.0000	9.0000	0.00	20	7/10/2012 17:13	0.1833	0.5833	120	0.0970	0.3820	1000	dpm
3072058020	1.00000	S	9.0000	9.0000	0.00	33	7/10/2012 17:14	0.1667	0.6667	120	0.0900	0.3870	1000	dpm
LCS12454	1.00000	S	9.0000	9.0000	0.00	12	7/10/2012 9:03	0.4222	5.4000	90	0.0890	0.3780	1000	dpm
LCSD12454	1.00000	S	9.0000	9.0000	0.00	14	7/10/2012 9:04	0.4444	4.7111	90	0.0690	0.3800	1000	dpm

MBT

7/17/2012

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12454
Prep Start Date/Time: 7/11/2012 12:00
Prep Finish: 7/11/2012

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

Gross Alpha Results

Sample ID	Alpha Activity	Two-Sigma Count Uncertainty	Two-Sigma CSU	MDC	Critical Value	Units	Alpha Net CPM	Residue (mg)	Beta to Alpha Xtlk CPM	Xtlk corr. Net alpha CPM	Alpha eff	Activity Conversion
458959	0.384	0.461	0.466	0.966	0.341	dpm/S	0.058	0.00	0.000000	0.058	15.10%	1
3072058001	0.814	0.559	0.578	0.971	0.304	dpm/S	0.127	0.00	0.000000	0.127	15.61%	1
3072058002	0.471	0.501	0.508	0.984	0.292	dpm/S	0.072	0.00	0.000000	0.072	15.37%	1
3072058003	-0.096	0.362	0.362	0.926	0.320	dpm/S	-0.015	0.00	0.000000	-0.015	15.47%	1
3072058004	0.111	0.377	0.378	0.942	0.284	dpm/S	0.017	0.00	0.000000	0.017	15.27%	1
3072058005	0.504	0.490	0.498	0.959	0.299	dpm/S	0.078	0.00	0.000000	0.078	15.39%	1
3072058006	0.073	0.397	0.397	0.992	0.318	dpm/S	0.011	0.00	0.000000	0.011	15.61%	1
3072058007	0.163	0.418	0.419	0.997	0.313	dpm/S	0.025	0.00	0.000000	0.025	15.36%	1
3072058008	0.397	0.467	0.473	0.972	0.310	dpm/S	0.061	0.00	0.000000	0.061	15.35%	1
3072058009	0.630	0.499	0.511	0.929	0.296	dpm/S	0.102	0.00	0.000000	0.102	16.15%	1
3072058010	0.211	0.417	0.419	0.964	0.296	dpm/S	0.034	0.00	0.000000	0.034	16.12%	1
3072058011	0.989	0.660	0.684	0.955	0.262	dpm/S	0.158	0.00	0.000000	0.158	15.98%	1
3072058012	0.415	0.457	0.463	0.944	0.314	dpm/S	0.063	0.00	0.000000	0.063	15.25%	1
3072058013	0.267	0.428	0.431	0.948	0.301	dpm/S	0.041	0.00	0.000000	0.041	15.36%	1
3072058014	0.616	0.514	0.526	0.974	0.310	dpm/S	0.094	0.00	0.000000	0.094	15.32%	1
3072058015	0.621	0.476	0.489	0.853	0.266	dpm/S	0.098	0.00	0.000000	0.098	15.72%	1
3072058016	0.543	0.482	0.491	0.924	0.293	dpm/S	0.085	0.00	0.000000	0.085	15.61%	1
3072058017	1.176	0.581	0.618	0.829	0.256	dpm/S	0.181	0.00	0.000000	0.181	15.37%	1
3072058018	0.461	0.440	0.447	0.845	0.262	dpm/S	0.070	0.00	0.000000	0.070	15.27%	1
3072058019	0.553	0.506	0.516	0.992	0.318	dpm/S	0.086	0.00	0.000000	0.086	15.61%	1
3072058020	0.475	0.467	0.474	0.929	0.296	dpm/S	0.077	0.00	0.000000	0.077	16.15%	1
LCS12454	2.175	0.885	0.966	1.151	0.354	dpm/S	0.333	0.00	0.000000	0.333	15.32%	1
LCSD12454	2.388	0.882	0.980	1.011	0.303	dpm/S	0.375	0.00	0.000000	0.375	15.72%	1

Maria

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12454
Prep Start Date/Time: 7/11/2012 12:00
Prep Finish: 7/11/2012

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

Gross Beta Results

Sample ID	Beta Activity	Two-Sigma Count Uncertainty	Two-Sigma CSU	MDC	Critical Value	Units	Beta Net CPM	Residue (mg)	Alpha to Beta Xtlk CPM	Xtlk corr. Net beta CPM	Beta eff	Activity Conversion
458959	0.359	0.265	0.272	0.527	0.193	dpm/S	0.186	0.00	0.023376	0.163	45.34%	1
3072058001	1.154	0.441	0.487	0.754	0.261	dpm/S	0.560	0.00	0.044130	0.515	44.66%	1
3072058002	0.797	0.421	0.445	0.766	0.259	dpm/S	0.376	0.00	0.025633	0.350	43.92%	1
3072058003	0.316	0.251	0.258	0.516	0.186	dpm/S	0.136	0.00	-0.004871	0.141	44.69%	1
3072058004	0.364	0.338	0.345	0.708	0.241	dpm/S	0.168	0.00	0.006123	0.162	44.42%	1
3072058005	0.406	0.347	0.355	0.708	0.245	dpm/S	0.216	0.00	0.029665	0.186	45.78%	1
3072058006	0.125	0.282	0.283	0.643	0.222	dpm/S	0.060	0.00	0.004191	0.055	44.32%	1
3072058007	0.466	0.320	0.330	0.625	0.213	dpm/S	0.214	0.00	0.008674	0.206	44.19%	1
3072058008	0.248	0.294	0.297	0.623	0.215	dpm/S	0.133	0.00	0.021474	0.112	44.88%	1
3072058009	0.461	0.322	0.332	0.626	0.216	dpm/S	0.246	0.00	0.035228	0.211	45.82%	1
3072058010	0.525	0.364	0.376	0.722	0.246	dpm/S	0.246	0.00	0.011383	0.235	44.69%	1
3072058011	1.123	0.496	0.535	0.789	0.258	dpm/S	0.552	0.00	0.050385	0.502	44.70%	1
3072058012	0.374	0.291	0.298	0.582	0.206	dpm/S	0.188	0.00	0.021972	0.166	44.28%	1
3072058013	0.201	0.276	0.278	0.596	0.205	dpm/S	0.103	0.00	0.014174	0.089	44.19%	1
3072058014	0.280	0.299	0.303	0.619	0.214	dpm/S	0.164	0.00	0.035258	0.128	45.83%	1
3072058015	0.228	0.301	0.303	0.637	0.220	dpm/S	0.137	0.00	0.035052	0.102	44.64%	1
3072058016	0.244	0.333	0.336	0.719	0.251	dpm/S	0.138	0.00	0.029399	0.109	44.66%	1
3072058017	0.596	0.356	0.372	0.656	0.227	dpm/S	0.326	0.00	0.064025	0.262	43.92%	1
3072058018	0.471	0.328	0.339	0.641	0.222	dpm/S	0.235	0.00	0.025334	0.209	44.42%	1
3072058019	0.382	0.320	0.327	0.643	0.222	dpm/S	0.201	0.00	0.031924	0.169	44.32%	1
3072058020	0.552	0.330	0.344	0.626	0.216	dpm/S	0.280	0.00	0.026565	0.253	45.82%	1
LCS12454	10.686	1.051	2.181	0.723	0.244	dpm/S	5.022	0.00	0.124545	4.897	45.83%	1
LCS12454	9.402	1.008	1.961	0.744	0.251	dpm/S	4.331	0.00	0.134743	4.196	44.64%	1

7/11/12

7/11/12
MBT

Quality Control Sample Performance Assessment

RCDU Upload



Analyst: MBT
Date: 7/17/2012
Worklist: 12454
Matrix: Filter
Method: EPA 900.0m
SOP: PGH-R-001
MB Sample ID: 458959

Method Blank Assessment		1.96 Sig Unc.		MDC	Critical Value	Flag	Assessment
Gross Alpha	0.3940	0.4660	0.34100	0.9660	0.34100		
Gross Beta	0.3590	0.2720	0.19300	0.5270	0.19300		

Laboratory Control Sample Assessment			
Count Date:	Gross Alpha	LCS	LCS/D
7/10/12 9:03	7/10/12 9:04	7/10/12 9:03	7/10/12 9:04
12-018-F1	12-018-F4	12-014-F1	12-014-F4
2.353	9.804	9.804	9.804
1.000	1.000	1.000	1.000
1.000	1.000	1.000	1.000
2.353	2.353	9.804	9.804
0.138	0.138	0.192	0.192
2.175	2.388	10.686	9.402
0.966	0.980	2.181	1.961
92.44%	101.49%	109.00%	95.90%
Pass	Pass	Pass	Pass
119.00%	119.00%	130.00%	130.00%
62.00%	62.00%	79.00%	79.00%

Duplicate Sample Assessment	
LCS/LCSD Y or N?	Y
Gross Alpha	Gross Beta
LCS12454	LCS12454
LCS12454	LCS12454
2.1750	10.6860
0.9650	2.1810
2.3680	9.4020
0.9800	1.9610
No	No
9.34%	12.78%
Pass	Pass
35.00%	17.00%

Sample Matrix Spike Control Assessment	
Analyte:	Sample Collection Date:
	Sample I.D.:
	Sample MS I.D.:
	Sample MSD I.D.:
	Spike I.D.:
	MS/MSD Decay Corrected Spike Conc. (DPM/Sample):
	Spike Volume Used in MS (mL):
	MS Aliquot (L, g, F):
	MS Target Conc. (DPM/Sample, g, F):
	MSD Target Conc. (DPM/Sample, g, F):
	MS Spike uncertainty (calculated):
	MSD Spike uncertainty (calculated):
	Sample Result:
	Sample 1.96 Sigma Unc.:
	Sample Matrix Spike Result:
	Sample MS 1.96 Sigma Unc.:
	Sample Matrix Spike Duplicate Result:
	Sample MSD 1.96 Sigma Unc.:
	MS % Recovery:
	MSD % Recovery:
	MS Assessment:
	MSD Assessment:
	MS/MSD Upper % Recovery Limits:
	MS/MSD Lower % Recovery Limits:

Matrix Spike/Matrix Spike Duplicate Sample Assessment	
Analyte:	Sample I.D.:
	Sample MS I.D.:
	Sample MSD I.D.:
	Sample Matrix Spike Result:
	Sample Matrix Spike 1.96 Sigma Unc.:
	Sample Matrix Spike Duplicate Result:
	Sample Matrix Spike Duplicate 1.96 Sigma Unc.:
	MS/MSD Relative Percent Difference:
	MS/MSD RPD Assessment:
	% RPD Limit:

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Handwritten signature/initials

Handwritten notes

Pace Analytical Services
 Cross Alpha and Gross Beta
 Analysis

Test Code: Alpha Beta
 Matrix: IP
 Batch ID: 12454
 Prep Start Date/Time: 7/11/2012 12:00
 Prep Finish: 7/11/2012

Analyst: MBT
 PrepSOP1: PCH-R-001
 PrepSOP2: n/a
 AnalSOP1: EPA 900.0
 AnalSOP2: n/a

CSU Factors (2 Sigma)
 UE1 6.71%
 UE2 13.23%
 UE3 10.00%
 UE4 0.00%

Det No.	Effective Calibration Date			Alpha Efficiency	Alpha to Beta Cross-Talk			Beta Efficiency	Beta to Alpha Cross-Talk			Beta Eff: ax + b	Beta-to-Alpha Xtalk: ax + b			BKG 1 Date	BKG 2 Date	7/13/2012
	a	b	c		d	e	a		b	c	d		e	a	b			
28					1.5536E-01					3.4323E-01				0.0810	0.3330		0.1500	0.3480
29					1.5363E-01					3.4570E-01				0.0840	0.3220		0.0630	0.2740
30					1.5497E-01					3.5154E-01				0.0720	0.4090		0.2330	0.4240
31					1.5353E-01					3.5204E-01				0.0890	0.3670		0.0900	0.3660
32					1.5823E-01					3.3321E-01				0.0540	0.4120		0.0530	0.3380
33					1.6147E-01					3.4650E-01				0.0900	0.3870		0.1200	0.4100
34					1.6177E-01					3.3480E-01				0.0760	0.4040		0.1250	0.4480
35					#N/A					#N/A				0.1970	0.3930		0.2070	0.3660
36					1.4953E-01					3.6059E-01				0.0930	0.4070		0.0670	0.3320
37					1.5981E-01					3.1889E-01				0.0420	0.3190		0.2180	0.4600
38					1.5254E-01					3.4693E-01				0.1100	0.3990		0.1040	0.3900
39					1.7614E-01					2.7763E-01				0.0780	12.4760		0.0780	12.4760
40					1.8176E-01					2.5395E-01				0.2530	12.5520		0.2530	12.5520
41					#N/A					#N/A				2.7170	366.8100		2.7170	366.8100
42					1.4541E-01					4.9586E-01				0.1620	1.1560		0.1620	1.1560
43					1.7364E-01					2.8197E-01				0.1110	0.9900		0.1110	0.9900
44					1.7507E-01					2.9247E-01				0.1410	1.7460		0.1410	1.7460
45					1.6996E-01					2.6541E-01				0.2330	0.9840		0.2330	0.9840
46					1.6416E-01					2.9296E-01				0.0840	1.1670		0.0940	1.1670
47					1.7203E-01					2.9640E-01				0.1650	2.0860		0.1650	2.0860
48					1.8314E-01					2.6987E-01				0.3330	1.3450		0.3330	1.3450
49					1.6932E-01					2.9322E-01				0.2050	1.4600		0.2050	1.4600
50					1.6594E-01					2.8046E-01				0.1500	1.3750		0.1500	1.3750
51					1.7680E-01					2.8023E-01				0.1070	1.1480		0.1070	1.1480
52					1.7970E-01					2.8847E-01				0.1070	1.3970		0.1070	1.3970
53					1.7780E-01					2.7454E-01				0.1070	1.3970		0.1070	1.3970

mw

7/17/12
1200

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

CSU Analysis for Preparation

Planchet Weighing

uncert (g)	gross (g)	tare (g)	net (g)	CSU (g)	
0.0003	9.1463	9.1273	0.019	0.000424264	2.23%

Volume Aliquot

(mL)	vol (mL)	rel unc
1.00	100.0	1.00%

Description	relative	of Critical	CSU for Preparation (UE1)	Uncertainty	6.71%
Sample Aliquoting	1.00%	1	1.00%	0.01%	
Planchet Weighing	2.23%	2	3.16%	0.10%	
Sample transfer to planchet	3.00%	1	3.00%	0.09%	
Additional Uncertainty due to differences in the distribution of residue on the planchet	5.00%	1	5.00%	0.25%	

CSU Analysis for Analysis

Mass Aliquot

	Ref mass	uncert (g)	Rel unc
Tare	5	0.0004	
Gross	6	0.0004	Use max of 1%
net	1	0.000565685	0.057%

Description	Maximum	of Critical	CSU for Analysis (UE2)	Uncertainty	13.23%
SRM Uncertainty	5.00%	1	5.00%	0.25%	
Mass transfer	0.06%	2	0.08%	0.00%	
Source Reproducibility	5.00%	1	5.00%	0.25%	
Curve Fitting Uncertainty	5.00%	1	5.00%	0.25%	
Estimated Additional Uncertainty (variations in efficiency and self-absorption due to chemical composition of residue)	10.00%	1	10.00%	1.00%	

CSU Analysis for Yield Correction

Description	Maximum	of Critical	CSU for Yield (UE3)	Uncertainty	10.00%
Additional Sample Uncertainty due to analysis without a tracer or chemical carrier	10.00%	1	10.00%	1.00%	

7/17/12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

SAMPLE_ID	Det#	BEG_DATE	BATCH_ID	ACPM	BCPM	CNT_TIME
458959	11	7/10/2012 9:03	GAB12454	0.22	0.655	200
LCS12454	12	7/10/2012 9:03	GAB12454	0.422222222	5.4	90
LCSD12454	14	7/10/2012 9:04	GAB12454	0.444444444	4.711111111	90
3072058001	15	7/10/2012 9:06	GAB12454	0.209090909	1.054545455	110
3072058002	16	7/10/2012 9:04	GAB12454	0.133333333	0.766666667	90
3072058003	17	7/10/2012 9:04	GAB12454	0.122222222	0.522222222	180
3072058004	18	7/10/2012 9:05	GAB12454	0.08	0.55	100
3072058005	19	7/10/2012 9:05	GAB12454	0.154545455	0.672727273	110
3072058006	20	7/10/2012 9:05	GAB12454	0.108333333	0.441666667	120
3072058007	29	7/10/2012 9:05	GAB12454	0.109090909	0.536363636	110
3072058008	31	7/10/2012 9:05	GAB12454	0.15	0.5	120
3072058009	33	7/10/2012 9:06	GAB12454	0.191666667	0.633333333	120
3072058010	34	7/10/2012 9:06	GAB12454	0.11	0.65	100
3072058011	37	7/10/2012 9:06	GAB12454	0.2	0.871428571	70
3072058012	38	7/10/2012 9:06	GAB12454	0.173333333	0.586666667	150
3072058013	29	7/10/2012 16:53	GAB12454	0.125	0.425	120
3072058014	12	7/10/2012 16:56	GAB12454	0.183333333	0.541666667	120
3072058015	14	7/10/2012 16:56	GAB12454	0.166666667	0.516666667	120
3072058016	15	7/10/2012 16:56	GAB12454	0.166666667	0.633333333	120
3072058017	16	7/10/2012 16:57	GAB12454	0.241666667	0.716666667	120
3072058018	18	7/10/2012 16:57	GAB12454	0.133333333	0.616666667	120
3072058019	20	7/10/2012 17:13	GAB12454	0.183333333	0.583333333	120
3072058020	33	7/10/2012 17:14	GAB12454	0.166666667	0.666666667	120

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DETH#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
3072058020	7/10/2012 5:14:26 PM	33	GAB12454	0.167	0.6667	120.0
3072058019	7/10/2012 5:13:04 PM	20	GAB12454	0.183	0.5833	120.0
3072058018	7/10/2012 4:57:12 PM	18	GAB12454	0.133	0.6167	120.0
3072058017	7/10/2012 4:57:03 PM	16	GAB12454	0.242	0.7167	120.0
3072058016	7/10/2012 4:56:56 PM	15	GAB12454	0.167	0.6333	120.0
3072058015	7/10/2012 4:56:48 PM	14	GAB12454	0.167	0.5167	120.0
3072058014	7/10/2012 4:56:41 PM	12	GAB12454	0.183	0.5417	120.0
3072058013	7/10/2012 4:53:21 PM	29	GAB12454	0.125	0.4250	120.0
3072058001	7/10/2012 9:06:46 AM	15	GAB12454	0.209	1.0545	110.0
3072058012	7/10/2012 9:06:29 AM	38	GAB12454	0.173	0.5867	150.0
3072058011	7/10/2012 9:06:23 AM	37	GAB12454	0.200	0.8714	70.0
3072058010	7/10/2012 9:06:11 AM	34	GAB12454	0.110	0.6500	100.0
3072058009	7/10/2012 9:06:01 AM	33	GAB12454	0.192	0.6333	120.0
3072058008	7/10/2012 9:05:54 AM	31	GAB12454	0.150	0.5000	120.0
3072058007	7/10/2012 9:05:41 AM	29	GAB12454	0.109	0.5364	110.0
3072058006	7/10/2012 9:05:19 AM	20	GAB12454	0.108	0.4417	120.0

2/18/12

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
3072058005	7/10/2012 9:05:11 AM	19	GAB12454	0.155	0.6727	110.0
3072058004	7/10/2012 9:05:00 AM	18	GAB12454	0.080	0.5500	100.0
3072058003	7/10/2012 9:04:53 AM	17	GAB12454	0.122	0.5222	180.0
3072058002	7/10/2012 9:04:19 AM	16	GAB12454	0.133	0.7667	90.0
LCSD12454	7/10/2012 9:04:08 AM	14	GAB12454	0.444	4.7111	90.0
LCS12454	7/10/2012 9:03:55 AM	12	GAB12454	0.422	5.4000	90.0
458959	7/10/2012 9:03:47 AM	11	GAB12454	0.220	0.6550	200.0

2/17/12
per

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
64B	7	3072143035	64B12536	140	7/10/12	MBT	NA	OP
	8	3072149033	12536					
	9	3072150901	64B12537					
	10	7/10/12						
	11	458959	64B12454	200	7-10-12 0907	MBT	NA	RTI
	12	LOS # 1-12454		90				
	14	LOS # 4-12454		↓				
	15	3072058001		110				
	16			90				
	17			180				
	18			100				
	19			110				
	20			120				
	229			110				
	31			120				
	33			120				
	34			100				
	37			70				
	38			150				
65	43	43-6620190614-N1	65Cal E	15	7/10/12	MBT	NA	NA
	44	44-						
	45	45-						
	46	46-						
	51	51-						

Page 71 of 388

- 1. Detector daily check failure
- 2. MDC > Contract RL
- 3. Sample re-ingrowth
- 4. Sample was re-prepped
- 5. Other noted comments

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/ time	Analyst	Re-Analysis Code	Comments
GABF	48	3072058025	12455	300	7/10/12	BSH	NA	
	49	026						
	50	027			16:15			
	51	028						
	52	029						
	53	030						
GAB	29	3072058013	GAB 12454	120	7/10/12 16:59	BSH	NA	
	12	014						
	14	015						
	15	016						
	16	017						
	18	018						
	20	019			7/10/12 17:13			
	33	020			17:14			
	19	4158968	GAB 12456	120	7/10/12 18:25	BSH	NA	
	23	3072058041						
	30	042						
	34	043						
	37	044						
	12	045			7/10/12 19:00			
	14	046						
	15	047						
	16	048						
	18	049						

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

Peer Review: PK

Date: 7/11/12

7/11/12
PK

Gross Alpha and Beta Sample Analysis Data

Quality Control Review



Batch RADC/12455 HBN 91024
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

1 458962-BLANK for HBN 91024 [RADC/1245

Type BLANK Matrix Impact Plate Collected % Moisture
 Client QCACCOUNT WO Work ID

Prep Information

Procedure 9000 I Batch RADC/12455 Prep Date 7/10/2012 15:58 Dilution
 Method EPA 900.0m HBN 91024 Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795622 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 15:58 Dilution
 Method EPA 900.0m Col ID Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795622 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL
Rad Chemistry	OK				
Gross Alpha	OK	-0.472U ± 0.249 (0.674)	pCi/sa -0.472U ± 0.249 (0.674)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					
Gross Beta	OK	0.098U ± 0.315 (0.670)	pCi/sa 0.098U ± 0.315 (0.670)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					

2 3072058021-2540-SU1-19

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12455 Prep Date 7/10/2012 15:58 Dilution
 Method EPA 900.0m HBN 91024 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783902 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 15:58 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783902 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	-0.139U ± 0.225 (0.563)	pCi/sa -0.139U ± 0.225 (0.563)		pCi/sam		dpm / sample
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12455 HBN 91024
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

2 3072058021-2540-SU1-19

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Beta	OK	0.503J ± 0.320 (0.611)	pCi/sa 0.503J ± 0.320 (0.611)			pCi/sam	

The lab does not hold TNI accreditation for this parameter.

3 3072058022-2540-SU1-20

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12455 Prep Date 7/10/2012 15:58 Dilution
 Method EPA 900.0m HBN 91024 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783904 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 15:58 Dilution
 Method EPA 900.0m CoI ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783904 File CC OK F

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.487J ± 0.356 (0.650)	pCi/sa 0.487J ± 0.356 (0.650)			pCi/sam	

The lab does not hold TNI accreditation for this parameter.

Gross Beta	OK	0.388J ± 0.413 (0.835)	pCi/sa 0.388J ± 0.413 (0.835)			pCi/sam	
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The lab does not hold TNI accreditation for this parameter.

4 3072058023-2540-SU1-21

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12455 Prep Date 7/10/2012 15:58 Dilution
 Method EPA 900.0m HBN 91024 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783906 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12455 HBN 91024
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

4 3072058023-2540-SU1-21

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 15:58 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783906 File CC OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	-0.160U ± 0.364 (0.844)	pCi/sa -0.160U ± 0.364 (0.844)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.500J ± 0.322 (0.615)	pCi/sa 0.500J ± 0.322 (0.615)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

5 3072058024-2540-SU1-22

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

Prep Information

Procedure 9000 I Batch RADC/12455 Prep Date 7/10/2012 16:15 Dilution
 Method EPA 900.0m HBN 91024 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783908 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 16:15 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783908 File CC OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.791 ± 0.363 (0.531)	pCi/sa 0.791 ± 0.363 (0.531)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.872 ± 0.378 (0.652)	pCi/sa 0.872 ± 0.378 (0.652)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

6 3072058025-2540-SU1-23

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12455 HBN 91024
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

6 3072058025-2540-SU1-23

Prep Information

Procedure 9000 I **Batch** RADC/12455 **Prep Date** 7/10/2012 16:15 **Dilution**
Method EPA 900.0m **HBN** 91024 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783910 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/10/2012 16:15 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783910 **File** **CC** OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.082U ± 0.296 (0.645)	pCi/sa 0.082U ± 0.296 (0.645)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.092U ± 0.394 (0.845)	pCi/sa -0.092U ± 0.394 (0.845)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

7 3072058026-2540-SU1-24

Type PS **Matrix** Wipe **Collected** 6/14/2012 00:01 **% Moisture**
Client RTI **WO** 3072058 **Work ID** Fort Monmouth 1207071 **Location**

Prep Information

Procedure 9000 I **Batch** RADC/12455 **Prep Date** 7/10/2012 16:15 **Dilution**
Method EPA 900.0m **HBN** 91024 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783912 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/10/2012 16:15 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783912 **File** **CC** OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	-0.194U ± 0.423 (0.965)	pCi/sa -0.194U ± 0.423 (0.965)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	1.19 ± 0.441 (0.725)	pCi/sa 1.19 ± 0.441 (0.725)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12455 HBN 91024
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

7 3072058026-2540-SU1-24

8 3072058027-2540-SU1-24D

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12455 Prep Date 7/10/2012 16:15 Dilution
 Method EPA 900.0m HBN 91024 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783922 Instru NONE CC OK F
 Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 16:15 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783922 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.030U ± 0.355 (0.787)	pCi/sa 0.030U ± 0.355 (0.787)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.377U ± 0.334 (0.734)	pCi/sa -0.377U ± 0.334 (0.734)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

9 3072058028-2540-SU1-25

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12455 Prep Date 7/10/2012 15:23 Dilution
 Method EPA 900.0m HBN 91024 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783924 Instru NONE CC OK F
 Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 15:23 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783924 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12455 HBN 91024
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

9 3072058028-2540-SU1-25

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Alpha	OK	0.410J ± 0.336 (0.632)	pCi/sa 0.410J ± 0.336 (0.632)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	1.24 ± 0.441 (0.710)	pCi/sa 1.24 ± 0.441 (0.710)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

10 3072058029-2540-SU1-26

Type PS Client RTI	Matrix Wipe WO 3072058	Collected 6/14/2012 00:01 Work ID Fort Monmouth 1207071	% Moisture Location
Prep Information			
Procedure 9000 I Method EPA 900.0m Schedule 2783926	Batch RADC/12455 HBN 91024 Instru NONE	Prep Date 7/10/2012 15:23 Hold Date 12/11/2012 23:59	Dilution Analyst MBT CC OK F
Initial Volume 1 mL Default	1 mL		
Final Volume, 1 mL Default	1 mL		
Analytical Information			
Procedure 9000 I Method EPA 900.0m Schedule 2783926	Instru NONE Col ID File	Run Date 7/10/2012 15:23 Hold Date 12/11/2012 23:59	Dilution Analyst MBT CC OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.555 ± 0.323 (0.539)	pCi/sa 0.555 ± 0.323 (0.539)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.657 ± 0.354 (0.650)	pCi/sa 0.657 ± 0.354 (0.650)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

11 3072058030-2540-SU1-27

Type PS Client RTI	Matrix Wipe WO 3072058	Collected 6/14/2012 00:01 Work ID Fort Monmouth 1207071	% Moisture Location
Prep Information			
Procedure 9000 I Method EPA 900.0m Schedule 2783928	Batch RADC/12455 HBN 91024 Instru NONE	Prep Date 7/10/2012 15:23 Hold Date 12/11/2012 23:59	Dilution Analyst MBT CC OK F
Initial Volume 1 mL Default	1 mL		
Final Volume, 1 mL Default	1 mL		

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12455 HBN 91024
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

11 3072058030-2540-SU1-27

Analytical Information

Procedure 9000 I	Instru NONE	Run Date 7/10/2012 15:23	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/11/2012 23:59	Analyst MBT
Schedule 2783928	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.336J ± 0.290 (0.545)	pCi/sa 0.336J ± 0.290 (0.545)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.707 ± 0.375 (0.693)	pCi/sa 0.707 ± 0.375 (0.693)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

12 3072058031-2540-SU1-28

Type PS	Matrix Wipe	Collected 6/14/2012 00:01	% Moisture
Client RTI	WO 3072058	Work ID Fort Monmouth 1207071	Location

Prep Information

Procedure 9000 I	Batch RADC/12455	Prep Date 7/10/2012 15:23	Dilution
Method EPA 900.0m	HBN 91024	Hold Date 12/11/2012 23:59	Analyst MBT
Schedule 2783930	Instru NONE		CC OK F

Initial Volume	1 mL Default	1 mL
Final Volume,	1 mL Default	1 mL

Analytical Information

Procedure 9000 I	Instru NONE	Run Date 7/10/2012 15:23	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/11/2012 23:59	Analyst MBT
Schedule 2783930	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.910 ± 0.428 (0.674)	pCi/sa 0.910 ± 0.428 (0.674)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	1.96 ± 0.528 (0.670)	pCi/sa 1.96 ± 0.528 (0.670)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

13 3072058032-2540-SU1-29

Type PS	Matrix Wipe	Collected 6/14/2012 00:01	% Moisture
Client RTI	WO 3072058	Work ID Fort Monmouth 1207071	Location

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12455 HBN 91024
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

13 3072058032-2540-SU1-29

Prep Information

Procedure 9000 I **Batch** RADC/12455 **Prep Date** 7/11/2012 15:20 **Dilution**
Method EPA 900.0m **HBN** 91024 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783932 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/11/2012 15:20 **Dilution**
Method EPA 900.0m **Col ID** File **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783932 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.889 ± 0.388 (0.563)	pCi/sa 0.889 ± 0.388 (0.563)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	1.96 ± 0.511 (0.611)	pCi/sa 1.96 ± 0.511 (0.611)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

14 3072058033-2540-SU1-30

Type PS **Matrix** Wipe **Collected** 6/14/2012 00:01 **% Moisture**
Client RTI **WO** 3072058 **Work ID** Fort Monmouth 1207071 **Location**

Prep Information

Procedure 9000 I **Batch** RADC/12455 **Prep Date** 7/11/2012 15:20 **Dilution**
Method EPA 900.0m **HBN** 91024 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783934 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/11/2012 15:20 **Dilution**
Method EPA 900.0m **Col ID** File **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783934 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.783 ± 0.402 (0.650)	pCi/sa 0.783 ± 0.402 (0.650)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.074U ± 0.397 (0.835)	pCi/sa 0.074U ± 0.397 (0.835)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12455 HBN 91024
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

14 3072058033-2540-SU1-30

15 3072058034-2540-SU1-31

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

Prep Information

Procedure 9000 I Batch RADC/12455 Prep Date 7/11/2012 15:20 Dilution
 Method EPA 900.0m HBN 91024 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783936 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 15:20 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783936 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.002U ± 0.380 (0.844)	pCi/sa 0.002U ± 0.380 (0.844)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.713 ± 0.344 (0.615)	pCi/sa 0.713 ± 0.344 (0.615)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

16 3072058035-2540-SU1-32

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

Prep Information

Procedure 9000 I Batch RADC/12455 Prep Date 7/11/2012 15:20 Dilution
 Method EPA 900.0m HBN 91024 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783938 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 15:20 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783938 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK						

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12455 HBN 91024
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

16 3072058035-2540-SU1-32

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Alpha	OK	0.616 ± 0.333 (0.531)	pCi/sa 0.616 ± 0.333 (0.531)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.934 ± 0.385 (0.652)	pCi/sa 0.934 ± 0.385 (0.652)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

17 3072058036-2540-SU2-1

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12455 Prep Date 7/11/2012 15:20 Dilution
 Method EPA 900.0m HBN 91024 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783941 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 15:20 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783941 File CC OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.209U ± 0.313 (0.645)	pCi/sa 0.209U ± 0.313 (0.645)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.610U ± 0.392 (0.845)	pCi/sa -0.610U ± 0.392 (0.845)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

18 3072058037-2540-SU2-2

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12455 Prep Date 7/11/2012 15:20 Dilution
 Method EPA 900.0m HBN 91024 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783943 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12455 HBN 91024
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

18 3072058037-2540-SU2-2

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 15:20 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783943 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	-0.567U ± 0.399 (0.965)	pCi/sa -0.567U ± 0.399 (0.965)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.241U ± 0.349 (0.725)	pCi/sa 0.241U ± 0.349 (0.725)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

19 3072058038-2540-SU2-3

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12455 Prep Date 7/11/2012 15:20 Dilution
 Method EPA 900.0m HBN 91024 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783945 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 15:20 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783945 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	-0.050U ± 0.347 (0.787)	pCi/sa -0.050U ± 0.347 (0.787)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.010U ± 0.343 (0.734)	pCi/sa -0.010U ± 0.343 (0.734)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

20 3072058039-2540-SU2-4

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12455 HBN 91024
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

20 3072058039-2540-SU2-4

Prep Information

Procedure 9000 I **Batch** RADC/12455 **Prep Date** 7/11/2012 15:20 **Dilution**
Method EPA 900.0m **HBN** 91024 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783947 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/11/2012 15:20 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783947 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.466J ± 0.344 (0.632)	pCi/sa 0.466J ± 0.344 (0.632)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.917 ± 0.405 (0.710)	pCi/sa 0.917 ± 0.405 (0.710)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

21 3072058040-2540-SU2-5

Type PS **Matrix** Wipe **Collected** 6/14/2012 00:01 **% Moisture**
Client RTI **WO** 3072058 **Work ID** Fort Monmouth 1207071 **Location**

Prep Information

Procedure 9000 I **Batch** RADC/12455 **Prep Date** 7/11/2012 15:20 **Dilution**
Method EPA 900.0m **HBN** 91024 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783949 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/11/2012 15:20 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783949 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.406J ± 0.299 (0.539)	pCi/sa 0.406J ± 0.299 (0.539)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.418J ± 0.332 (0.650)	pCi/sa 0.418J ± 0.332 (0.650)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review

Batch	RADC/12455	HBN	91024
Rule	9000 I	Status	RE
Create Date	6/28/2012	Analyst	MBT



21	3072058040-2540-SU2-5
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** Indicates QC failure. For example, blank contamination or recoveries out of range.

Gross Alpha and Gross Beta Preparation Sheet

Batch: 12455
 Transfer Analyst:
 Prep Date/Time: 7-9-12 12:00
 Matrix: Filter/Swipe
 Logbook ID: 3-R021-5

Spike Analyst: NA
 QC ID: a: NA
 LCS QC Vol (mL): a: NA
 MS/MSD QC Vol (mL): a: NA
 Pipette ID: NA

Aliquot Balance ID: NA
 Aliquot Wgt. Date: NA
 Tare Balance ID: NA
 Tare Wgt. Date: NA
 Gross Balance ID: NA
 Gross Wgt. Date: NA

Bottle ID	Sample No.	Analyst Initials		Analyst Initials		Analyst Initials		Sample Comments	
		Tare Mass (g)	5mL Test Mass (g)	Sample Volume (mL)	Gross Mass (g)	Tare Mass (g)	Gross Mass (g)		
NA	458902	NA	NA	1.0	NA	NA	NA		
1	3072058021								
2	3072058022								
3	3072058023								
4	3072058024								
5	3072058025								
6	3072058026								
7	3072058027								
8	3072058028								
9	3072058029								
10	3072058030								
11	3072058031								
12	3072058032								
13	3072058033								
14	3072058034								
15	3072058035								
16	3072058036								
17	3072058037								
18	3072058038								
19	3072058039								
20	3072058040								
21	LCS12455								
22	LCS12455								
23									
24									

Batch Comments: Ludox: 8N HNO₃ / / @ Date Removed: / / @ Conc HNO₃:
 Date Placed in oven: / / @
 Peer Review: / / @ Date: / / @

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12455
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012
Reporting Units: dpm

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

Sigma 1.96
Zero Factor 2.71

Sample ID	Aliquot	Units	Tare (g)	Gross (g)	Residue (mg)	Det. ID	Count Date	Alpha Gross CPM	Beta Gross CPM	Count Duration (min)	Alpha Bkg CPM	Beta Bkg CPM	Bkg Count Duration (min)	Req Activity Units
458962	1.00000	S	9.0000	9.0000	0.00	43	7/10/2012 15:38	0.0800	1.1767	300	0.1620	1.1560	1000	dpm
3072058021	1.00000	S	9.0000	9.0000	0.00	44	7/10/2012 15:38	0.0867	1.2100	300	0.1110	0.9900	1000	dpm
3072058022	1.00000	S	9.0000	9.0000	0.00	45	7/10/2012 15:38	0.2233	1.9367	300	0.1410	1.7460	1000	dpm
3072058023	1.00000	S	9.0000	9.0000	0.00	46	7/10/2012 15:38	0.2067	1.2000	300	0.2330	0.9840	1000	dpm
3072058024	1.00000	S	9.0000	9.0000	0.00	47	7/10/2012 16:15	0.2300	1.6067	300	0.0940	1.1670	1000	dpm
3072058025	1.00000	S	9.0000	9.0000	0.00	48	7/10/2012 16:15	0.1800	2.0467	300	0.1650	2.0860	1000	dpm
3072058026	1.00000	S	9.0000	9.0000	0.00	49	7/10/2012 16:15	0.3000	1.8633	300	0.3330	1.3450	1000	dpm
3072058027	1.00000	S	9.0000	9.0000	0.00	50	7/10/2012 16:15	0.2100	1.2900	300	0.2050	1.4600	1000	dpm
3072058028	1.00000	S	9.0000	9.0000	0.00	51	7/10/2012 15:23	0.2233	1.9600	300	0.1500	1.3750	1000	dpm
3072058029	1.00000	S	9.0000	9.0000	0.00	52	7/10/2012 15:23	0.2067	1.4767	300	0.1070	1.1480	1000	dpm
3072058030	1.00000	S	9.0000	9.0000	0.00	53	7/10/2012 15:23	0.1667	1.7467	300	0.1070	1.3970	1000	dpm
3072058031	1.00000	S	9.0000	9.0000	0.00	43	7/10/2012 15:23	0.3200	2.0700	300	0.1620	1.1560	1000	dpm
3072058032	1.00000	S	9.0000	9.0000	0.00	44	7/11/2012 15:20	0.2667	1.9200	300	0.1110	0.9900	1000	dpm
3072058033	1.00000	S	9.0000	9.0000	0.00	45	7/11/2012 15:20	0.2733	1.8133	300	0.1410	1.7460	1000	dpm
3072058034	1.00000	S	9.0000	9.0000	0.00	46	7/11/2012 15:20	0.2333	1.3033	300	0.2330	0.9840	1000	dpm
3072058035	1.00000	S	9.0000	9.0000	0.00	47	7/11/2012 15:20	0.2000	1.6267	300	0.0940	1.1670	1000	dpm
3072058036	1.00000	S	9.0000	9.0000	0.00	48	7/11/2012 15:20	0.2033	1.8100	300	0.1650	2.0860	1000	dpm
3072058037	1.00000	S	9.0000	9.0000	0.00	49	7/11/2012 15:20	0.2367	1.4233	300	0.3330	1.3450	1000	dpm
3072058038	1.00000	S	9.0000	9.0000	0.00	50	7/11/2012 15:20	0.1967	1.4533	300	0.2050	1.4600	1000	dpm
3072058039	1.00000	S	9.0000	9.0000	0.00	51	7/11/2012 15:20	0.2333	1.8167	300	0.1500	1.3750	1000	dpm
3072058040	1.00000	S	9.0000	9.0000	0.00	52	7/11/2012 15:20	0.1800	1.3600	300	0.1070	1.1480	1000	dpm
LCS12455	1.00000	S	9.0000	9.0000	0.00	49	7/10/2012 14:37	0.8333	6.3333	90	0.3330	1.3450	1000	dpm
LCS12455	1.00000	S	9.0000	9.0000	0.00	50	7/10/2012 14:37	0.7444	5.9000	90	0.2050	1.4600	1000	dpm

See 7/17/12

MBT

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12455
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

Gross Alpha Results

Sample ID	Alpha Activity	Two-Sigma Count Uncertainty	Two-Sigma CSU	MDC	Critical Value	Units	Alpha Net CPM	Residue (mg)	Beta to Alpha Xtlk CPM	Xtlk corr. Net alpha CPM	Alpha eff	Activity Conversion
458962	-0.472	0.234	0.249	0.674	0.252	dpm/S	-0.082	0.00	0.000000	-0.082	17.36%	1
3072058021	-0.139	0.224	0.225	0.563	0.207	dpm/S	-0.024	0.00	0.000000	-0.024	17.51%	1
3072058022	0.487	0.345	0.356	0.650	0.241	dpm/S	0.082	0.00	0.000000	0.082	16.90%	1
3072058023	-0.160	0.363	0.364	0.844	0.319	dpm/S	-0.026	0.00	0.000000	-0.026	16.42%	1
3072058024	0.791	0.334	0.363	0.531	0.194	dpm/S	0.136	0.00	0.000000	0.136	17.20%	1
3072058025	0.082	0.296	0.296	0.645	0.241	dpm/S	0.015	0.00	0.000000	0.015	18.31%	1
3072058026	-0.194	0.421	0.423	0.965	0.369	dpm/S	-0.033	0.00	0.000000	-0.033	16.99%	1
3072058027	0.030	0.355	0.355	0.787	0.296	dpm/S	0.005	0.00	0.000000	0.005	16.59%	1
3072058028	0.410	0.328	0.328	0.632	0.235	dpm/S	0.073	0.00	0.000000	0.073	17.88%	1
3072058029	0.555	0.308	0.323	0.539	0.198	dpm/S	0.100	0.00	0.000000	0.100	17.97%	1
3072058030	0.336	0.284	0.290	0.545	0.200	dpm/S	0.060	0.00	0.000000	0.060	17.78%	1
3072058031	0.910	0.396	0.428	0.674	0.252	dpm/S	0.158	0.00	0.000000	0.158	17.36%	1
3072058032	0.889	0.354	0.388	0.563	0.207	dpm/S	0.156	0.00	0.000000	0.156	17.51%	1
3072058033	0.783	0.376	0.402	0.650	0.241	dpm/S	0.132	0.00	0.000000	0.132	16.90%	1
3072058034	0.002	0.380	0.380	0.844	0.319	dpm/S	0.000	0.00	0.000000	0.000	16.42%	1
3072058035	0.616	0.314	0.333	0.531	0.194	dpm/S	0.106	0.00	0.000000	0.106	17.20%	1
3072058036	0.209	0.311	0.313	0.645	0.241	dpm/S	0.038	0.00	0.000000	0.038	18.31%	1
3072058037	-0.567	0.386	0.399	0.965	0.369	dpm/S	-0.096	0.00	0.000000	-0.096	16.99%	1
3072058038	-0.050	0.346	0.347	0.787	0.296	dpm/S	-0.008	0.00	0.000000	-0.008	16.59%	1
3072058039	0.466	0.334	0.344	0.632	0.235	dpm/S	0.083	0.00	0.000000	0.083	17.88%	1
3072058040	0.406	0.290	0.299	0.539	0.198	dpm/S	0.073	0.00	0.000000	0.073	17.97%	1
LCS12455	2.944	1.130	1.246	1.842	0.617	dpm/S	0.500	0.00	0.000000	0.500	16.99%	1
LCSD12455	3.251	1.087	1.233	1.519	0.495	dpm/S	0.539	0.00	0.000000	0.539	16.59%	1

Quality

MBT

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12455
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

Gross Beta Results

Sample ID	Beta Activity	Two-Sigma Count Uncertainty	Two-Sigma CSU	MDC	Critical Value	Units	Beta Net CPM	Residue (mg)	Alpha to Beta Xtlk CPM	Xtlk corr. Net beta CPM	Beta eff	Activity Conversion
458962	0.098	0.314	0.315	0.670	0.263	dpm/S	0.021	0.00	-0.023122	0.044	44.46%	1
3072058021	0.503	0.307	0.320	0.611	0.239	dpm/S	0.220	0.00	-0.007117	0.227	45.20%	1
3072058022	0.388	0.408	0.413	0.835	0.330	dpm/S	0.191	0.00	0.021852	0.169	43.55%	1
3072058023	0.500	0.309	0.322	0.615	0.241	dpm/S	0.216	0.00	-0.007715	0.224	44.76%	1
3072058024	0.872	0.345	0.378	0.652	0.256	dpm/S	0.440	0.00	0.039494	0.400	45.90%	1
3072058025	-0.092	0.394	0.394	0.845	0.334	dpm/S	-0.039	0.00	0.004047	-0.043	46.97%	1
3072058026	1.195	0.386	0.441	0.725	0.285	dpm/S	0.518	0.00	-0.009676	0.528	44.19%	1
3072058027	-0.377	0.328	0.334	0.734	0.289	dpm/S	-0.170	0.00	0.001402	-0.171	45.41%	1
3072058028	1.237	0.382	0.441	0.710	0.279	dpm/S	0.585	0.00	0.020550	0.564	45.63%	1
3072058029	0.657	0.334	0.354	0.650	0.255	dpm/S	0.329	0.00	0.028751	0.300	45.67%	1
3072058030	0.707	0.353	0.375	0.693	0.272	dpm/S	0.350	0.00	0.016381	0.333	47.12%	1
3072058031	1.956	0.396	0.528	0.670	0.263	dpm/S	0.914	0.00	0.044551	0.869	44.46%	1
3072058032	1.957	0.373	0.511	0.611	0.239	dpm/S	0.930	0.00	0.045528	0.884	45.20%	1
3072058033	0.074	0.397	0.397	0.835	0.330	dpm/S	0.067	0.00	0.035123	0.032	43.55%	1
3072058034	0.713	0.320	0.344	0.615	0.241	dpm/S	0.319	0.00	0.000098	0.319	44.76%	1
3072058035	0.934	0.347	0.385	0.652	0.256	dpm/S	0.460	0.00	0.030782	0.429	45.90%	1
3072058036	-0.610	0.376	0.392	0.845	0.334	dpm/S	-0.276	0.00	0.010343	-0.286	46.97%	1
3072058037	0.241	0.346	0.349	0.725	0.285	dpm/S	0.078	0.00	-0.028247	0.107	44.19%	1
3072058038	-0.010	0.343	0.343	0.734	0.289	dpm/S	-0.007	0.00	-0.002337	-0.004	45.41%	1
3072058039	0.917	0.370	0.405	0.710	0.279	dpm/S	0.442	0.00	0.023353	0.418	45.63%	1
3072058040	0.418	0.323	0.332	0.650	0.255	dpm/S	0.212	0.00	0.021058	0.191	45.67%	1
LCS12455	10.956	1.188	2.292	1.355	0.477	dpm/S	4.988	0.00	0.146708	4.842	44.19%	1
LCSD12455	9.445	1.117	2.026	1.371	0.483	dpm/S	4.440	0.00	0.151293	4.289	45.41%	1

07/11/12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12455
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

Analyst: MBT
PrepSOP1: PGR-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

CSU Factors (2 Sigma)
UE1 6.71%
UE2 13.23%
UE3 10.00%
UE4 0.00%

Det No.	Effective Calibration Date					Alpha Efficiency	Alpha to Beta Cross-Talk					Beta Efficiency	Beta to Alpha Cross-Talk					Alpha Bkg	Beta Bkg	Alpha Bkg	Beta Bkg	BKG 1 Date: 6/9/2012	BKG 2 Date: 7/13/2012		
	a	b	c	d	e		a	b	c	d	e		a	b	c	d	e							a	b
1					1.4266E-01					3.2336E-01					4.5524E-01					0.0640	0.8040	0.0640	0.8040		
2					1.5524E-01					4.5633E-01					4.5633E-01					0.0620	0.7010	0.0620	0.7010		
3					1.5070E-01					3.0910E-01					4.4491E-01					0.0600	0.6670	0.0600	0.6670		
4					1.4437E-01					2.9231E-01					4.3452E-01					0.1120	0.6050	0.1120	0.6050		
5					#N/A					#N/A					#N/A					0.0520	5.1640	0.0520	5.1640		
6					#N/A					#N/A					#N/A					0.0510		0.0510			
7					1.5705E-01					2.4638E-01					4.4360E-01					0.1070	0.6890	0.1070	0.6890		
8					1.4091E-01					3.0938E-01					4.2938E-01					0.0960	0.6310	0.0960	0.6310		
9					1.3453E-01					3.4289E-01					4.4454E-01					0.0550	0.6370	0.0550	0.6370		
10					#N/A					#N/A					#N/A					0.0590	0.7940	0.0590	0.7940		
11					1.5103E-01					4.0303E-01					4.5335E-01					0.1620	0.4690	0.1770	0.4410		
12					1.5319E-01					3.7376E-01					4.5830E-01					0.0890	0.3780	0.1550	0.4240		
13					1.4959E-01					4.0742E-01					3.9032E-01					0.0500	0.3330	0.1230	0.3450		
14					1.5721E-01					3.5689E-01					4.4635E-01					0.0890	0.3800	0.0820	0.4390		
15					1.5605E-01					3.4723E-01					4.4658E-01					0.0820	0.4950	0.1200	0.4700		
16					1.5365E-01					3.5438E-01					4.3920E-01					0.0610	0.3910	0.0870	0.3430		
17					1.5472E-01					3.2964E-01					4.4691E-01					0.1370	0.3860	0.0840	0.3710		
18					1.5273E-01					3.6020E-01					4.4422E-01					0.0630	0.3820	0.0730	0.3640		
19					1.5393E-01					3.8255E-01					4.5782E-01					0.0770	0.4570	0.0900	0.4330		
20					1.5510E-01					3.6978E-01					4.4321E-01					0.0970	0.3920	0.0700	0.3690		
21					1.5130E-01					4.0478E-01					4.5533E-01					0.0780	0.3760	0.0580	0.3610		
22					1.5560E-01					3.9282E-01					4.3554E-01					0.0570	0.4180	0.1140	0.4060		
23					1.5639E-01					3.6678E-01					4.4612E-01					0.0750	0.4570	0.0720	0.4150		
24					#N/A					#N/A					#N/A										
25					1.5898E-01					3.5511E-01					4.5368E-01					0.1270	0.4110	0.1580	0.4010		
26					1.5743E-01					3.3781E-01					4.5458E-01					0.1490	0.4370	0.0970	0.4050		
27					1.5803E-01					3.3826E-01					4.4883E-01					0.0740	0.2880	0.0690	0.3930		

Multiple

12455

2/17/12
DPC

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

CSU Analysis for Preparation

Planchet Weighing

uncert (g)	gross (g)	tare (g)	net (g)	CSU (g)	
0.0003	9.1463	9.1273	0.019	0.000424264	2.23%

Volume Aliquot

(mL)	vol (mL)	rel unc
1.00	100.0	1.00%

Description	relative	CSU for Preparation (UE1) 6.71%		
		of Critical	Uncertainty	Uncertainty
Sample Aliquoting	1.00%	1	1.00%	0.01%
Planchet Weighing	2.23%	2	3.16%	0.10%
Sample transfer to planchet	3.00%	1	3.00%	0.09%
Additional Uncertainty due to differences in the distribution of residue on the planchet	5.00%	1	5.00%	0.25%

CSU Analysis for Analysis

Mass Aliquot

	Ref mass	uncert (g)	Rel unc
Tare	5	0.0004	
Gross	6	0.0004	Use max of 1%
net	1	0.000565685	0.057%

Description	Maximum	CSU for Analysis (UE2) 13.23%		
		of Critical	Uncertainty	Uncertainty
SRM Uncertainty	5.00%	1	5.00%	0.25%
Mass transfer	0.06%	2	0.08%	0.00%
Source Reproducibility	5.00%	1	5.00%	0.25%
Curve Fitting Uncertainty	5.00%	1	5.00%	0.25%
Estimated Additional Uncertainty (variations in efficiency and self-absorption due to chemical composition of residue)	10.00%	1	10.00%	1.00%

CSU Analysis for Yield Correction

Description	Maximum	CSU for Yield (UE3) 10.00%		
		of Critical	Uncertainty	Uncertainty
Additional Sample Uncertainty due to analysis without a tracer or chemical carrier	10.00%	1	10.00%	1.00%

Pace Analytical Services
 Gross Alpha and Gross Beta
 Analysis

2/11/12

alpha
 Counts
 beta

SAMPLE_ID	Det#	BEG_DATE	BATCH_ID	ACPM	BCPM	CNT_TIME	alpha	beta
458962	43	#####	GAB12455	0.08	1.177	300	24	353
3072058021	44	#####	GAB12455	0.087	1.21	300	26	363
3072058022	45	#####	GAB12455	0.223	1.937	300	67	581
3072058023	46	#####	GAB12455	0.207	1.2	300	62	360
3072058024	47	#####	GAB12455	0.23	1.607	300	69	482
3072058025	48	#####	GAB12455	0.18	2.047	300	54	614
3072058026	49	#####	GAB12455	0.3	1.863	300	90	559
3072058027	50	#####	GAB12455	0.21	1.29	300	63	387
3072058028	51	#####	GAB12455	0.223	1.96	300	67	588
3072058029	52	#####	GAB12455	0.207	1.477	300	62	443
3072058030	53	#####	GAB12455	0.167	1.747	300	50	524
3072058031	43	#####	GAB12455	0.32	2.07	300	96	621
3072058032	44	#####	GAB12455	0.267	1.92	300	80	576
3072058033	45	#####	GAB12455	0.273	1.813	300	82	544
3072058034	46	#####	GAB12455	0.233	1.303	300	70	391
3072058035	47	#####	GAB12455	0.2	1.627	300	60	488
3072058036	48	#####	GAB12455	0.203	1.81	300	61	543
3072058037	49	#####	GAB12455	0.237	1.423	300	71	427
3072058038	50	#####	GAB12455	0.197	1.453	300	59	436
3072058039	51	#####	GAB12455	0.233	1.817	300	70	545
3072058040	52	#####	GAB12455	0.18	1.36	300	54	408
LCS12455	49	#####	GAB12455	0.833	6.333	90	75	570
LCSD12455	50	#####	GAB12455	0.744	5.9	90	67	531

GM
 7/17/12



Batch Report

Batch Name: GAB12455
Procedure: GAB Filter Counting
Calibration: Water

Count Date: 7/10/2012 2:37:51 PM

Preset Count Time: 18000

Count Mode: Simultaneous

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
LCS#1-12455	49	75	570	7/10/2012 2:37:41 PM	90
LCS#2-12455	50	67	531	7/10/2012 2:37:42 PM	90
458962	43	24	353	7/10/2012 3:58:36 PM	300
3072058021	44	26	363	7/10/2012 3:58:36 PM	300
3072058022	45	67	581	7/10/2012 3:58:38 PM	300
3072058023	46	62	360	7/10/2012 3:58:38 PM	300
3072058024	47	69	482	7/10/2012 4:15:26 PM	300
3072058025	48	54	614	7/10/2012 4:15:26 PM	300
3072058026	49	90	559	7/10/2012 4:15:27 PM	300
3072058027	50	63	387	7/10/2012 4:15:28 PM	300
3072058028	51	67	588	7/10/2012 3:23:29 PM	300
3072058029	52	62	443	7/10/2012 3:23:29 PM	300
3072058030	53	50	524	7/10/2012 3:23:29 PM	300
3072058031	43	96	621	7/11/2012 3:20:01 PM	300
3072058032	44	80	576	7/11/2012 3:20:01 PM	300
3072058033	45	82	544	7/11/2012 3:20:01 PM	300

2012/7/11

2/11/12
7/11/12

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
3072058034	46	70	391	7/11/2012 3:20:01 PM	300
3072058035	47	60	488	7/11/2012 3:20:01 PM	300
3072058036	48	61	543	7/11/2012 3:20:01 PM	300
3072058037	49	71	427	7/11/2012 3:20:01 PM	300
3072058038	50	59	436	7/11/2012 3:20:01 PM	300
3072058039	51	70	545	7/11/2012 3:20:02 PM	300
3072058040	52	54	408	7/11/2012 3:20:02 PM	300

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
GAS	11	GA 20120614 -N03	GACal	23	7/11/12 1053	GL	NA	
	12	-N04		23	7/11/12 1053			
	13	-N05		23	7/11/12 1053			
	14	-N05		↓				
	15	-N06		↓				
	16	-N07		23	7/11/12 1070			
	17	-N08		23	7/11/12 1112			
	18	-N10		23	7/11/12 1127			
	19	-N09		23	7/11/12 1032			
	20	-N03		23	7/11/12 1020			
	21	-N04		↓				
	22	-N06		23	7/11/12 1112			
	23	-N07		23	7/11/12 1106			
	24	-N08		23	7/11/12 1127			
	25	-N01		23	7/11/12 1030			
	26	-N01		20	7/11/12 1030			
	27	-N01		20	7/11/12 1106			
GAF	46	46-CAF 20120624-N6	GACal	150	7/11/12	GL	NA	
GAF	49	49-CAF 12455	12455	90	7/10/12 1438	GL	NA	
	50	50-CAF 12455		↓				
GAF	43	43-CAF 12455	12455	300	7/10/12	GL	NA	
	44	44-CAF 201205801		↓				
	45	45-CAF 003		↓				
	46	46-CAF 003		↓				
	47	47-CAF 004		↓				

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

Peer Review: PLC Date: 7/11/12

2/12/12

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/ time	Analyst	Re-Analysis Code	Comments
GABF	48	3072058025	12455	300	7/10/12	BSH	NA	
	49	026						
	50	027			16:15			
	51	028						
	52	029						
	53	030						
GAB	29	3072058013	GAB 12454	120	7/10/12 16:59	BSH		
	12	014						
	14	015						
	15	016						
	16	017						
	18	018						
	20	019			7/10/12 17:13			
	33	020			17:14			
	19	4158968	GAB 12456	120	7/10/12 18:25	BSH	NA	
	23	3072058041						
	30	042						
	34	043						
	37	044						
	12	045			7/10/12 19:00			
	14	046						
	15	047						
	16	048						
	18	049						

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

RRK

Gross Alpha and Beta Sample Analysis Data

Quality Control Review



Batch RADC/12456 HBN 91026
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

1 458968-BLANK for HBN 91026 [RADC/1245

Type BLANK Matrix Impact Plate Collected % Moisture
 Client QCACCOUNT WO Work ID

Prep Information

Procedure 9000 I Batch RADC/12456 Prep Date 7/10/2012 18:24 Dilution
 Method EPA 900.0m HBN 91026 Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795634 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 18:24 Dilution
 Method EPA 900.0m Col ID Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795634 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL
Rad Chemistry	OK				
Gross Alpha	OK	-0.230U ± 0.265 (0.912)	pCi/sa -0.230U ± 0.265 (0.912)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					
Gross Beta	OK	-0.113U ± 0.262 (0.676)	pCi/sa -0.113U ± 0.262 (0.676)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					

2 3072058041-2540-SU2-6

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12456 Prep Date 7/10/2012 18:24 Dilution
 Method EPA 900.0m HBN 91026 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783951 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 18:24 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783951 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.693J ± 0.517 (0.888)	pCi/sa 0.693J ± 0.517 (0.888)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12456 HBN 91026
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

2 3072058041-2540-SU2-6

Analyte	CC	Posted Result		MDL	RDL	Req. Limits	
		Result	Result			Low	High
Gross Beta	OK	0.156U ± 0.317 (0.694)	pCi/sa 0.156U ± 0.317 (0.694)			pCi/sam	

The lab does not hold TNI accreditation for this parameter.

3 3072058042-2540-SU2-7

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12456 Prep Date 7/10/2012 18:25 Dilution
 Method EPA 900.0m HBN 91026 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783953 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 18:25 Dilution
 Method EPA 900.0m Col ID File Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783953 File CC OK F

Analyte	CC	Posted Result		MDL	RDL	Req. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.342J ± 0.426 (0.881)	pCi/sa 0.342J ± 0.426 (0.881)			pCi/sam	

The lab does not hold TNI accreditation for this parameter.

Gross Beta	OK	0.478J ± 0.343 (0.657)	pCi/sa 0.478J ± 0.343 (0.657)			pCi/sam	
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The lab does not hold TNI accreditation for this parameter.

4 3072058043-2540-SU2-7D

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12456 Prep Date 7/10/2012 18:25 Dilution
 Method EPA 900.0m HBN 91026 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783953 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12456 HBN 91026
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

4 3072058043-2540-SU2-7D

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 18:25 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783955 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	-0.006U ± 0.322 (0.866)	pCi/sa -0.006U ± 0.322 (0.866)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.176U ± 0.247 (0.654)	pCi/sa -0.176U ± 0.247 (0.654)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

5 3072058044-2540-SU2-8

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12456 Prep Date 7/10/2012 18:25 Dilution
 Method EPA 900.0m HBN 91026 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783957 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 18:25 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783957 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	1.35 ± 0.624 (0.686)	pCi/sa 1.35 ± 0.624 (0.686)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.829 ± 0.387 (0.587)	pCi/sa 0.829 ± 0.387 (0.587)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

6 3072058045-2540-SU2-9

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12456 HBN 91026
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

6 3072058045-2540-SU2-9

Prep Information

Procedure 9000 I **Batch** RADC/12456 **Prep Date** 7/10/2012 18:59 **Dilution**
Method EPA 900.0m **HBN** 91026 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783959 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/10/2012 18:59 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783959 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.725J ± 0.552 (0.974)	pCi/sa 0.725J ± 0.552 (0.974)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.267J ± 0.303 (0.619)	pCi/sa 0.267J ± 0.303 (0.619)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

7 3072058046-2540-SU2-10

Type PS **Matrix** Wipe **Collected** 6/14/2012 00:01 **% Moisture**
Client RTI **WO** 3072058 **Work ID** Fort Monmouth 1207071 **Location**

Prep Information

Procedure 9000 I **Batch** RADC/12456 **Prep Date** 7/10/2012 18:59 **Dilution**
Method EPA 900.0m **HBN** 91026 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783961 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/10/2012 18:59 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783961 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.091U ± 0.345 (0.853)	pCi/sa 0.091U ± 0.345 (0.853)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.015U ± 0.265 (0.637)	pCi/sa 0.015U ± 0.265 (0.637)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12456 HBN 91026
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

7 3072058046-2540-SU2-10

8 3072058047-2540-SU2-11

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12456 Prep Date 7/10/2012 18:59 Dilution
 Method EPA 900.0m HBN 91026 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783963 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 18:59 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783963 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.596J ± 0.504 (0.924)	pCi/sa 0.596J ± 0.504 (0.924)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	1.11 ± 0.462 (0.719)	pCi/sa 1.11 ± 0.462 (0.719)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

9 3072058048-2540-SU2-12

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12456 Prep Date 7/10/2012 18:59 Dilution
 Method EPA 900.0m HBN 91026 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783965 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 18:59 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783965 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK						

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12456 HBN 91026
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

9 3072058048-2540-SU2-12

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Alpha	OK	0.037U ± 0.317 (0.829)	pCi/sa 0.037U ± 0.317 (0.829)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.149U ± 0.291 (0.656)	pCi/sa 0.149U ± 0.291 (0.656)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

10 3072058049-2540-SU2-13

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12456 Prep Date 7/10/2012 18:59 Dilution
 Method EPA 900.0m HBN 91026 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783967 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 18:59 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783967 File CC OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.351J ± 0.418 (0.845)	pCi/sa 0.351J ± 0.418 (0.845)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.597J ± 0.356 (0.641)	pCi/sa 0.597J ± 0.356 (0.641)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

11 3072058050-2540-SU2-14

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12456 Prep Date 7/10/2012 19:00 Dilution
 Method EPA 900.0m HBN 91026 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783969 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12456 HBN 91026
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

11 3072058050-2540-SU2-14

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 19:00 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783969 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.484J ± 0.486 (0.948)	pCi/sa 0.484J ± 0.486 (0.948)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.514J ± 0.330 (0.596)	pCi/sa 0.514J ± 0.330 (0.596)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

12 3072058051-2540-SU2-15

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12456 Prep Date 7/10/2012 21:33 Dilution
 Method EPA 900.0m HBN 91026 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783971 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 21:33 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783971 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.616J ± 0.526 (0.974)	pCi/sa 0.616J ± 0.526 (0.974)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.607J ± 0.352 (0.619)	pCi/sa 0.607J ± 0.352 (0.619)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

13 3072058052-2540-SU2-16

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12456 HBN 91026
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

13 3072058052-2540-SU2-16

Prep Information

Procedure 9000 I Batch RADC/12456 Prep Date 7/10/2012 21:33 Dilution
 Method EPA 900.0m HBN 91026 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783973 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 21:33 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783973 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.939 ± 0.565 (0.853)	pCi/sa 0.939 ± 0.565 (0.853)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.804 ± 0.394 (0.637)	pCi/sa 0.804 ± 0.394 (0.637)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

14 3072058053-2540-SU2-17

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12456 Prep Date 7/10/2012 21:33 Dilution
 Method EPA 900.0m HBN 91026 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783975 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 21:33 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783975 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.276U ± 0.424 (0.924)	pCi/sa 0.276U ± 0.424 (0.924)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.276J ± 0.337 (0.719)	pCi/sa 0.276J ± 0.337 (0.719)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12456 HBN 91026
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

14 3072058053-2540-SU2-17

15 3072058054-2540-SU2-17D

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12456 Prep Date 7/10/2012 21:34 Dilution
 Method EPA 900.0m HBN 91026 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783977 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 21:34 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783977 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.254U ± 0.384 (0.829)	pCi/sa 0.254U ± 0.384 (0.829)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.122U ± 0.290 (0.656)	pCi/sa 0.122U ± 0.290 (0.656)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

16 3072058055-2540-SU2-18

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12456 Prep Date 7/10/2012 21:34 Dilution
 Method EPA 900.0m HBN 91026 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783982 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 21:34 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783982 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK						

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12456 HBN 91026
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

16 3072058055-2540-SU2-18

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Alpha	OK	1.12 ± 0.609 (0.845)	pCi/sa 1.12 ± 0.609 (0.845)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	1.05 ± 0.436 (0.641)	pCi/sa 1.05 ± 0.436 (0.641)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

17 3072058056-2540-SU2-19

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12456 Prep Date 7/10/2012 21:34 Dilution
 Method EPA 900.0m HBN 91026 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783984 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 21:34 Dilution
 Method EPA 900.0m CoI ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783984 File CC OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.528J ± 0.485 (0.912)	pCi/sa 0.528J ± 0.485 (0.912)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.827 ± 0.403 (0.676)	pCi/sa 0.827 ± 0.403 (0.676)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

18 3072058057-2540-SU2-20

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12456 Prep Date 7/10/2012 21:34 Dilution
 Method EPA 900.0m HBN 91026 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783986 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12456 HBN 91026
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

18 3072058057-2540-SU2-20

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 21:34 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783988 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	1.78 ± 0.781 (0.992)	pCi/sa 1.78 ± 0.781 (0.992)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	2.57 ± 0.696 (0.643)	pCi/sa 2.57 ± 0.696 (0.643)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

19 3072058058-2540-SU2-21

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12456 Prep Date 7/10/2012 21:34 Dilution
 Method EPA 900.0m HBN 91026 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783988 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/10/2012 21:34 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783988 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	1.17 ± 0.628 (0.888)	pCi/sa 1.17 ± 0.628 (0.888)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	1.72 ± 0.558 (0.694)	pCi/sa 1.72 ± 0.558 (0.694)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

20 3072058059-2540-SU3-1

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12456 HBN 91026
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

20 3072058059-2540-SU3-1

Prep Information

Procedure 9000 I **Batch** RADC/12456 **Prep Date** 7/10/2012 21:34 **Dilution**
Method EPA 900.0m **HBN** 91026 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783990 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/10/2012 21:34 **Dilution**
Method EPA 900.0m **CoI ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783990 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	-0.059U ± 0.340 (0.948)	pCi/sa -0.059U ± 0.340 (0.948)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.334J ± 0.294 (0.596)	pCi/sa 0.334J ± 0.294 (0.596)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

21 3072058060-2540-SU3-2

Type PS **Matrix** Wipe **Collected** 6/14/2012 00:01 **% Moisture**
Client RTI **WO** 3072058 **Work ID** Fort Monmouth **Location**
 1207071

Prep Information

Procedure 9000 I **Batch** RADC/12456 **Prep Date** 7/10/2012 21:34 **Dilution**
Method EPA 900.0m **HBN** 91026 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783992 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/10/2012 21:34 **Dilution**
Method EPA 900.0m **CoI ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2783992 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.019U ± 0.334 (0.881)	pCi/sa 0.019U ± 0.334 (0.881)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.004U ± 0.270 (0.657)	pCi/sa -0.004U ± 0.270 (0.657)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review

Batch	RADC/12456	HBN	91026
Rule	9000 I	Status	RE
Create Date	6/28/2012	Analyst	MBT



21 3072058060-2540-SU3-2

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Creation Date 06/28/2012 13:02 Assigned Analyst MBT
Batch ID 12456 Earliest Due Date 07/04/2012 07:12
A-code 9000 I 9000W or NU HBN 91026
Method EPA 900.0m EPA 900.0 or NJAC7186

Workorder	Sample ID	Sample Type	Matrix	Collection Date/Time	Client ID	Alpha Activity	Alpha Unc.	Alpha MDC	Beta Activity	Beta Unc.	Beta MDC	Analysis Date/Time	MCL Exceedance *	
													Alpha	Beta
	458968	BLANK	IP		QCACCOUNT									
3072058	3072058041	PS	WP	6/14/2012 0:01	RTI	-0.230U	0.265	0.912	-0.113U	0.262	0.676	7/10/12 18:24		
3072058	3072058042	PS	WP	6/14/2012 0:01	RTI	0.693J	0.517	0.888	0.156U	0.317	0.694	7/10/12 18:24		
3072058	3072058043	PS	WP	6/14/2012 0:01	RTI	0.342J	0.426	0.881	0.478J	0.343	0.657	7/10/12 18:25		
3072058	3072058044	PS	WP	6/14/2012 0:01	RTI	-0.006U	0.322	0.866	-0.176U	0.247	0.654	7/10/12 18:25		
3072058	3072058045	PS	WP	6/14/2012 0:01	RTI	1.35	0.624	0.686	0.829	0.387	0.587	7/10/12 18:25		
3072058	3072058046	PS	WP	6/14/2012 0:01	RTI	0.725J	0.552	0.974	0.267J	0.303	0.619	7/10/12 18:59		
3072058	3072058047	PS	WP	6/14/2012 0:01	RTI	0.091U	0.345	0.853	0.015U	0.265	0.637	7/10/12 18:59		
3072058	3072058048	PS	WP	6/14/2012 0:01	RTI	0.596J	0.504	0.924	1.11	0.462	0.719	7/10/12 18:59		
3072058	3072058049	PS	WP	6/14/2012 0:01	RTI	0.037U	0.317	0.829	0.149U	0.291	0.656	7/10/12 18:59		
3072058	3072058050	PS	WP	6/14/2012 0:01	RTI	0.351J	0.418	0.845	0.597J	0.356	0.641	7/10/12 18:59		
3072058	3072058051	PS	WP	6/14/2012 0:01	RTI	0.484J	0.486	0.948	0.514J	0.330	0.596	7/10/12 19:00		
3072058	3072058052	PS	WP	6/14/2012 0:01	RTI	0.616J	0.526	0.974	0.607J	0.352	0.619	7/10/12 21:33		
3072058	3072058053	PS	WP	6/14/2012 0:01	RTI	0.939	0.565	0.853	0.804	0.394	0.637	7/10/12 21:33		
3072058	3072058054	PS	WP	6/14/2012 0:01	RTI	0.276U	0.424	0.924	0.276J	0.337	0.719	7/10/12 21:33		
3072058	3072058055	PS	WP	6/14/2012 0:01	RTI	0.254U	0.384	0.829	0.122U	0.290	0.656	7/10/12 21:34		
3072058	3072058056	PS	WP	6/14/2012 0:01	RTI	1.12	0.609	0.845	1.05	0.436	0.641	7/10/12 21:34		
3072058	3072058057	PS	WP	6/14/2012 0:01	RTI	0.528J	0.485	0.912	0.827	0.403	0.676	7/10/12 21:34		
3072058	3072058058	PS	WP	6/14/2012 0:01	RTI	1.78	0.781	0.992	2.57	0.686	0.643	7/10/12 21:34		
3072058	3072058059	PS	WP	6/14/2012 0:01	RTI	1.17	0.628	0.888	1.72	0.558	0.694	7/10/12 21:34		
3072058	3072058060	PS	WP	6/14/2012 0:01	RTI	-0.059U	0.340	0.948	0.334J	0.294	0.596	7/10/12 21:34		
3072058	3072058061	PS	WP	6/14/2012 0:01	RTI	0.019U	0.334	0.881	-0.004U	0.270	0.657	7/10/12 21:34		

Qu 7/11/12

* This indicates a possible MCL exceedance may exist for this sample. Results greater than 15.0 pCi/L gross alpha must be reviewed expeditiously and the PM, Radchem Supervisor, and QA Manager notified immediately upon validation of the result. If the gross beta result is above 50 pCi/L, this may also indicate a reportable exceedance.

MBT

Gross Alpha and Gross Beta Preparation Sheet

Batch: 12456
 Transfer Analyst: _____
 Prep Date/Time: _____
 Matrix: Swipe
 Logbook ID: 3-R021-5

Spike Analyst: NA QC ID: a: NA b: _____
 Aliquot Balance ID: NA Aliquot Wgt. Date: _____
 Tare Balance ID: _____ Tare Wgt. Date: _____
 LCS QC Vol (mL): a: _____ b: _____
 MSMSD QC Vol (mL): a: _____ b: _____
 Pipette ID: _____ Gross Balance ID: _____
 Gross Wgt. Date: _____

Bottle ID	Sample No.	Analyst Initials		Analyst Initials		Analyst Initials		Sample Comments	
		Tare Mass (g)	5mL Test Mass (g)	Sample Volume (mL)	Gross Mass (g)	Tare Mass (g)	5mL Test Mass (g)	Sample Volume (mL)	Gross Mass (g)
NA	458968	NA	NA	1.0	NA	NA	NA	NA	NA
1	3072058041								
2	3072058042								
3	3072058043								
4	3072058044								
5	3072058045								
6	3072058046								
7	3072058047								
8	3072058048								
9	3072058049								
10	3072058050								
11	3072058051								
12	3072058052								
13	3072058053								
14	3072058054								
15	3072058055								
16	3072058056								
17	3072058057								
18	3072058058								
19	3072058066059								
20	3072058060								
21	LCS 12456								
22	LCS 12456								
23									
24									

Batch Comments: Ludox: _____ 8N HNO₃: _____ Date Removed: / / @ Date: / / @
 Date Placed in oven: / / @ Conc HNO₃: 12BT 7-1-12
 Peer Review: _____ Date: _____

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12456
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012
Reporting Units: dpm

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

Sigma 1.96
Zero Factor 2.71

Sample ID	Aliquot	Units	Tare (g)	Gross (g)	Residue (mg)	Det. ID	Count Date	Alpha Gross CPM	Beta Gross CPM	Count Duration (min)	Alpha Bkg CPM	Beta Bkg CPM	Bkg Count Duration (min)	Req Activity Units
458968	1.00000	S	9.0000	9.0000	0.00	19	7/10/2012 18:24	0.0417	0.3917	120	0.0770	0.4570	1000	dpm
3072058041	1.00000	S	9.0000	9.0000	0.00	23	7/10/2012 18:24	0.1833	0.5667	120	0.0750	0.4570	1000	dpm
3072058042	1.00000	S	9.0000	9.0000	0.00	30	7/10/2012 18:25	0.1250	0.6417	120	0.0720	0.4090	1000	dpm
3072058043	1.00000	S	9.0000	9.0000	0.00	34	7/10/2012 18:25	0.0750	0.3250	120	0.0760	0.4040	1000	dpm
3072058044	1.00000	S	9.0000	9.0000	0.00	37	7/10/2012 18:25	0.2583	0.7583	120	0.0420	0.3190	1000	dpm
3072058045	1.00000	S	9.0000	9.0000	0.00	12	7/10/2012 18:59	0.2000	0.5417	120	0.0890	0.3780	1000	dpm
3072058046	1.00000	S	9.0000	9.0000	0.00	14	7/10/2012 18:59	0.0833	0.3917	120	0.0690	0.3800	1000	dpm
3072058047	1.00000	S	9.0000	9.0000	0.00	15	7/10/2012 18:59	0.1750	1.0250	120	0.0820	0.4950	1000	dpm
3072058048	1.00000	S	9.0000	9.0000	0.00	16	7/10/2012 18:59	0.0667	0.4583	120	0.0610	0.3910	1000	dpm
3072058049	1.00000	S	9.0000	9.0000	0.00	18	7/10/2012 18:59	0.1167	0.6667	120	0.0630	0.3820	1000	dpm
3072058050	1.00000	S	9.0000	9.0000	0.00	29	7/10/2012 19:00	0.1583	0.5750	120	0.0840	0.3220	1000	dpm
3072058051	1.00000	S	9.0000	9.0000	0.00	12	7/10/2012 21:33	0.1833	0.6917	120	0.0890	0.3780	1000	dpm
3072058052	1.00000	S	9.0000	9.0000	0.00	14	7/10/2012 21:33	0.2167	0.7917	120	0.0690	0.3800	1000	dpm
3072058053	1.00000	S	9.0000	9.0000	0.00	15	7/10/2012 21:33	0.1250	0.6333	120	0.0820	0.4950	1000	dpm
3072058054	1.00000	S	9.0000	9.0000	0.00	16	7/10/2012 21:34	0.1000	0.4583	120	0.0610	0.3910	1000	dpm
3072058055	1.00000	S	9.0000	9.0000	0.00	18	7/10/2012 21:34	0.2333	0.9083	120	0.0630	0.3820	1000	dpm
3072058056	1.00000	S	9.0000	9.0000	0.00	19	7/10/2012 21:34	0.1583	0.8667	120	0.0770	0.4570	1000	dpm
3072058057	1.00000	S	9.0000	9.0000	0.00	20	7/10/2012 21:34	0.3750	1.6250	120	0.0970	0.3820	1000	dpm
3072058058	1.00000	S	9.0000	9.0000	0.00	23	7/10/2012 21:34	0.2583	1.2917	120	0.0750	0.4570	1000	dpm
3072058059	1.00000	S	9.0000	9.0000	0.00	29	7/10/2012 21:34	0.0750	0.4667	120	0.0840	0.3220	1000	dpm
3072058060	1.00000	S	9.0000	9.0000	0.00	30	7/10/2012 21:34	0.0750	0.4083	120	0.0720	0.4090	1000	dpm
LCS12456	1.00000	S	9.0000	9.0000	0.00	15	7/17/2012 9:18	0.6000	4.8889	90	0.1200	0.4700	1000	dpm
LCSD12456	1.00000	S	9.0000	9.0000	0.00	16	7/17/2012 9:18	0.4333	4.6000	90	0.0870	0.3430	1000	dpm

On 7/17/12

7/17/12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12456
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

Gross Alpha Results

Sample ID	Alpha Activity	Two-Sigma Count Uncertainty	Two-Sigma CSU	MDC	Critical Value	Units	Alpha Net CPM	Residue (mg)	Beta to Alpha Xilk CPM	Xilk corr. Net alpha CPM	Alpha eff	Activity Conversion
458968	-0.230	0.262	0.265	0.912	0.287	dpm/S	-0.035	0.00	0.000000	-0.035	15.39%	1
3072058041	0.693	0.502	0.517	0.888	0.279	dpm/S	0.108	0.00	0.000000	0.108	15.64%	1
3072058042	0.342	0.422	0.426	0.881	0.276	dpm/S	0.053	0.00	0.000000	0.053	15.50%	1
3072058043	-0.006	0.322	0.322	0.866	0.273	dpm/S	-0.001	0.00	0.000000	-0.001	16.12%	1
3072058044	1.354	0.575	0.624	0.686	0.204	dpm/S	0.216	0.00	0.000000	0.216	15.98%	1
3072058045	0.725	0.536	0.552	0.974	0.310	dpm/S	0.111	0.00	0.000000	0.111	15.32%	1
3072058046	0.091	0.344	0.345	0.853	0.266	dpm/S	0.014	0.00	0.000000	0.014	15.72%	1
3072058047	0.596	0.493	0.504	0.924	0.293	dpm/S	0.093	0.00	0.000000	0.093	15.61%	1
3072058048	0.037	0.317	0.317	0.829	0.256	dpm/S	0.006	0.00	0.000000	0.006	15.37%	1
3072058049	0.351	0.413	0.418	0.845	0.262	dpm/S	0.054	0.00	0.000000	0.054	15.27%	1
3072058050	0.484	0.478	0.486	0.948	0.301	dpm/S	0.074	0.00	0.000000	0.074	15.36%	1
3072058051	0.616	0.514	0.526	0.974	0.310	dpm/S	0.094	0.00	0.000000	0.094	15.32%	1
3072058052	0.939	0.540	0.565	0.853	0.266	dpm/S	0.148	0.00	0.000000	0.148	15.72%	1
3072058053	0.276	0.421	0.424	0.924	0.293	dpm/S	0.043	0.00	0.000000	0.043	15.61%	1
3072058054	0.254	0.381	0.384	0.829	0.256	dpm/S	0.039	0.00	0.000000	0.039	15.37%	1
3072058055	1.115	0.575	0.609	0.845	0.262	dpm/S	0.170	0.00	0.000000	0.170	15.27%	1
3072058056	0.528	0.476	0.485	0.912	0.287	dpm/S	0.081	0.00	0.000000	0.081	15.39%	1
3072058057	1.781	0.713	0.781	0.992	0.318	dpm/S	0.278	0.00	0.000000	0.278	15.61%	1
3072058058	1.172	0.592	0.628	0.888	0.279	dpm/S	0.183	0.00	0.000000	0.183	15.64%	1
3072058059	-0.059	0.340	0.340	0.948	0.301	dpm/S	-0.009	0.00	0.000000	-0.009	15.36%	1
3072058060	0.019	0.334	0.334	0.881	0.276	dpm/S	0.003	0.00	0.000000	0.003	15.50%	1
LCS12456	3.076	1.035	1.172	1.281	0.403	dpm/S	0.480	0.00	0.000000	0.480	15.61%	1
LCSD12456	2.254	0.893	0.980	1.137	0.349	dpm/S	0.346	0.00	0.000000	0.346	15.37%	1

Qu 1/17/12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12456
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

Gross Beta Results

Sample ID	Beta Activity	Two-Sigma Count Uncertainty	Two-Sigma CSU	MDC	Critical Value	Units	Beta Net CPM	Residue (mg)	Alpha to Beta Xtlk CPM	Xtlk corr. Net beta CPM	Beta eff	Activity Conversion
458968	-0.113	0.261	0.262	0.676	0.235	dpm/S	-0.065	0.00	-0.013517	-0.052	45.78%	1
3072058041	0.156	0.316	0.317	0.694	0.242	dpm/S	0.110	0.00	0.039951	0.070	44.61%	1
3072058042	0.478	0.332	0.343	0.657	0.228	dpm/S	0.233	0.00	0.018632	0.214	44.74%	1
3072058043	-0.176	0.245	0.247	0.654	0.227	dpm/S	-0.079	0.00	-0.000335	-0.079	44.69%	1
3072058044	0.829	0.357	0.387	0.587	0.201	dpm/S	0.439	0.00	0.068987	0.370	44.70%	1
3072058045	0.267	0.299	0.303	0.619	0.214	dpm/S	0.164	0.00	0.041487	0.122	45.83%	1
3072058046	0.015	0.265	0.265	0.637	0.220	dpm/S	0.012	0.00	0.005144	0.007	44.64%	1
3072058047	1.114	0.417	0.462	0.719	0.251	dpm/S	0.530	0.00	0.032292	0.498	44.66%	1
3072058048	0.149	0.290	0.291	0.656	0.227	dpm/S	0.067	0.00	0.002008	0.065	43.92%	1
3072058049	0.597	0.340	0.356	0.641	0.222	dpm/S	0.285	0.00	0.019331	0.265	44.42%	1
3072058050	0.514	0.317	0.330	0.596	0.205	dpm/S	0.253	0.00	0.025697	0.227	44.19%	1
3072058051	0.607	0.335	0.352	0.619	0.214	dpm/S	0.314	0.00	0.035258	0.278	45.83%	1
3072058052	0.804	0.367	0.394	0.637	0.220	dpm/S	0.412	0.00	0.052996	0.359	44.64%	1
3072058053	0.276	0.333	0.337	0.719	0.251	dpm/S	0.138	0.00	0.014931	0.123	44.66%	1
3072058054	0.122	0.290	0.290	0.656	0.227	dpm/S	0.067	0.00	0.013821	0.054	43.92%	1
3072058055	1.047	0.393	0.436	0.641	0.222	dpm/S	0.526	0.00	0.061354	0.465	44.42%	1
3072058056	0.827	0.375	0.403	0.676	0.235	dpm/S	0.410	0.00	0.031114	0.379	45.78%	1
3072058057	2.573	0.522	0.696	0.643	0.222	dpm/S	1.243	0.00	0.102799	1.140	44.32%	1
3072058058	1.719	0.465	0.558	0.694	0.242	dpm/S	0.835	0.00	0.067610	0.767	44.61%	1
3072058059	0.334	0.288	0.294	0.596	0.205	dpm/S	0.145	0.00	-0.003111	0.148	44.19%	1
3072058060	-0.004	0.270	0.270	0.657	0.228	dpm/S	-0.001	0.00	0.001055	-0.002	44.74%	1
LCSD12456	9.522	1.027	1.989	0.820	0.279	dpm/S	4.419	0.00	0.166670	4.252	44.66%	1
LCSD12456	9.413	1.012	1.965	0.722	0.242	dpm/S	4.257	0.00	0.122734	4.134	43.92%	1

M 7/17/12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12456
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

Analyst: MBT
PrepSOP1: PGR-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

CSU Factors (2 Sigma)
UE1 6.71%
UE2 13.23%
UE3 10.00%
UE4 0.00%

Det No.	Effective Calibration Date			Alpha Efficiency	Alpha to Beta Cross-Talk			Beta Efficiency	Alpha-to-Beta Cross-Talk			Beta to Alpha Cross-Talk			Beta Eff. ax + b	Beta-to-Alpha Xtalk : ax + b			Alpha Bkg	Beta Bkg	Alpha Bkg	Beta Bkg	BKG 1 Date:	BKG 2 Date:	7/13/2012	
	a	b	c		d	e	a		b	c	d	e	a	b		c	d	e								a
1				1.4256E-01																						
2				1.5524E-01																						
3				1.5070E-01																						
4				1.4437E-01																						
5				#N/A																						
6				#N/A																						
7				1.5705E-01																						
8				1.4091E-01																						
9				1.3453E-01																						
10				#N/A																						
11				1.5103E-01																						
12				1.5319E-01																						
13				1.4959E-01																						
14				1.5721E-01																						
15				1.5605E-01																						
16				1.5365E-01																						
17				1.5472E-01																						
18				1.5273E-01																						
19				1.5393E-01																						
20				1.5610E-01																						
21				1.5130E-01																						
22				1.5360E-01																						
23				1.5699E-01																						
24				#N/A																						
25				1.5898E-01																						
26				1.5743E-01																						
27				1.5803E-01																						

07/17/12

07/17/12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12456
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

CSU Factors (2 Sigma)
UE1 6.71%
UE2 13.23%
UE3 10.00%
UE4 0.00%

Det No.	Effective Calibration Date				Alpha to Beta Cross-Talk				Alpha to Beta Cross-Talk				Beta Eff: ax + b				Beta-to-Alpha Xtalk: ax + b				BKG 1 Date		BKG 2 Date			
	a	b	c	d	a	b	c	d	a	b	c	d	a	b	c	d	a	b	c	d	Alpha Bkg	Beta Bkg	Alpha Bkg	Beta Bkg	6/3/2012	7/13/2012
28																										
29																										
30																										
31																										
32																										
33																										
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53																										

M=1070

2/11/12
JAC

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

CSU Analysis for Preparation

Planchet Weighing

uncert (g)	gross (g)	tare (g)	net (g)	CSU (g)	
0.0003	9.1463	9.1273	0.019	0.000424264	2.23%

Volume Aliquot

(mL)	vol (mL)	rel unc
1.00	100.0	1.00%

Description	relative	of Critical	CSU for Preparation (UE1) 6.71%	
			Uncertainty	Uncertainty
Sample Aliquoting	1.00%	1	1.00%	0.01%
Planchet Weighing	2.23%	2	3.16%	0.10%
Sample transfer to planchet	3.00%	1	3.00%	0.09%
Additional Uncertainty due to differences in the distribution of residue on the planchet	5.00%	1	5.00%	0.25%

CSU Analysis for Analysis

Mass Aliquot

	Ref mass	uncert (g)	Rel unc
Tare	5	0.0004	
Gross	6	0.0004	Use max of 1%
net	1	0.000565685	0.057%

Description	Maximum	of Critical	CSU for Analysis (UE2) 13.23%	
			Uncertainty	Uncertainty
SRM Uncertainty	5.00%	1	5.00%	0.25%
Mass transfer	0.06%	2	0.08%	0.00%
Source Reproducibility	5.00%	1	5.00%	0.25%
Curve Fitting Uncertainty	5.00%	1	5.00%	0.25%
Estimated Additional Uncertainty (variations in efficiency and self-absorption due to chemical composition of residue)	10.00%	1	10.00%	1.00%

CSU Analysis for Yield Correction

Description	Maximum	of Critical	CSU for Yield (UE3) 10.00%	
			Uncertainty	Uncertainty
Additional Sample Uncertainty due to analysis without a tracer or chemical carrier	10.00%	1	10.00%	1.00%

4/11/12
2/20

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

SAMPLE_ID	Det#	BEG_DATE	BATCH_ID	ACPM	BCPM	CNT_TIME
458968	19	7/10/2012 18:24	GAB12456	0.041666667	0.391666667	120
3072058041	23	7/10/2012 18:24	GAB12456	0.183333333	0.566666667	120
3072058042	30	7/10/2012 18:25	GAB12456	0.125	0.641666667	120
3072058043	34	7/10/2012 18:25	GAB12456	0.075	0.325	120
3072058044	37	7/10/2012 18:25	GAB12456	0.258333333	0.758333333	120
3072058045	12	7/10/2012 18:59	GAB12456	0.2	0.541666667	120
3072058046	14	7/10/2012 18:59	GAB12456	0.083333333	0.391666667	120
3072058047	15	7/10/2012 18:59	GAB12456	0.175	1.025	120
3072058048	16	7/10/2012 18:59	GAB12456	0.066666667	0.458333333	120
3072058049	18	7/10/2012 18:59	GAB12456	0.116666667	0.666666667	120
3072058050	29	7/10/2012 19:00	GAB12456	0.158333333	0.575	120
3072058051	12	7/10/2012 21:33	GAB12456	0.183333333	0.691666667	120
3072058052	14	7/10/2012 21:33	GAB12456	0.216666667	0.791666667	120
3072058053	15	7/10/2012 21:33	GAB12456	0.125	0.633333333	120
3072058054	16	7/10/2012 21:34	GAB12456	0.1	0.458333333	120
3072058055	18	7/10/2012 21:34	GAB12456	0.233333333	0.908333333	120
3072058056	19	7/10/2012 21:34	GAB12456	0.158333333	0.866666667	120
3072058057	20	7/10/2012 21:34	GAB12456	0.375	1.625	120
3072058058	23	7/10/2012 21:34	GAB12456	0.258333333	1.291666667	120
3072058059	29	7/10/2012 21:34	GAB12456	0.075	0.466666667	120
3072058060	30	7/10/2012 21:34	GAB12456	0.075	0.408333333	120
LCS12456	15	7/17/2012 9:18	GAB12456	0.6	4.888888889	90
LCSD12456	16	7/17/2012 9:18	GAB12456	0.433333333	4.6	90

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LCSD12456	7/17/2012 9:18:27 AM	16	GAB12456	0.433	4.6000	90.0
LCS12456	7/17/2012 9:18:21 AM	15	GAB12456	0.600	4.8889	90.0
3072058060	7/10/2012 9:34:51 PM	30	GAB12456	0.075	0.4083	120.0
3072058059	7/10/2012 9:34:45 PM	29	GAB12456	0.075	0.4667	120.0
3072058058	7/10/2012 9:34:38 PM	23	GAB12456	0.258	1.2917	120.0
3072058057	7/10/2012 9:34:28 PM	20	GAB12456	0.375	1.6250	120.0
3072058056	7/10/2012 9:34:23 PM	19	GAB12456	0.158	0.8667	120.0
3072058055	7/10/2012 9:34:09 PM	18	GAB12456	0.233	0.9083	120.0
3072058054	7/10/2012 9:34:04 PM	16	GAB12456	0.100	0.4583	120.0
3072058053	7/10/2012 9:33:59 PM	15	GAB12456	0.125	0.6333	120.0
3072058052	7/10/2012 9:33:54 PM	14	GAB12456	0.217	0.7917	120.0
3072058051	7/10/2012 9:33:49 PM	12	GAB12456	0.183	0.6917	120.0
3072058050	7/10/2012 7:00:02 PM	29	GAB12456	0.158	0.5750	120.0
3072058049	7/10/2012 6:59:46 PM	18	GAB12456	0.117	0.6667	120.0
3072058048	7/10/2012 6:59:36 PM	16	GAB12456	0.067	0.4583	120.0
3072058047	7/10/2012 6:59:31 PM	15	GAB12456	0.175	1.0250	120.0

2/1/12
MB

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
3072058046	7/10/2012 6:59:24 PM	14	GAB12456	0.083	0.3917	120.0
3072058045	7/10/2012 6:59:17 PM	12	GAB12456	0.200	0.5417	120.0
3072058044	7/10/2012 6:25:29 PM	37	GAB12456	0.258	0.7583	120.0
3072058043	7/10/2012 6:25:18 PM	34	GAB12456	0.075	0.3250	120.0
3072058042	7/10/2012 6:25:06 PM	30	GAB12456	0.125	0.6417	120.0
3072058041	7/10/2012 6:24:45 PM	23	GAB12456	0.183	0.5667	120.0
458968	7/10/2012 6:24:32 PM	19	GAB12456	0.042	0.3917	120.0

Dr
7/17/12

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/ time	Analyst	Re-Analysis Code	Comments
GABF	48	3072058025	12455	300	7/10/12	A	NA	
	49	026						
	50	027			1615			
	51	028						
	52	029						
	53	030						
GAB	29	3072058013	GAB 12454	120	7/10/12 16:59	BSH		
	12	014						
	14	015						
	15	016						
	16	017						
	18	018						
	20	019			7/10/12 17:13			
	33	020			17:14			
	19	4158968	GAB 12456	120	7/10/12 18:25	BSH	NA	
	23	3072058041						
	30	042						
	34	043						
	37	044						
	12	045			7/10/12 19:00			
	14	046						
	15	047						
	16	048						
	18	049						

- Legend:**
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
GAS	29	3072058050	GAB12456	120	7/10/12 1900	BSH	NA	NA
	12	051			7/10/12 2134			
	14	052						
	15	053						
	16	054						
	18	055						
	19	056						
	20	057						
	23	058						
	29	059						
	30	060						
	32	W012407	NS12407	90	7/11/12 0530		NA	NA
	35	W01						
	31	30729800120						
	14	307221401	GAB12527	180				
	16	307225501120		90				
	15	307220001	GAB12443					
	18	2						
	19	307259001	GAB12570	120				
	20	3072598001120		90				
	23	307251401	GAB12537	200				
	30	307240007		250				
	12	307252001		220				
	28	121		240				

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

2/12/12
BSH

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 25-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
WAB	12	3541020010	WAB12033	90	7/17/12	J	WAB	
J	14	3541020015	J	140	J	J	J	
J	15	101917001	J	90	J	J	J	
GAB	14	40038	GAB12037	90	7/9/12 0737	C	40	Sample added to Bank
J	32	307208001	J	J	7/10/12 0839	J	J	
J	35	307208002	J	J	7/10/12 0831	J	J	
J	3	307208003	J	J	7/10/12 0844	J	J	
GAB	15	LOS#1-12454	GAB12456	90	7-17-12 0915	MUST	NA	NA
J	16	LOS#2-12456	J	J	J	J	J	
J	17	LOS#3-12458	GAB12458	90	J	J	J	
J	18	LOS#4-12458	J	J	J	J	J	
J	19	3072080019	GAB12459	110	7-17-12 0928	MUST	NA	
J	20	458981	GAB12467	120	J	J	J	MDC
J	21	3072085083	GAB12468	110	J	J	J	MDC
J	22	J 87	J	100120	J	J	J	MDC
J	29	3072085093	GAB12468	110	J	J	J	MDC
J	31	3072080008	GAB12469	120	J	J	J	NA
J	33	J 010	J	120	J	J	J	
J	34	3072080011	J	100	J	J	J	
J	36	J 12	J	130	J	J	J	
J	37	J 13	J	90	J	J	J	
J	38	J 14	J	150	J	J	J	
GAB	23	3072080015	GAB12469	100	07-17-12 0949	MUST	NA	NA
J	27	J 110	J	J	J	MUST	J	

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

2/17/12
BR

Gross Alpha and Beta Sample Analysis Data

Quality Control Review



Batch RADC/12457 HBN 91027
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

1 458969-BLANK for HBN 91027 [RADC/1245

Type BLANK Matrix Impact Plate Collected % Moisture
 Client QCACCOUNT WO Work ID

Prep Information

Procedure 9000 I Batch RADC/12457 Prep Date 7/11/2012 08:13 Dilution
 Method EPA 900.0m HBN 91027 Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795637 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 08:13 Dilution
 Method EPA 900.0m Col ID Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795637 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL
Rad Chemistry	OK				
Gross Alpha	OK	-0.376U ± 0.257 (0.674)	pCi/sa -0.376U ± 0.257 (0.674)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					
Gross Beta	OK	0.080U ± 0.314 (0.670)	pCi/sa 0.080U ± 0.314 (0.670)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					

2 3072058061-2540-SU3-2D

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

Prep Information

Procedure 9000 I Batch RADC/12457 Prep Date 7/11/2012 08:13 Dilution
 Method EPA 900.0m HBN 91027 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783994 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 08:13 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783994 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.185U ± 0.274 (0.563)	pCi/sa 0.185U ± 0.274 (0.563)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12457 HBN 91027
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

2 3072058061-2540-SU3-2D

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Beta	OK	0.355J ± 0.309 (0.611)	pCi/sa 0.355J ± 0.309 (0.611)			pCi/sam	

The lab does not hold TNI accreditation for this parameter.

3 3072058062-2540-SU3-3

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

Prep Information

Procedure 9000 I Batch RADC/12457 Prep Date 7/11/2012 08:13 Dilution
 Method EPA 900.0m HBN 91027 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783996 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 08:13 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783996 File CC OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.191U ± 0.313 (0.650)	pCi/sa 0.191U ± 0.313 (0.650)			pCi/sam	

The lab does not hold TNI accreditation for this parameter.

Gross Beta	OK	-0.898U ± 0.391 (0.835)	pCi/sa -0.898U ± 0.391 (0.835)			pCi/sam	
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The lab does not hold TNI accreditation for this parameter.

4 3072058063-2540-SU3-4

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

Prep Information

Procedure 9000 I Batch RADC/12457 Prep Date 7/11/2012 08:13 Dilution
 Method EPA 900.0m HBN 91027 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783998 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12457 HBN 91027
 Rule 9000 i Status RE
 Create Date 6/28/2012 Analyst MBT

4 3072058063-2540-SU3-4

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 08:13 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2783998 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	-0.587U ± 0.330 (0.844)	pCi/sa -0.587U ± 0.330 (0.844)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.147U ± 0.277 (0.615)	pCi/sa -0.147U ± 0.277 (0.615)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

5 3072058064-2540-SU3-5

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12457 Prep Date 7/11/2012 08:13 Dilution
 Method EPA 900.0m HBN 91027 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784000 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 08:13 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784000 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.965 ± 0.393 (0.531)	pCi/sa 0.965 ± 0.393 (0.531)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.780 ± 0.369 (0.652)	pCi/sa 0.780 ± 0.369 (0.652)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

6 3072058065-2540-SU3-6

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12457 HBN 91027
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

6 3072058065-2540-SU3-6

Prep Information

Procedure 9000 I **Batch** RADC/12457 **Prep Date** 7/11/2012 08:13 **Dilution**
Method EPA 900.0m **HBN** 91027 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784002 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/11/2012 08:13 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784002 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.519J ± 0.356 (0.645)	pCi/sa 0.519J ± 0.356 (0.645)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.309U ± 0.392 (0.845)	pCi/sa -0.309U ± 0.392 (0.845)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

7 3072058066-2540-SU3-7

Type PS **Matrix** Wipe **Collected** 6/14/2012 00:01 **% Moisture**
Client RTI **WO** 3072058 **Work ID** Fort Monmouth 1207071 **Location**

Prep Information

Procedure 9000 I **Batch** RADC/12457 **Prep Date** 7/11/2012 08:13 **Dilution**
Method EPA 900.0m **HBN** 91027 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784004 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/11/2012 08:13 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784004 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	-0.665U ± 0.395 (0.965)	pCi/sa -0.665U ± 0.395 (0.965)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.290J ± 0.352 (0.725)	pCi/sa 0.290J ± 0.352 (0.725)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12457 HBN 91027
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

7 3072058066-2540-SU3-7

8 3072058067-2540-SU3-8

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12457 Prep Date 7/11/2012 08:13 Dilution
 Method EPA 900.0m HBN 91027 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784006 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 08:13 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784006 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.211U ± 0.376 (0.787)	pCi/sa 0.211U ± 0.376 (0.787)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.088U ± 0.341 (0.734)	pCi/sa -0.088U ± 0.341 (0.734)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

9 3072058068-2540-SU3-9

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12457 Prep Date 7/11/2012 08:13 Dilution
 Method EPA 900.0m HBN 91027 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784008 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 08:13 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784008 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12457 HBN 91027
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

9 3072058068-2540-SU3-9

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Alpha	OK	0.112U ± 0.294 (0.632)	pCi/sa 0.112U ± 0.294 (0.632)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.203U ± 0.343 (0.710)	pCi/sa 0.203U ± 0.343 (0.710)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

10 3072058069-2540-SU3-10

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12457 Prep Date 7/11/2012 08:13 Dilution
 Method EPA 900.0m HBN 91027 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784010 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 08:13 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784010 File CC OK F

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.072U ± 0.246 (0.539)	pCi/sa 0.072U ± 0.246 (0.539)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.113U ± 0.309 (0.650)	pCi/sa 0.113U ± 0.309 (0.650)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

11 3072058070-2540-SU3-11

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12457 Prep Date 7/11/2012 08:13 Dilution
 Method EPA 900.0m HBN 91027 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784012 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12457 HBN 91027
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

11 3072058070-2540-SU3-11

Analytical Information

Procedure 9000 I	Instru NONE	Run Date 7/11/2012 08:13	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/11/2012 23:59	Analyst MBT
Schedule 2784012	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.223J ± 0.272 (0.545)	pCi/sa 0.223J ± 0.272 (0.545)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.302J ± 0.341 (0.693)	pCi/sa 0.302J ± 0.341 (0.693)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

12 3072058071-2540-SU3-12

Type PS	Matrix Wipe	Collected 6/14/2012 00:01	% Moisture
Client RTI	WO 3072058	Work ID Fort Monmouth 1207071	Location

Prep Information

Procedure 9000 I	Batch RADC/12457	Prep Date 7/12/2012 07:58	Dilution
Method EPA 900.0m	HBN 91027	Hold Date 12/11/2012 23:59	Analyst MBT
Schedule 2784014	Instru NONE		CC OK F

Initial Volume	1 mL Default	1 mL
Final Volume,	1 mL Default	1 mL

Analytical Information

Procedure 9000 I	Instru NONE	Run Date 7/12/2012 07:58	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/11/2012 23:59	Analyst MBT
Schedule 2784014	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	-0.203U ± 0.275 (0.674)	pCi/sa -0.203U ± 0.275 (0.674)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.519J ± 0.347 (0.670)	pCi/sa 0.519J ± 0.347 (0.670)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

13 3072058072-2540-SU3-13

Type PS	Matrix Wipe	Collected 6/14/2012 00:01	% Moisture
Client RTI	WO 3072058	Work ID Fort Monmouth 1207071	Location

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12457 HBN 91027
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

13 3072058072-2540-SU3-13

Prep Information

Procedure 9000 I **Batch** RADC/12457 **Prep Date** 7/12/2012 07:58 **Dilution**
Method EPA 900.0m **HBN** 91027 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784016 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/12/2012 07:58 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784016 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.242J ± 0.283 (0.563)	pCi/sa 0.242J ± 0.283 (0.563)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.482J ± 0.320 (0.611)	pCi/sa 0.482J ± 0.320 (0.611)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

14 3072058073-2540-SU3-14

Type PS **Matrix** Wipe **Collected** 6/14/2012 00:01 **% Moisture**
Client RTI **WO** 3072058 **Work ID** Fort Monmouth 1207071 **Location**

Prep Information

Procedure 9000 I **Batch** RADC/12457 **Prep Date** 7/12/2012 07:58 **Dilution**
Method EPA 900.0m **HBN** 91027 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784018 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/12/2012 07:58 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784018 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.408J ± 0.344 (0.650)	pCi/sa 0.408J ± 0.344 (0.650)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.821U ± 0.390 (0.835)	pCi/sa -0.821U ± 0.390 (0.835)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12457 HBN 91027
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

14 3072058073-2540-SU3-14

15 3072058074-2540-SU3-15

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

Prep Information

Procedure 9000 I Batch RADC/12457 Prep Date 7/12/2012 07:58 Dilution
 Method EPA 900.0m HBN 91027 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784020 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/12/2012 07:58 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784020 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.672J ± 0.459 (0.844)	pCi/sa 0.672J ± 0.459 (0.844)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.104U ± 0.285 (0.615)	pCi/sa -0.104U ± 0.285 (0.615)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

16 3072058075-2540-SU3-16

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

Prep Information

Procedure 9000 I Batch RADC/12457 Prep Date 7/12/2012 07:58 Dilution
 Method EPA 900.0m HBN 91027 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784022 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/12/2012 07:58 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784022 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12457 HBN 91027
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

16 3072058075-2540-SU3-16

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Alpha	OK	0.442J ± 0.303 (0.531)	pCi/sa 0.442J ± 0.303 (0.531)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.176U ± 0.315 (0.652)	pCi/sa 0.176U ± 0.315 (0.652)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

17 3072058076-2540-SU3-16D

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12457 Prep Date 7/12/2012 07:58 Dilution
 Method EPA 900.0m HBN 91027 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784025 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/12/2012 07:58 Dilution
 Method EPA 900.0m Col ID File Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784025 File CC OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.209U ± 0.313 (0.645)	pCi/sa 0.209U ± 0.313 (0.645)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.624U ± 0.392 (0.845)	pCi/sa -0.624U ± 0.392 (0.845)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

18 3072058077-2540-SU3-17

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12457 Prep Date 7/12/2012 07:58 Dilution
 Method EPA 900.0m HBN 91027 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784027 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12457 HBN 91027
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

18 3072058077-2540-SU3-17

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/12/2012 07:58 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784027 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	-0.508U ± 0.402 (0.965)	pCi/sa -0.508U ± 0.402 (0.965)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.174U ± 0.345 (0.725)	pCi/sa 0.174U ± 0.345 (0.725)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

19 3072058078-2540-SU3-18

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12457 Prep Date 7/12/2012 07:58 Dilution
 Method EPA 900.0m HBN 91027 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784029 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/12/2012 07:58 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784029 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	-0.030U ± 0.349 (0.787)	pCi/sa -0.030U ± 0.349 (0.787)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.157U ± 0.351 (0.734)	pCi/sa 0.157U ± 0.351 (0.734)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

20 3072058079-2540-SU3-19

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12457 HBN 91027
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

20 3072058079-2540-SU3-19

Prep Information

Procedure 9000 I **Batch** RADC/12457 **Prep Date** 7/12/2012 07:58 **Dilution**
Method EPA 900.0m **HBN** 91027 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784031 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/12/2012 07:58 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784031 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.559J ± 0.358 (0.632)	pCi/sa 0.559J ± 0.358 (0.632)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.249U ± 0.347 (0.710)	pCi/sa 0.249U ± 0.347 (0.710)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

21 3072058080-2540-SU3-20

Type PS **Matrix** Wipe **Collected** 6/14/2012 00:01 **% Moisture**
Client RTI **WO** 3072058 **Work ID** Fort Monmouth 1207071 **Location**

Prep Information

Procedure 9000 I **Batch** RADC/12457 **Prep Date** 7/12/2012 07:58 **Dilution**
Method EPA 900.0m **HBN** 91027 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784033 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/12/2012 07:58 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784033 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.518J ± 0.317 (0.539)	pCi/sa 0.518J ± 0.317 (0.539)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.603J ± 0.349 (0.650)	pCi/sa 0.603J ± 0.349 (0.650)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review

Batch	RADC/12457	HBN	91027
Rule	9000 I	Status	RE
Create Date	6/28/2012	Analyst	MBT



21 3072058080-2540-SU3-20

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Gross Alpha and Gross Beta Preparation Sheet

Batch: 12457
 Transfer Analyst: _____
 Prep Date/Time: _____
 Matrix: Filter/Swipe
 Logbook ID: 3-R021-5

Spike Analyst: N/A
 QC ID: a: N/A b: _____
 LCS QC Vol (mL): a: _____ b: _____
 MS/MSD QC Vol (mL): a: _____ b: _____
 Pipette ID: _____

Aliquot Balance ID: N/A
 Aliquot Wgt. Date: _____
 Tare Balance ID: _____
 Tare Wgt. Date: _____
 Gross Balance ID: _____
 Gross Wgt. Date: _____

Bottle ID	Sample No.	Analyst Initials		Analyst Initials		Analyst Initials		Sample Comments
		Tare Mass (g)	5mL Test Mass (g)	Sample Volume (mL)	Gross Mass (g)			
NA	458969	NA	NA	1.0	NA	NA	NA	
1	3072058061							
2	3072058062							
3	3072058063							
4	3072058064							
5	3072058065							
6	3072058066							
7	3072058067							
8	3072058068							
9	3072058069							
10	3072058070							
11	3072058071							
12	3072058072							
13	3072058073							
14	3072058074							
15	3072058075							
16	3072058076							
17	3072058077							
18	3072058078							
19	3072058079							
20	3072058080							
21	45812457							
22	45812457							
23								
24								

Batch Comments: Ludox: _____ 8N HNO₃: _____ Conc HNO₃: NB77-11-12
 Date Placed in oven: / / @ _____ Date Removed: / / @ _____
 Peer Review: _____ Date: _____

7/11/12
 2012

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12457
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012
Reporting Units: dpm

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

Sigma 1.96
Zero Factor 2.71

Sample ID	Aliquot	Units	Tare (g)	Gross (g)	Residue (mg)	Det. ID	Count Date	Alpha Gross CPM	Beta Gross CPM	Count Duration (min)	Alpha Bkg CPM	Beta Bkg CPM	Bkg Count Duration (min)	Req Activity Units
458969	1.00000	S	9.00000	9.00000	0.00	43	7/11/2012 8:13	0.0967	1.1733	300	0.1620	1.1560	1000	dpm
3072058061	1.00000	S	9.00000	9.00000	0.00	44	7/11/2012 8:13	0.1433	1.1600	300	0.1110	0.9900	1000	dpm
3072058062	1.00000	S	9.00000	9.00000	0.00	45	7/11/2012 8:13	0.1733	1.3633	300	0.1410	1.7460	1000	dpm
3072058063	1.00000	S	9.00000	9.00000	0.00	46	7/11/2012 8:13	0.1367	0.8900	300	0.2330	0.9840	1000	dpm
3072058064	1.00000	S	9.00000	9.00000	0.00	47	7/11/2012 8:13	0.2600	1.5733	300	0.0940	1.1670	1000	dpm
3072058065	1.00000	S	9.00000	9.00000	0.00	48	7/11/2012 8:13	0.2600	1.9667	300	0.1650	2.0860	1000	dpm
3072058066	1.00000	S	9.00000	9.00000	0.00	49	7/11/2012 8:13	0.2200	1.4400	300	0.3330	1.3450	1000	dpm
3072058067	1.00000	S	9.00000	9.00000	0.00	50	7/11/2012 8:13	0.2400	1.4300	300	0.2050	1.4600	1000	dpm
3072058068	1.00000	S	9.00000	9.00000	0.00	51	7/11/2012 8:13	0.1700	1.4733	300	0.1500	1.3750	1000	dpm
3072058069	1.00000	S	9.00000	9.00000	0.00	52	7/11/2012 8:13	0.1200	1.2033	300	0.1070	1.1480	1000	dpm
3072058070	1.00000	S	9.00000	9.00000	0.00	53	7/11/2012 8:13	0.1467	1.5500	300	0.1070	1.3970	1000	dpm
3072058071	1.00000	S	9.00000	9.00000	0.00	43	7/12/2012 7:58	0.1267	1.3767	300	0.1620	1.1560	1000	dpm
3072058072	1.00000	S	9.00000	9.00000	0.00	44	7/12/2012 7:58	0.1533	1.2200	300	0.1110	0.9900	1000	dpm
3072058073	1.00000	S	9.00000	9.00000	0.00	45	7/12/2012 7:58	0.2100	1.4067	300	0.1410	1.7460	1000	dpm
3072058074	1.00000	S	9.00000	9.00000	0.00	46	7/12/2012 7:58	0.3433	0.9700	300	0.2330	0.9840	1000	dpm
3072058075	1.00000	S	9.00000	9.00000	0.00	47	7/12/2012 7:58	0.1700	1.2700	300	0.0940	1.1670	1000	dpm
3072058076	1.00000	S	9.00000	9.00000	0.00	48	7/12/2012 7:58	0.2033	1.8033	300	0.1650	2.0860	1000	dpm
3072058077	1.00000	S	9.00000	9.00000	0.00	49	7/12/2012 7:58	0.2467	1.3967	300	0.3330	1.3450	1000	dpm
3072058078	1.00000	S	9.00000	9.00000	0.00	50	7/12/2012 7:58	0.2000	1.5300	300	0.2050	1.4600	1000	dpm
3072058079	1.00000	S	9.00000	9.00000	0.00	51	7/12/2012 7:58	0.2500	1.5167	300	0.1500	1.3750	1000	dpm
3072058080	1.00000	S	9.00000	9.00000	0.00	52	7/12/2012 7:58	0.2000	1.4500	300	0.1070	1.1480	1000	dpm
LCS12457	1.00000	S	9.00000	9.00000	0.00	43	7/11/2012 13:39	0.5333	5.5000	90	0.1620	1.1560	1000	dpm
LCS12457	1.00000	S	9.00000	9.00000	0.00	44	7/11/2012 13:39	0.4111	5.5333	90	0.1110	0.9900	1000	dpm

Mu 7/12/12

FILE

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12457
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

Gross Alpha Results

Sample ID	Alpha Activity	Two-Sigma Count Uncertainty	Two-Sigma CSU	MDC	Critical Value	Units	Alpha Net CPM	Residue (mg)	Beta to Alpha Xilk CPM	Xilk corr. Net alpha CPM	Alpha eff	Activity Conversion
458969	-0.376	0.248	0.257	0.674	0.252	dpm/S	-0.065	0.00	0.000000	-0.065	17.36%	1
3072058061	0.185	0.272	0.274	0.563	0.207	dpm/S	0.032	0.00	0.000000	0.032	17.51%	1
3072058062	0.191	0.311	0.313	0.650	0.241	dpm/S	0.032	0.00	0.000000	0.032	16.90%	1
3072058063	-0.587	0.313	0.330	0.844	0.319	dpm/S	-0.096	0.00	0.000000	-0.096	16.42%	1
3072058064	0.965	0.353	0.393	0.531	0.194	dpm/S	0.166	0.00	0.000000	0.166	17.20%	1
3072058065	0.519	0.344	0.356	0.645	0.241	dpm/S	0.095	0.00	0.000000	0.095	18.31%	1
3072058066	-0.665	0.377	0.395	0.965	0.369	dpm/S	-0.113	0.00	0.000000	-0.113	16.99%	1
3072058067	0.211	0.374	0.376	0.787	0.296	dpm/S	0.035	0.00	0.000000	0.035	16.59%	1
3072058068	0.112	0.293	0.294	0.632	0.235	dpm/S	0.020	0.00	0.000000	0.020	17.88%	1
3072058069	0.072	0.246	0.246	0.539	0.198	dpm/S	0.013	0.00	0.000000	0.013	17.97%	1
3072058070	0.223	0.269	0.272	0.545	0.200	dpm/S	0.040	0.00	0.000000	0.040	17.78%	1
3072058071	-0.203	0.273	0.275	0.674	0.252	dpm/S	-0.035	0.00	0.000000	-0.035	17.36%	1
3072058072	0.242	0.279	0.283	0.563	0.207	dpm/S	0.042	0.00	0.000000	0.042	17.51%	1
3072058073	0.408	0.336	0.344	0.650	0.241	dpm/S	0.069	0.00	0.000000	0.069	16.90%	1
3072058074	0.672	0.443	0.459	0.844	0.319	dpm/S	0.110	0.00	0.000000	0.110	16.42%	1
3072058075	0.442	0.293	0.303	0.531	0.194	dpm/S	0.076	0.00	0.000000	0.076	17.20%	1
3072058076	0.209	0.311	0.313	0.645	0.241	dpm/S	0.038	0.00	0.000000	0.038	18.31%	1
3072058077	-0.508	0.392	0.402	0.965	0.369	dpm/S	-0.086	0.00	0.000000	-0.086	16.99%	1
3072058078	-0.030	0.349	0.349	0.787	0.296	dpm/S	-0.005	0.00	0.000000	-0.005	16.59%	1
3072058079	0.559	0.344	0.358	0.632	0.235	dpm/S	0.100	0.00	0.000000	0.100	17.88%	1
3072058080	0.518	0.303	0.317	0.539	0.198	dpm/S	0.093	0.00	0.000000	0.093	17.97%	1
LCS12457	2.139	0.881	0.960	1.310	0.421	dpm/S	0.371	0.00	0.000000	0.371	17.36%	1
LCSD12457	1.714	0.766	0.825	1.105	0.346	dpm/S	0.300	0.00	0.000000	0.300	17.51%	1

MBT

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12457
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

Gross Beta Results

Sample ID	Beta Activity	Two-Sigma Count Uncertainty	Two-Sigma CSU	MDC	Critical Value	Units	Beta Net CPM	Residue (mg)	Alpha to Beta Xilk CPM	Xilk corr. Net beta CPM	Beta eff	Activity Conversion
458969	0.080	0.314	0.314	0.670	0.263	dpm/S	0.017	0.00	-0.018422	0.036	44.46%	1
3072058061	0.355	0.302	0.309	0.611	0.239	dpm/S	0.170	0.00	0.009457	0.161	45.20%	1
3072058062	-0.898	0.357	0.391	0.835	0.330	dpm/S	-0.383	0.00	0.008582	-0.391	43.55%	1
3072058063	-0.147	0.275	0.277	0.615	0.241	dpm/S	-0.094	0.00	-0.028222	-0.066	44.76%	1
3072058064	0.780	0.342	0.369	0.652	0.256	dpm/S	0.406	0.00	0.048206	0.358	45.90%	1
3072058065	-0.309	0.388	0.392	0.845	0.334	dpm/S	-0.119	0.00	0.025634	-0.145	46.97%	1
3072058066	0.290	0.348	0.352	0.725	0.285	dpm/S	0.095	0.00	-0.033134	0.128	44.19%	1
3072058067	-0.088	0.341	0.341	0.734	0.289	dpm/S	-0.030	0.00	0.009816	-0.040	45.41%	1
3072058068	0.203	0.341	0.343	0.710	0.279	dpm/S	0.098	0.00	0.005605	0.093	45.63%	1
3072058069	0.113	0.308	0.309	0.650	0.255	dpm/S	0.055	0.00	0.003750	0.052	45.67%	1
3072058070	0.302	0.337	0.341	0.693	0.272	dpm/S	0.153	0.00	0.010890	0.142	47.12%	1
3072058071	0.519	0.334	0.347	0.670	0.263	dpm/S	0.221	0.00	-0.009963	0.231	44.46%	1
3072058072	0.482	0.308	0.320	0.611	0.239	dpm/S	0.230	0.00	0.012381	0.218	45.20%	1
3072058073	-0.821	0.361	0.390	0.835	0.330	dpm/S	-0.339	0.00	0.018313	-0.358	43.55%	1
3072058074	-0.104	0.284	0.285	0.615	0.241	dpm/S	-0.014	0.00	0.032323	-0.046	44.76%	1
3072058075	0.176	0.314	0.315	0.652	0.256	dpm/S	0.103	0.00	0.022070	0.081	45.90%	1
3072058076	-0.624	0.376	0.392	0.845	0.334	dpm/S	-0.283	0.00	0.010343	-0.293	46.97%	1
3072058077	0.174	0.344	0.345	0.725	0.285	dpm/S	0.052	0.00	-0.025315	0.077	44.19%	1
3072058078	0.157	0.350	0.351	0.734	0.289	dpm/S	0.070	0.00	-0.001402	0.071	45.41%	1
3072058079	0.249	0.344	0.347	0.710	0.279	dpm/S	0.142	0.00	0.028023	0.114	45.63%	1
3072058080	0.603	0.332	0.349	0.650	0.255	dpm/S	0.302	0.00	0.026828	0.275	45.67%	1
LCS12457	9.535	1.100	2.030	1.253	0.439	dpm/S	4.344	0.00	0.104705	4.239	44.46%	1
LCSD12457	9.859	1.084	2.070	1.146	0.400	dpm/S	4.543	0.00	0.087773	4.456	45.20%	1

MBT

Quality Control Sample Performance Assessment

RCDU Upload



Analyst: MBT
Date: 7/16/2012
Worklist: 12457
Matrix: Filter

Method: EPA 900.0m
SOP: PGH-R-001
MB Sample ID: 458968

Method Blank Assessment		
Analyte	Activity	1.96 Sig Unc.
Gross Alpha	-0.3760	0.2570
Gross Beta	0.0800	0.3140

Laboratory Control Sample Assessment				
Analyte:	Count Date:	Gross Alpha	Gross Beta	Assessment:
Spike Concentration (DPM/Sample):	7/11/12 13:39	12-018-F2	12-014-F3	Pass
Volume Used (mL):	2.353	1.000	1.000	Pass
Aliquot Volume (L, g, F):	1.000	1.000	1.000	Pass
Target Conc. (DPM/Sample, g, F):	2.353	9.803	9.803	Pass
1.96 Sigma Uncertainty (Calculated):	0.138	0.192	0.192	Pass
Result (DPM/Sample, g, F):	2.139	1.714	9.859	Pass
1.96 Sigma Unc:	0.960	0.825	2.030	Pass
% Recovery:	90.91%	72.85%	97.26%	Pass
Assessment:	Pass	Pass	Pass	Pass
Upper % Recovery Limits:	119.00%	119.00%	130.00%	Pass
Lower % Recovery Limits:	62.00%	62.00%	79.00%	Pass

Duplicate Sample Assessment				
Analyte:	Count Date:	Gross Alpha	Gross Beta	Assessment:
Duplicate Sample I.D.:	7/11/12 13:39	12-018-F3	12-014-F3	Pass
Sample Result (DPM/Sample, g, F):	2.139	9.803	9.803	Pass
1.96 Sigma Unc:	0.960	0.825	2.030	Pass
Duplicate Sample I.D.:	7/11/12 13:39	12-018-F3	12-014-F3	Pass
Sample Result (DPM/Sample, g, F):	2.139	9.803	9.803	Pass
1.96 Sigma Unc:	0.960	0.825	2.030	Pass
Relative Percent Difference:	22.06%	3.34%	35.00%	Pass
Assessment:	Pass	Pass	Pass	Pass
% RPD Limit:	35.00%	17.00%	17.00%	Pass

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Am 7/16/12

Sample Matrix Spike Control Assessment	
Analyte:	Sample Collection Date:
	Sample I.D.:
	Sample MS I.D.:
	Sample MSD I.D.:
	Spike I.D.:
MS/MSD Corrected Spike Conc. (DPM/Sample):	
Spike Volume Used in MS (mL):	
Spike Volume Used in MSD (mL):	
MS Aliquot (L, g, F):	
MS Target Conc. (DPM/Sample, g, F):	
MSD Aliquot (L, g, F):	
MSD Target Conc. (DPM/Sample, g, F):	
MSD Spike uncertainty (calculated):	
MSD Spike uncertainty (calculated):	
Sample Result:	
Sample 1.96 Sigma Unc.:	
Sample Matrix Spike Result:	
Sample MS 1.96 Sigma Unc.:	
Sample Matrix Spike Duplicate Result:	
Sample MSD 1.96 Sigma Unc.:	
MS % Recovery:	
MSD % Recovery:	
MS Assessment:	
MSD Assessment:	
MS/MSD Upper % Recovery Limits:	
MS/MSD Lower % Recovery Limits:	
Matrix Spike/Matrix Spike Duplicate Sample Assessment	
Analyte:	
Sample I.D.:	
Sample MS I.D.:	
Sample MSD I.D.:	
Sample Matrix Spike Result:	
Sample Matrix Spike 1.96 Sigma Unc.:	
Sample Matrix Spike Duplicate Result:	
Sample Matrix Spike Duplicate 1.96 Sigma Unc.:	
MS/MSD Relative Percent Difference:	
MS/MSD RPD Assessment:	
% RPD Limit:	

2/16/12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12457
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

Analyst: MBT
PrepSOP1: PGR-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

CSU Factors (2 Sigma)
UE1 6.71%
UE2 13.23%
UE3 10.00%
UE4 0.00%

Det	Effective Calibration Date				Alpha Efficiency	Alpha to Beta Cross-Talk				Beta Efficiency	Alpha-to-Beta Cross-Talk : $ax^4 + bx^3 + cx^2 + dx + e$				Beta Eff $ax + b$				Beta-to-Alpha Xtalk : $ax + b$				BKG 1 Date	BKG 2 Date	7/13/2012	
	a	b	c	d		e	a	b	c		d	e	a	b	c	d	e	a	b	c	d	e				Alpha Bkg
28					1.5536E-01					3.4323E-01					4.3728E-01						0.0810	0.3330	0.1500	0.3480		
29					1.5638E-01					3.4570E-01					4.4186E-01						0.0840	0.3220	0.0630	0.2740		
30					1.5497E-01					3.5154E-01					4.4737E-01						0.0720	0.4090	0.2330	0.4240		
31					1.5353E-01					3.5204E-01					4.4801E-01						0.0890	0.3670	0.0900	0.3660		
32					1.5823E-01					3.3321E-01					4.6019E-01						0.0540	0.4120	0.0530	0.3380		
33					1.6147E-01					3.4680E-01					4.5824E-01						0.0900	0.3870	0.1200	0.4100		
34					1.6117E-01					3.3480E-01					4.4688E-01						0.0760	0.4040	0.1250	0.4480		
35					#N/A					#N/A					#N/A						0.1970	0.3930	0.2070	3.6640		
36					1.4953E-01					3.6039E-01					4.5203E-01						0.0980	0.4070	0.0670	0.3320		
37					1.5981E-01					3.1889E-01					4.4689E-01						0.0420	0.3190	0.2180	0.4600		
38					1.5254E-01					3.4693E-01					4.4279E-01						0.1100	0.3990	0.1040	0.3900		
39					1.7614E-01					2.7763E-01					4.5734E-01						0.0780	12.4760	0.0780	12.4760		
40					1.8176E-01					2.5395E-01					4.5470E-01						0.2530	12.5520	0.2530	12.5520		
41					#N/A					#N/A					#N/A						2.7170	966.8100	2.7170	966.8100		
42					1.4541E-01					4.5586E-01					3.3352E-01						0.2050	9.9000	0.2050	9.9000		
43					1.7384E-01					2.9177E-01					4.4459E-01						0.1620	1.1560	0.1620	1.1560		
44					1.7507E-01					2.9247E-01					4.5195E-01						0.1110	0.9600	0.1110	0.9600		
45					1.6896E-01					2.6541E-01					4.3550E-01						0.1410	1.7460	0.1410	1.7460		
46					1.6416E-01					2.9286E-01					4.4755E-01						0.2330	0.9840	0.2330	0.9840		
47					1.7203E-01					2.9040E-01					4.5901E-01						0.0940	1.1670	0.0940	1.1670		
48					1.8314E-01					2.9935E-01					4.6967E-01						0.1650	2.0880	0.1650	2.0880		
49					1.6983E-01					2.9322E-01					4.4190E-01						0.3330	1.3450	0.3330	1.3450		
50					1.6594E-01					2.8046E-01					4.5406E-01						0.2050	1.4600	0.2050	1.4600		
51					1.7880E-01					2.8023E-01					4.5625E-01						0.1500	1.3750	0.1500	1.3750		
52					1.7970E-01					2.8847E-01					4.5669E-01						0.1070	1.1480	0.1070	1.1480		
53					1.7780E-01					2.7454E-01					4.7119E-01						0.1070	1.3970	0.1070	1.3970		

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Mullika

2/17/12
Jed

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

CSU Analysis for Preparation

Planchet Weighing

uncert (g)	gross (g)	tare (g)	net (g)	CSU (g)	
0.0003	9.1463	9.1273	0.019	0.000424264	2.23%

Volume Aliquot

(mL)	vol (mL)	rel unc
1.00	100.0	1.00%

Description	relative	of Critical	CSU for Preparation (UE1) 6.71%	
			Uncertainty	Uncertainty
Sample Aliquoting	1.00%	1	1.00%	0.01%
Planchet Weighing	2.23%	2	3.16%	0.10%
Sample transfer to planchet	3.00%	1	3.00%	0.09%
Additional Uncertainty due to differences in the distribution of residue on the planchet	5.00%	1	5.00%	0.25%

CSU Analysis for Analysis

Mass Aliquot

	Ref mass	uncert (g)	Rel unc
Tare	5	0.0004	
Gross	6	0.0004	Use max of 1%
net	1	0.000565685	0.057%

Description	Maximum	of Critical	CSU for Analysis (UE2) 13.23%	
			Uncertainty	Uncertainty
SRM Uncertainty	5.00%	1	5.00%	0.25%
Mass transfer	0.06%	2	0.08%	0.00%
Source Reproducibility	5.00%	1	5.00%	0.25%
Curve Fitting Uncertainty	5.00%	1	5.00%	0.25%
Estimated Additional Uncertainty (variations in efficiency and self-absorption due to chemical composition of residue)	10.00%	1	10.00%	1.00%

CSU Analysis for Yield Correction

Description	Maximum	of Critical	CSU for Yield (UE3) 10.00%	
			Uncertainty	Uncertainty
Additional Sample Uncertainty due to analysis without a tracer or chemical carrier	10.00%	1	10.00%	1.00%

2/17/12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Counts

alpha

beta

SAMPLE_ID	Det#	BEG_DATE	BATCH_ID	ACPM	BCPM	CNT_TIME	alpha	beta
458969	43	#####	GAB12457	0.097	1.173	300	29	352
3072058061	44	#####	GAB12457	0.143	1.16	300	43	348
3072058062	45	#####	GAB12457	0.173	1.363	300	52	409
3072058063	46	#####	GAB12457	0.137	0.89	300	41	267
3072058064	47	#####	GAB12457	0.26	1.573	300	78	472
3072058065	48	#####	GAB12457	0.26	1.967	300	78	590
3072058066	49	#####	GAB12457	0.22	1.44	300	66	432
3072058067	50	#####	GAB12457	0.24	1.43	300	72	429
3072058068	51	#####	GAB12457	0.17	1.473	300	51	442
3072058069	52	#####	GAB12457	0.12	1.203	300	36	361
3072058070	53	#####	GAB12457	0.147	1.55	300	44	465
3072058071	43	#####	GAB12457	0.127	1.377	300	38	413
3072058072	44	#####	GAB12457	0.153	1.22	300	46	366
3072058073	45	#####	GAB12457	0.21	1.407	300	63	422
3072058074	46	#####	GAB12457	0.343	0.97	300	103	291
3072058075	47	#####	GAB12457	0.17	1.27	300	51	381
3072058076	48	#####	GAB12457	0.203	1.803	300	61	541
3072058077	49	#####	GAB12457	0.247	1.397	300	74	419
3072058078	50	#####	GAB12457	0.2	1.53	300	60	459
3072058079	51	#####	GAB12457	0.25	1.517	300	75	455
3072058080	52	#####	GAB12457	0.2	1.45	300	60	435
LCS12457	43	#####	GAB12457	0.533	5.5	90	48	495
LCSD12457	44	#####	GAB12457	0.411	5.533	90	37	498

OK
7/17/12



Batch Report

Batch Name: GF12457 Count Date: 7/12/2012 7:58:37 AM
Procedure: GAB Filter Counting Preset Count Time: 18000
Calibration: Water Count Mode: Simultaneous

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
3072058071	43	38	413	7/12/2012 7:58:33 AM	300
3072058072	44	46	366	7/12/2012 7:58:33 AM	300
3072058073	45	63	422	7/12/2012 7:58:33 AM	300
3072058074	46	103	291	7/12/2012 7:58:33 AM	300
3072058075	47	51	381	7/12/2012 7:58:33 AM	300
3072058076	48	61	541	7/12/2012 7:58:33 AM	300
3072058077	49	74	419	7/12/2012 7:58:34 AM	300
3072058078	50	60	459	7/12/2012 7:58:34 AM	300
3072058079	51	75	455	7/12/2012 7:58:34 AM	300
3072058080	52	60	435	7/12/2012 7:58:34 AM	300

2/11/12
7:58



Batch Report

Batch Name: GAB12457 Count Date: 7/11/2012 8:13:25 AM

Procedure: GAB Filter Counting

Preset Count Time: 18000

Calibration: Water

Count Mode: Simultaneous

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
458969	43	29	352	7/11/2012 8:13:23 AM	300
3072058061	44	43	348	7/11/2012 8:13:23 AM	300
3072058062	45	52	409	7/11/2012 8:13:23 AM	300
3072058063	46	41	267	7/11/2012 8:13:23 AM	300
3072058064	47	78	472	7/11/2012 8:13:23 AM	300
3072058065	48	78	590	7/11/2012 8:13:24 AM	300
3072058066	49	66	432	7/11/2012 8:13:24 AM	300
3072058067	50	72	429	7/11/2012 8:13:24 AM	300
3072058068	51	51	442	7/11/2012 8:13:24 AM	300
3072058069	52	36	361	7/11/2012 8:13:24 AM	300
3072058070	53	44	465	7/11/2012 8:13:24 AM	300

2012
7/11/12



Batch Report

Batch Name: GAB12457B

Procedure: GAB Filter Counting

Calibration: Water

Count Date: 7/11/2012 1:39:18 PM

Preset Count Time: 18000

Count Mode: Simultaneous

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
LCS#2-12457	43	48	495	7/11/2012 1:39:15 PM	90.1
LCS#3-12457	44	37	498	7/11/2012 1:39:16 PM	90

7/11/12
201

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
WAB	52	LCSD12570	7A12570	20	7-11-12 7:43	LAL	NA	N/A
WAB	1	458970	GAB12458	130	7-11-12 0808	MBT	NA	NA
	3	3072058081						
	7	82						
	9	83						
WAB	43	458909	GAB12457	300	7-11-12 0813	MBT	NA	NA
	44	3072058041						
	45	W42						
	46	W43						
	47	W44						
	48	W45						
	49	W46						
	50	W47						
	51	W48						
	52	W49						
	53	70						
WAB	15	3072058084	GAB12458	120	7-11-12 0901	MBT	NA	NA
	33	85						
WAB	14	3072058080	GAB12458	120	7-11-12 0905	MBT	NA	NA
	18	87						
	20	88						
	23	89						
	37	90						
	32	3072057001	GAB12570	260	7/11/12 0901		NA	NA

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

Peer Review CEL

Date: 7/11/12

J:\QAQC\Master\Document Management\Radiological\GFPC Run Log (R002-3 7Oct2010).xls

7/11/12

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 25-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
	28	3072514001	GAB 12537	750	7/10/12	BSH	NA	NA → BSH 7/10/12
	38	3072147039	GAB 12536	1000	↓ 18:16	↓	↓	↓
	32	4162648	NJ 12607	180	7/10/12 22:00	BSH	NA	Delayed 22:00
	35	3672980001	↓	↓	↓	↓	↓	↓
GAB	43	LOS#2-12457	GAB 12457	90	7-11-12 13:39	WBT	NA	NA
↓	44	LOS#3-12457	↓	↓	↓	↓	↓	↓
GAB	43	3072058031	GAB 12455	300	7-11-12 15:20	LAL	NA	NA
	44	3072058032	↓	↓	↓	↓	↓	↓
	45	3072058033	↓	↓	↓	↓	↓	↓
	46	3072058034	↓	↓	↓	↓	↓	↓
	47	3072058035	↓	↓	↓	↓	↓	↓
	48	3072058036	↓	↓	↓	↓	↓	↓
	49	3072058037	↓	↓	↓	↓	↓	↓
	50	3072058038	↓	↓	↓	↓	↓	↓
	51	3072058039	↓	↓	↓	↓	↓	↓
	52	3072058040	↓	↓	↓	↓	↓	↓
	25	3072434001	GAB 12537	1000	7/11/12 17:17	BSH	NA	NA
	26	3072567001	↓	↓	↓	↓	↓	↓
	37	3072147030	GAB 12536	1000	7/11/12	BSH	NA	NA BSH
	38	3072447034	↓	↓	↓	↓	↓	↓ 7/11/12
	2	462968	GRP 12608	130	7/11/12 21:04	BSH	NA	NA
	3	3072765001	↓	↓	↓	↓	↓	↓
	4	6001	↓	↓	↓	↓	↓	↓
	5	7001	↓	↓	↓	↓	↓	↓

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-growth
 - 4. Sample was re-prepped
 - 5. Other noted comments

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 25-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
	6	3072768001	GAB 12608	130	7/11/12 21:04	BSH	N/A	N/A
	7	3072769001						
	9	3072944001						
	10	3072733001						
	11	3072750001		110	21:00			
	17	3072909001						
	21	LCS 12608						
	22	LCS 12608						
GAB	43	3072058071	GAB12457	300	7-12-12	MBT	N/A	N/A
	44	72						
	45	73						
	46	74						
	47	75						
	48	76						
	49	77						
	50	78						
	51	79						
	52	80						
	53	3458972	GAB12400		7-12-12	MBT		
GAB	12	458973	GAB12401	120	7-12-12 0745	MBT		N/A
	14	3072000040						
	15	41						
	16	42						
	18	43						

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

Peer Review: MBT Date: 7/12/12

2012/7/12

Gross Alpha and Beta Sample Analysis Data

Quality Control Review



Batch RADC/12458 HBN 91028
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

1 458970-BLANK for HBN 91028 [RADC/1245

Type BLANK Matrix Impact Plate Collected % Moisture
 Client QCACCOUNT WO Work ID

Prep Information

Procedure 9000 I Batch RADC/12458 Prep Date 7/11/2012 08:07 Dilution
 Method EPA 900.0m HBN 91028 Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795640 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 08:07 Dilution
 Method EPA 900.0m Col ID Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795640 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL
Rad Chemistry	OK				
Gross Alpha	OK	-0.014U ± 0.320 (0.870)	pCi/sa -0.014U ± 0.320 (0.870)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					
Gross Beta	OK	0.102U ± 0.369 (0.847)	pCi/sa 0.102U ± 0.369 (0.847)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					

2 3072058081-2540-SU3-21

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

Prep Information

Procedure 9000 I Batch RADC/12458 Prep Date 7/11/2012 08:07 Dilution
 Method EPA 900.0m HBN 91028 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784035 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 08:07 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784035 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.265J ± 0.378 (0.801)	pCi/sa 0.265J ± 0.378 (0.801)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12458 HBN 91028
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

2 3072058081-2540-SU3-21

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Beta	OK	0.384J ± 0.380 (0.795)	pCi/sa 0.384J ± 0.380 (0.795)			pCi/sam	

The lab does not hold TNI accreditation for this parameter.

3 3072058082-2540-SU3-22

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12458 Prep Date 7/11/2012 08:07 Dilution
 Method EPA 900.0m HBN 91028 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784037 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 08:07 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784037 File CC OK F

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.274U ± 0.446 (0.982)	pCi/sa 0.274U ± 0.446 (0.982)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.407J ± 0.388 (0.810)	pCi/sa 0.407J ± 0.388 (0.810)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

4 3072058083-2540-SU3-23

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12458 Prep Date 7/11/2012 08:07 Dilution
 Method EPA 900.0m HBN 91028 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784037 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12458 HBN 91028
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

4 3072058083-2540-SU3-23

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 08:07 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784039 File CC OK F

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.164U ± 0.372 (0.866)	pCi/sa 0.164U ± 0.372 (0.866)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.642J ± 0.406 (0.779)	pCi/sa 0.642J ± 0.406 (0.779)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

5 3072058084-2540-SU3-24

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12458 Prep Date 7/11/2012 09:01 Dilution
 Method EPA 900.0m HBN 91028 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784041 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 09:01 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784041 File CC OK F

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	1.34 ± 0.674 (0.924)	pCi/sa 1.34 ± 0.674 (0.924)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.053U ± 0.323 (0.719)	pCi/sa 0.053U ± 0.323 (0.719)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

6 3072058085-2540-SU3-25

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12458 HBN 91028
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

6 3072058085-2540-SU3-25

Prep Information

Procedure 9000 I **Batch** RADC/12458 **Prep Date** 7/11/2012 09:01 **Dilution**
Method EPA 900.0m **HBN** 91028 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784043 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/11/2012 09:01 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784043 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.578J ± 0.499 (0.929)	pCi/sa 0.578J ± 0.499 (0.929)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.121U ± 0.283 (0.626)	pCi/sa 0.121U ± 0.283 (0.626)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

7 3072058086-2540-SU3-26

Type PS **Matrix** Wipe **Collected** 6/14/2012 00:01 **% Moisture**
Client RTI **WO** 3072058 **Work ID** Fort Monmouth 1207071 **Location**

Prep Information

Procedure 9000 I **Batch** RADC/12458 **Prep Date** 7/11/2012 09:04 **Dilution**
Method EPA 900.0m **HBN** 91028 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784045 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/11/2012 09:04 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784045 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.038U ± 0.329 (0.853)	pCi/sa 0.038U ± 0.329 (0.853)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.003U ± 0.263 (0.637)	pCi/sa 0.003U ± 0.263 (0.637)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12458 HBN 91028
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

7 3072058086-2540-SU3-26

8 3072058087-2540-SU3-26D

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

Prep Information

Procedure 9000 I Batch RADC/12458 Prep Date 7/11/2012 09:04 Dilution
 Method EPA 900.0m HBN 91028 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784052 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 09:04 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784052 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.515J ± 0.462 (0.845)	pCi/sa 0.515J ± 0.462 (0.845)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.164U ± 0.294 (0.641)	pCi/sa 0.164U ± 0.294 (0.641)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

9 3072058088-2540-SU3-27

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

Prep Information

Procedure 9000 I Batch RADC/12458 Prep Date 7/11/2012 09:10 Dilution
 Method EPA 900.0m HBN 91028 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784054 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 09:10 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784054 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12458 HBN 91028
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

9 3072058088-2540-SU3-27

Analyte	CC	Posted		MDL	RDL	Reg. Limits
		Result	Result			
Gross Alpha	OK	-0.141U ± 0.338 (0.992)	pCi/sa -0.141U ± 0.338 (0.992)			pCi/sam
The lab does not hold TNI accreditation for this parameter.						
Gross Beta	OK	0.209U ± 0.291 (0.643)	pCi/sa 0.209U ± 0.291 (0.643)			pCi/sam
The lab does not hold TNI accreditation for this parameter.						

10 3072058089-2540-SU3-28

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12458 Prep Date 7/11/2012 09:05 Dilution
 Method EPA 900.0m HBN 91028 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784056 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Analyte	CC	Posted		MDL	RDL	Reg. Limits
		Result	Result			
Rad Chemistry	OK					
Gross Alpha	OK	0.213U ± 0.394 (0.888)	pCi/sa 0.213U ± 0.394 (0.888)			pCi/sam
The lab does not hold TNI accreditation for this parameter.						
Gross Beta	OK	-0.099U ± 0.278 (0.694)	pCi/sa -0.099U ± 0.278 (0.694)			pCi/sam
The lab does not hold TNI accreditation for this parameter.						

11 3072058090-2540-SU3-29

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12458 Prep Date 7/11/2012 09:05 Dilution
 Method EPA 900.0m HBN 91028 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784056 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12458 HBN 91028
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

11 3072058090-2540-SU3-29

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 09:05 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784058 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	1.46 ± 0.647 (0.686)	pCi/sa 1.46 ± 0.647 (0.686)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.444J ± 0.327 (0.587)	pCi/sa 0.444J ± 0.327 (0.587)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

12 3072058091-2540-SU3-30

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12458 Prep Date 7/11/2012 09:29 Dilution
 Method EPA 900.0m HBN 91028 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784060 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 09:29 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784060 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.934 ± 0.573 (0.881)	pCi/sa 0.934 ± 0.573 (0.881)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.388J ± 0.338 (0.657)	pCi/sa 0.388J ± 0.338 (0.657)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

13 3072058092-2540-SU3-31

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12458 HBN 91028
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

13 3072058092-2540-SU3-31

Prep Information

Procedure 9000 I **Batch** RADC/12458 **Prep Date** 7/11/2012 09:37 **Dilution**
Method EPA 900.0m **HBN** 91028 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784062 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/11/2012 09:37 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784062 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.041U ± 0.354 (0.912)	pCi/sa 0.041U ± 0.354 (0.912)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.271J ± 0.316 (0.676)	pCi/sa 0.271J ± 0.316 (0.676)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

14 3072058093-2540-SU3-32

Type PS **Matrix** Wipe **Collected** 6/14/2012 00:01 **% Moisture**
Client RTI **WO** 3072058 **Work ID** Fort Monmouth
 1207071 **Location**

Prep Information

Procedure 9000 I **Batch** RADC/12458 **Prep Date** 7/11/2012 09:42 **Dilution**
Method EPA 900.0m **HBN** 91028 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784064 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/11/2012 09:42 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784064 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.452J ± 0.486 (0.972)	pCi/sa 0.452J ± 0.486 (0.972)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.075U ± 0.273 (0.623)	pCi/sa 0.075U ± 0.273 (0.623)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12458 HBN 91028
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

14 3072058093-2540-SU3-32

15 3072058094-2540-SU3-33

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

Prep Information

Procedure 9000 I Batch RADC/12458 Prep Date 7/11/2012 09:42 Dilution
 Method EPA 900.0m HBN 91028 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784066 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 09:42 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784066 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.201U ± 0.382 (0.866)	pCi/sa 0.201U ± 0.382 (0.866)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.284J ± 0.312 (0.654)	pCi/sa 0.284J ± 0.312 (0.654)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

16 3072058095-2540-SU3-34

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

Prep Information

Procedure 9000 I Batch RADC/12458 Prep Date 7/11/2012 10:22 Dilution
 Method EPA 900.0m HBN 91028 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784068 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 10:22 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784068 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12458 HBN 91028
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

16 3072058095-2540-SU3-34

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Alpha	OK	-0.113U ± 0.323 (0.948)	pCi/sa -0.113U ± 0.323 (0.948)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.303J ± 0.288 (0.596)	pCi/sa 0.303J ± 0.288 (0.596)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

17 3072058096-2540-SU3-35

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12458 Prep Date 7/11/2012 17:09 Dilution
 Method EPA 900.0m HBN 91028 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784070 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 17:09 Dilution
 Method EPA 900.0m CoI ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784070 File CC OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						
Gross Alpha	OK	-0.013U ± 0.337 (0.912)	pCi/sa -0.013U ± 0.337 (0.912)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.187U ± 0.304 (0.676)	pCi/sa 0.187U ± 0.304 (0.676)			pCi/sam	
The lab does not hold TNI accreditation for this parameter.							

18 3072058097-2540-SU3-36

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth 1207071 Location

Prep Information

Procedure 9000 I Batch RADC/12458 Prep Date 7/11/2012 10:20 Dilution
 Method EPA 900.0m HBN 91028 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784072 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12458 HBN 91028
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

18 3072058097-2540-SU3-36

Analytical Information

Procedure 9000 I	Instru NONE	Run Date 7/11/2012 10:20	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/11/2012 23:59	Analyst MBT
Schedule 2784072	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	-0.014U ± 0.320 (0.870)	pCi/sa -0.014U ± 0.320 (0.870)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.449J ± 0.405 (0.847)	pCi/sa 0.449J ± 0.405 (0.847)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

19 3072058098-2540-SU3-37

Type PS	Matrix Wipe	Collected 6/14/2012 00:01	% Moisture
Client RTI	WO 3072058	Work ID Fort Monmouth 1207071	Location

Prep Information

Procedure 9000 I	Batch RADC/12458	Prep Date 7/11/2012 10:20	Dilution
Method EPA 900.0m	HBN 91028	Hold Date 12/11/2012 23:59	Analyst MBT
Schedule 2784074	Instru NONE		CC OK F

Initial Volume	1 mL Default	1 mL
Final Volume,	1 mL Default	1 mL

Analytical Information

Procedure 9000 I	Instru NONE	Run Date 7/11/2012 10:20	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/11/2012 23:59	Analyst MBT
Schedule 2784074	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	0.060U ± 0.316 (0.801)	pCi/sa 0.060U ± 0.316 (0.801)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.090U ± 0.345 (0.795)	pCi/sa 0.090U ± 0.345 (0.795)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

20 3072058099-2540-SU3-38

Type PS	Matrix Wipe	Collected 6/14/2012 00:01	% Moisture
Client RTI	WO 3072058	Work ID Fort Monmouth 1207071	Location

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12458 HBN 91028
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

20 3072058099-2540-SU3-38

Prep Information

Procedure 9000 I Batch RADC/12458 Prep Date 7/11/2012 10:20 Dilution
 Method EPA 900.0m HBN 91028 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784076 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 10:20 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784076 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	-0.191U ± 0.332 (0.982)	pCi/sa -0.191U ± 0.332 (0.982)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.184U ± 0.323 (0.810)	pCi/sa -0.184U ± 0.323 (0.810)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

21 3072058100-2540-SU3-38D

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

Prep Information

Procedure 9000 I Batch RADC/12458 Prep Date 7/11/2012 10:20 Dilution
 Method EPA 900.0m HBN 91028 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784078 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 10:20 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784078 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	-0.067U ± 0.295 (0.866)	pCi/sa -0.067U ± 0.295 (0.866)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.441J ± 0.378 (0.779)	pCi/sa 0.441J ± 0.378 (0.779)		pCi/sam		
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review

Batch	RADC/12458	HBN	91028
Rule	9000 I	Status	RE
Create Date	6/28/2012	Analyst	MBT



21	3072058100-2540-SU3-38D
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** Indicates QC failure. For example, blank contamination or recoveries out of range.

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Creation Date 06/28/2012 13:03 Assigned Analyst MBT
Batch ID 12458 Earliest Due Date 07/04/2012 07:12
A-code 9000 I 9000W or NJ HBN
Method EPA 900.0m EPA 900.0 or NJAC7186

Workorder	Sample ID	Sample Type	Matrix	Collection Date/Time	Client ID	Alpha Activity	Alpha Unc.	Alpha MDC	Beta Activity	Beta Unc.	Beta MDC	Analysis Date/Time	Alpha	Beta
	458970	BLANK	IP		QCACCOUNT	-0.014U	0.320	0.870	0.102U	0.369	0.847	7/11/12 8:07		
3072058	3072058081	PS	WP	6/14/2012 0:01	RTI	0.265J	0.378	0.801	0.384J	0.380	0.795	7/11/12 8:07		
3072058	3072058082	PS	WP	6/14/2012 0:01	RTI	0.274U	0.446	0.982	0.407J	0.388	0.810	7/11/12 8:07		
3072058	3072058083	PS	WP	6/14/2012 0:01	RTI	0.164U	0.372	0.866	0.642J	0.406	0.779	7/11/12 8:07		
3072058	3072058084	PS	WP	6/14/2012 0:01	RTI	1.34	0.674	0.924	0.053U	0.323	0.719	7/11/12 9:01		
3072058	3072058085	PS	WP	6/14/2012 0:01	RTI	0.578J	0.499	0.929	0.121U	0.283	0.626	7/11/12 9:01		
3072058	3072058086	PS	WP	6/14/2012 0:01	RTI	0.038U	0.329	0.853	0.003U	0.263	0.637	7/11/12 9:04		
3072058	3072058087	PS	WP	6/14/2012 0:01	RTI	0.515J	0.462	0.845	0.164U	0.294	0.641	7/11/12 9:04		
3072058	3072058088	PS	WP	6/14/2012 0:01	RTI	-0.141U	0.338	0.992	0.209U	0.291	0.643	7/11/12 9:10		
3072058	3072058089	PS	WP	6/14/2012 0:01	RTI	0.213U	0.394	0.888	-0.099U	0.278	0.694	7/11/12 9:05		
3072058	3072058090	PS	WP	6/14/2012 0:01	RTI	1.46	0.647	0.886	0.444J	0.327	0.587	7/11/12 9:05		
3072058	3072058091	PS	WP	6/14/2012 0:01	RTI	0.934	0.573	0.881	0.388J	0.338	0.657	7/11/12 9:29		
3072058	3072058092	PS	WP	6/14/2012 0:01	RTI	0.041U	0.354	0.912	0.271J	0.316	0.676	7/11/12 9:37		
3072058	3072058093	PS	WP	6/14/2012 0:01	RTI	0.452J	0.486	0.972	0.075U	0.273	0.623	7/11/12 9:42		
3072058	3072058094	PS	WP	6/14/2012 0:01	RTI	0.201U	0.382	0.866	0.284J	0.312	0.654	7/11/12 9:42		
3072058	3072058095	PS	WP	6/14/2012 0:01	RTI	-0.113U	0.323	0.948	0.303J	0.288	0.596	7/11/12 10:22		
3072058	3072058096	PS	WP	6/14/2012 0:01	RTI	-0.013U	0.337	0.912	0.187U	0.304	0.676	7/11/12 17:09		
3072058	3072058097	PS	WP	6/14/2012 0:01	RTI	-0.014U	0.320	0.870	0.449J	0.405	0.847	7/11/12 10:20		
3072058	3072058098	PS	WP	6/14/2012 0:01	RTI	0.060U	0.316	0.801	0.090U	0.345	0.795	7/11/12 10:20		
3072058	3072058099	PS	WP	6/14/2012 0:01	RTI	-0.191U	0.332	0.982	-0.184U	0.323	0.810	7/11/12 10:20		
3072058	3072058100	PS	WP	6/14/2012 0:01	RTI	-0.067U	0.295	0.866	0.441J	0.378	0.779	7/11/12 10:20		

* This indicates a possible MCL exceedance may exist for this sample. Results greater than 15.0 pCi/L gross alpha must be reviewed expeditiously and the PM, Radchem Supervisor, and QA Manager notified immediately upon validation of the result. If the gross beta result is above 50 pCi/L, this may also indicate a reportable exceedance.

Am 7/17/12

202

Gross Alpha and Gross Beta Preparation Sheet

Batch: 12458
 Transfer Analyst:
 Prep Date/Time:
 Matrix: Wipe Filter
 Logbook ID: 3-R021-5

Spike Analyst: NA
 QC ID: a: NA b:
 LCS QC Vol (mL): a: b:
 MSMSD QC Vol (mL): a: b:
 Pipette ID:

Aliquot Balance ID: NA
 Aliquot Wgt. Date:
 Tare Balance ID:
 Tare Wgt. Date:
 Gross Balance ID:
 Gross Wgt. Date:

Bottle ID	Sample No.	Analyst Initials		Analyst Initials		Analyst Initials		Analyst Initials		Sample Comments
		Tare Mass (g)	5mL Test Mass (g)	Sample Volume (mL)	Gross Mass (g)					
NA	458970	NA	NA	1.0	NA					
1	3072058081									
2	N 082									
3	083									
4	084									
5	085									
6	086									
7	087									
8	088									
9	089									
10	090									
11	091									
12	092									
13	093									
14	094									
15	095									
16	096									
17	097									
18	098									
19	099									
20	100									
21	LOS 12458									
22	LOSD 12458									
23										
24										

Batch Comments: Ludox: / / @ Date Placed in oven / / @ Date Removed / / @
 Conc HNO₃: 8N HNO₃ / / @

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12458
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012
Reporting Units: dpm

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

Sigma 1.96
Zero Factor 2.71

Sample ID	Aliquot	Units	Tare (g)	Gross (g)	Residue (mg)	Det. ID	Count Date	Alpha Gross CPM	Beta Gross CPM	Count Duration (min)	Alpha Bkg CPM	Beta Bkg CPM	Bkg Count Duration (min)	Req Activity Units
458970	1.00000	S	9.00000	9.00000	0.00	1	7/11/2012 8:07	0.0620	0.8500	130	0.0640	0.8040	1000	dpm
3072058081	1.00000	S	9.00000	9.00000	0.00	3	7/11/2012 8:07	0.1000	0.8500	130	0.0600	0.6670	1000	dpm
3072058082	1.00000	S	9.00000	9.00000	0.00	7	7/11/2012 8:07	0.1500	0.8800	130	0.1070	0.6890	1000	dpm
3072058083	1.00000	S	9.00000	9.00000	0.00	9	7/11/2012 8:07	0.0770	0.9300	130	0.0550	0.6370	1000	dpm
3072058084	1.00000	S	9.00000	9.00000	0.00	15	7/11/2012 9:01	0.2917	0.5917	120	0.0820	0.4950	1000	dpm
3072058085	1.00000	S	9.00000	9.00000	0.00	33	7/11/2012 9:01	0.1833	0.4750	120	0.0900	0.3870	1000	dpm
3072058086	1.00000	S	9.00000	9.00000	0.00	14	7/11/2012 9:04	0.0750	0.3833	120	0.0690	0.3800	1000	dpm
3072058087	1.00000	S	9.00000	9.00000	0.00	18	7/11/2012 9:04	0.1417	0.4833	120	0.0630	0.3820	1000	dpm
3072058088	1.00000	S	9.00000	9.00000	0.00	20	7/11/2012 9:10	0.0750	0.4667	120	0.0970	0.3820	1000	dpm
3072058089	1.00000	S	9.00000	9.00000	0.00	23	7/11/2012 9:05	0.1083	0.4250	120	0.0750	0.4570	1000	dpm
3072058090	1.00000	S	9.00000	9.00000	0.00	37	7/11/2012 9:05	0.2750	0.5917	120	0.0420	0.3190	1000	dpm
3072058091	1.00000	S	9.00000	9.00000	0.00	30	7/11/2012 9:29	0.2167	0.6333	120	0.0720	0.4090	1000	dpm
3072058092	1.00000	S	9.00000	9.00000	0.00	19	7/11/2012 9:37	0.0833	0.5833	120	0.0770	0.4570	1000	dpm
3072058093	1.00000	S	9.00000	9.00000	0.00	31	7/11/2012 9:42	0.1583	0.4250	120	0.0890	0.3670	1000	dpm
3072058094	1.00000	S	9.00000	9.00000	0.00	34	7/11/2012 9:42	0.1083	0.5417	120	0.0760	0.4040	1000	dpm
3072058095	1.00000	S	9.00000	9.00000	0.00	29	7/11/2012 10:22	0.0667	0.4500	120	0.0840	0.3220	1000	dpm
3072058096	1.00000	S	9.00000	9.00000	0.00	19	7/11/2012 17:09	0.0750	0.5417	120	0.0770	0.4570	1000	dpm
3072058097	1.00000	S	9.00000	9.00000	0.00	1	7/11/2012 10:20	0.0620	1.0080	130	0.0640	0.8040	1000	dpm
3072058098	1.00000	S	9.00000	9.00000	0.00	3	7/11/2012 10:20	0.0690	0.7100	130	0.0600	0.6670	1000	dpm
3072058099	1.00000	S	9.00000	9.00000	0.00	7	7/11/2012 10:20	0.0770	0.6000	130	0.1070	0.6890	1000	dpm
3072058100	1.00000	S	9.00000	9.00000	0.00	9	7/11/2012 10:20	0.0460	0.8300	130	0.0550	0.6370	1000	dpm
LCS12458	1.00000	S	9.00000	9.00000	0.00	17	7/17/2012 9:18	0.5111	5.3222	90	0.0840	0.3710	1000	dpm
LCSD12458	1.00000	S	9.00000	9.00000	0.00	18	7/17/2012 9:18	0.4556	4.5667	90	0.0730	0.3840	1000	dpm

M 7/17/12

M 7/17/12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12458
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

Gross Alpha Results

Sample ID	Alpha Activity	Two-Sigma Count Uncertainty	Two-Sigma CSU	MDC	Critical Value	Units	Alpha Net CPM	Residue (mg)	Beta to Alpha Xtlk CPM	Xtlk corr. Net alpha CPM	Alpha eff	Activity Conversion
458970	-0.014	0.320	0.320	0.870	0.273	dpm/S	-0.002	0.00	0.000000	-0.002	14.26%	1
3072058081	0.265	0.375	0.378	0.801	0.250	dpm/S	0.040	0.00	0.000000	0.040	15.07%	1
3072058082	0.274	0.443	0.446	0.982	0.320	dpm/S	0.043	0.00	0.000000	0.043	15.71%	1
3072058083	0.164	0.371	0.372	0.866	0.268	dpm/S	0.022	0.00	0.000000	0.022	13.45%	1
3072058084	1.344	0.630	0.674	0.924	0.293	dpm/S	0.210	0.00	0.000000	0.210	15.61%	1
3072058085	0.578	0.488	0.499	0.929	0.296	dpm/S	0.093	0.00	0.000000	0.093	16.15%	1
3072058086	0.038	0.328	0.329	0.853	0.266	dpm/S	0.006	0.00	0.000000	0.006	15.72%	1
3072058087	0.515	0.453	0.462	0.845	0.262	dpm/S	0.079	0.00	0.000000	0.079	15.27%	1
3072058088	-0.141	0.337	0.338	0.992	0.318	dpm/S	-0.022	0.00	0.000000	-0.022	15.61%	1
3072058089	0.213	0.392	0.394	0.888	0.279	dpm/S	0.033	0.00	0.000000	0.033	15.64%	1
3072058090	1.458	0.592	0.647	0.686	0.204	dpm/S	0.233	0.00	0.000000	0.233	15.98%	1
3072058091	0.934	0.548	0.573	0.881	0.276	dpm/S	0.145	0.00	0.000000	0.145	15.50%	1
3072058092	0.041	0.354	0.354	0.912	0.287	dpm/S	0.006	0.00	0.000000	0.006	15.39%	1
3072058093	0.452	0.479	0.486	0.972	0.310	dpm/S	0.069	0.00	0.000000	0.069	15.35%	1
3072058094	0.201	0.380	0.382	0.866	0.273	dpm/S	0.032	0.00	0.000000	0.032	16.12%	1
3072058095	-0.113	0.323	0.323	0.948	0.301	dpm/S	-0.017	0.00	0.000000	-0.017	15.36%	1
3072058096	-0.013	0.337	0.337	0.912	0.287	dpm/S	-0.002	0.00	0.000000	-0.002	15.39%	1
3072058097	-0.014	0.320	0.320	0.870	0.273	dpm/S	-0.002	0.00	0.000000	-0.002	14.26%	1
3072058098	0.060	0.316	0.316	0.801	0.250	dpm/S	0.009	0.00	0.000000	0.009	15.07%	1
3072058099	-0.191	0.330	0.332	0.982	0.320	dpm/S	-0.030	0.00	0.000000	-0.030	15.71%	1
3072058100	-0.067	0.295	0.295	0.866	0.268	dpm/S	-0.009	0.00	0.000000	-0.009	13.45%	1
LCSD12458	2.761	0.962	1.081	1.113	0.340	dpm/S	0.427	0.00	0.000000	0.427	15.47%	1
LCSD12458	2.505	0.920	1.023	1.064	0.321	dpm/S	0.383	0.00	0.000000	0.383	15.27%	1

7/17/12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12458
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

Gross Beta Results

Sample ID	Beta Activity	Two-Sigma Count Uncertainty	Two-Sigma CSU	MDC	Critical Value	Units	Beta Net CPM	Residue (mg)	Alpha to Beta Xtlk CPM	Xtlk corr. Net beta CPM	Beta eff	Activity Conversion
458970	0.102	0.368	0.369	0.847	0.302	dpm/S	0.046	0.00	-0.000647	0.047	45.62%	1
3072058081	0.384	0.374	0.380	0.795	0.282	dpm/S	0.183	0.00	0.012364	0.171	44.49%	1
3072058082	0.407	0.382	0.388	0.810	0.288	dpm/S	0.191	0.00	0.010594	0.180	44.36%	1
3072058083	0.642	0.389	0.406	0.779	0.276	dpm/S	0.293	0.00	0.007544	0.285	44.45%	1
3072058084	0.053	0.323	0.323	0.719	0.251	dpm/S	0.097	0.00	0.072803	0.024	44.66%	1
3072058085	0.121	0.282	0.283	0.626	0.216	dpm/S	0.088	0.00	0.032340	0.056	45.82%	1
3072058086	0.003	0.263	0.263	0.637	0.220	dpm/S	0.003	0.00	0.002153	0.001	44.64%	1
3072058087	0.164	0.293	0.294	0.641	0.222	dpm/S	0.101	0.00	0.028336	0.073	44.42%	1
3072058088	0.209	0.289	0.291	0.643	0.222	dpm/S	0.085	0.00	-0.008135	0.093	44.32%	1
3072058089	-0.099	0.278	0.278	0.694	0.242	dpm/S	-0.032	0.00	0.012293	-0.044	44.61%	1
3072058090	0.444	0.318	0.327	0.587	0.201	dpm/S	0.273	0.00	0.074301	0.198	44.70%	1
3072058091	0.388	0.330	0.338	0.657	0.228	dpm/S	0.224	0.00	0.050856	0.173	44.74%	1
3072058092	0.271	0.312	0.316	0.676	0.235	dpm/S	0.126	0.00	0.002423	0.124	45.78%	1
3072058093	0.075	0.273	0.273	0.623	0.215	dpm/S	0.058	0.00	0.024408	0.034	44.88%	1
3072058094	0.284	0.308	0.312	0.654	0.227	dpm/S	0.138	0.00	0.010825	0.127	44.69%	1
3072058095	0.303	0.283	0.288	0.596	0.205	dpm/S	0.128	0.00	-0.005992	0.134	44.19%	1
3072058096	0.187	0.302	0.304	0.676	0.235	dpm/S	0.085	0.00	-0.000765	0.085	45.78%	1
3072058097	0.449	0.397	0.405	0.847	0.302	dpm/S	0.204	0.00	-0.000647	0.205	45.62%	1
3072058098	0.090	0.345	0.345	0.795	0.282	dpm/S	0.043	0.00	0.002782	0.040	44.49%	1
3072058099	-0.184	0.322	0.323	0.810	0.288	dpm/S	-0.089	0.00	-0.007391	-0.082	44.36%	1
3072058100	0.441	0.369	0.378	0.779	0.276	dpm/S	0.193	0.00	-0.003086	0.196	44.45%	1
LCS12458	10.764	1.070	2.203	0.735	0.247	dpm/S	4.951	0.00	0.140793	4.810	44.69%	1
LCSD12458	9.106	0.998	1.910	0.752	0.253	dpm/S	4.183	0.00	0.137797	4.045	44.42%	1

07/17/12

MBT

Quality Control Sample Performance Assessment

RCDU Upload

Analyst: MBT
Date: 7/16/2012
Worklist: 12458
Matrix: Filter

Method: EPA 900.0m
SOP: PGHR-001
MB Sample ID: 458970



Method Blank Assessment		1.96 Sig Unc.		MDC	Critical Value	Flag	Assessment
Activity	-0.0140	0.3200	0.8700	0.27300			
Gross Alpha	0.1020	0.3690	0.8470	0.30200			
Gross Beta							

Laboratory Control Sample Assessment			
Count Date:	LCS	LCS	LCS
7/17/12 9:18	Gross Alpha	7/17/12 9:18	Gross Beta
12-018-F3	2.353	12-014-F3	7/17/12 9:18
2.353	1.000	9.799	12-014-F4
1.000	1.000	1.000	9.799
2.353	1.000	1.000	1.000
0.138	0.138	0.192	9.799
2.761	2.505	10.764	9.106
1.081	1.023	2.203	1.910
117.34%	106.46%	109.84%	92.92%
Pass	Pass	Pass	Pass
119.00%	119.00%	130.00%	130.00%
52.00%	62.00%	79.00%	79.00%

Duplicate Sample Assessment	
LCS/LCSD Y or N?	Y
Gross Alpha	Gross Beta
LCS12458	LCS12458
LCS12458	LCS12458
10.7640	10.7640
2.2030	2.2030
9.1060	9.1060
1.9100	1.9100
No	No
9.72%	16.69%
Pass	Pass
35.00%	47.00%

Sample Matrix Spike Control Assessment	
Analyte:	
Sample I.D.	
Sample MS I.D.	
Sample MSD I.D.	
Spike I.D.:	
MS/MSD Decay Corrected Spike Conc. (DPM/Sample):	
Spike Volume Used in MS (mL):	
MS Aliquot (L, g, F):	
MS Target Conc. (DPM/Sample, g, F):	
MSD Aliquot (L, g, F):	
MSD Target Conc. (DPM/Sample, g, F):	
MSD Spike uncertainty (calculated):	
MSD Spike uncertainty (calculated):	
Sample Result:	
Sample 1.96 Sigma Unc.:	
Sample Matrix Spike Result:	
Sample MS 1.96 Sigma Unc.:	
Sample Matrix Spike Duplicate Result:	
Sample MSD 1.96 Sigma Unc.:	
MS % Recovery:	
MSD % Recovery:	
MS Assessment:	
MSD Assessment:	
MS/MSD Upper % Recovery Limits:	
MS/MSD Lower % Recovery Limits:	
Matrix Spike/Matrix Spike Duplicate Sample Assessment	
Analyte:	
Sample I.D.	
Sample MS I.D.	
Sample MSD I.D.	
Sample Matrix Spike Result:	
Sample Matrix Spike 1.96 Sigma Unc.:	
Sample Matrix Spike Duplicate Result:	
Sample Matrix Spike Duplicate 1.96 Sigma Unc.:	
MS/MSD Relative Percent Difference:	
MS/MSD RPD Assessment:	
% RPD Limit:	

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Am/17/12

*7/17/12
MB*

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12458
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

Analyst: MBT
PrepSOP1: FGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

CSU Factors (2 Sigma)
UE1 6.71%
UE2 13.23%
UE3 10.00%
UE4 0.00%

Diet No.	Alpha Efficiency: $ax^4 + bx^3 + cx^2 + dx + e$				Alpha-to-Beta Cross-Talk				Beta Efficiency: $ax^4 + bx^3 + cx^2 + dx + e$				Beta-to-Alpha Xtalk: $ax + b$				BKG 1 Date: 6/3/2012	BKG 2 Date: 7/13/2012								
	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e	a			b	c	d	e	Alpha Bkg	Beta Bkg	Alpha Bkg	Beta Bkg
1					1.4258E-01					3.2338E-01	4.5624E-01					0.0640	0.8040				0.0640	0.8040	0.0640	0.8040	0.0640	0.8040
2					1.5524E-01					2.7992E-01	4.5633E-01					0.0620	0.7010				0.0620	0.7010	0.0620	0.7010	0.0620	0.7010
3					1.5070E-01					3.0910E-01	4.4491E-01					0.0600	0.6670				0.0600	0.6670	0.0600	0.6670	0.0600	0.6670
4					1.4437E-01					2.9231E-01	4.3452E-01					0.1120	0.8050				0.1120	0.8050	0.1120	0.6050	0.1120	0.6050
5					#N/A					#N/A	#N/A					0.0520	5.1640				0.0520	5.1640	0.0520	5.1640	0.0520	5.1640
6					#N/A					#N/A	#N/A					0.0510					0.0510		0.0510			
7					1.5705E-01					2.4638E-01	4.4360E-01					0.1070	0.6890				0.1070	0.6890	0.1070	0.6890	0.1070	0.6890
8					1.4091E-01					3.0938E-01	4.2338E-01					0.0960	0.6310				0.0960	0.6310	0.0960	0.6310	0.0960	0.6310
9					1.3453E-01					3.4289E-01	4.4454E-01					0.0550	0.6370				0.0550	0.6370	0.0550	0.6370	0.0550	0.6370
10					#N/A					#N/A	#N/A					0.0590	0.7940				0.0590	0.7940	0.0590	0.7940	0.0590	0.7940
11					1.5103E-01					4.0303E-01	4.5335E-01					0.1620	0.4690				0.1620	0.4690	0.1620	0.4690	0.1620	0.4690
12					1.5319E-01					3.7376E-01	4.5830E-01					0.0890	0.3780				0.0890	0.3780	0.1770	0.1550	0.1550	0.4240
13					1.4959E-01					4.0742E-01	3.9032E-01					0.0500	0.3330				0.0500	0.3330	0.1230	0.3450	0.1230	0.3450
14					1.5721E-01					3.5889E-01	4.4635E-01					0.0690	0.3800				0.0690	0.3800	0.0820	0.4990	0.0820	0.4990
15					1.5605E-01					3.4723E-01	4.4658E-01					0.0820	0.4950				0.0820	0.4950	0.1200	0.4700	0.1200	0.4700
16					1.5385E-01					3.5438E-01	4.3920E-01					0.0610	0.3910				0.0610	0.3910	0.0870	0.3430	0.0870	0.3430
17					1.5472E-01					3.2964E-01	4.4691E-01					0.1370	0.3860				0.1370	0.3860	0.0840	0.3710	0.0840	0.3710
18					1.5273E-01					3.6020E-01	4.4422E-01					0.0630	0.3820				0.0630	0.3820	0.0730	0.3840	0.0730	0.3840
19					1.5393E-01					3.8255E-01	4.5782E-01					0.0770	0.4570				0.0770	0.4570	0.0900	0.4330	0.0900	0.4330
20					1.5610E-01					3.8978E-01	4.4321E-01					0.0970	0.3820				0.0970	0.3820	0.0700	0.3890	0.0700	0.3890
21					1.5130E-01					4.0476E-01	4.5533E-01					0.0780	0.3780				0.0780	0.3780	0.0690	0.3810	0.0690	0.3810
22					1.5360E-01					3.9282E-01	4.3554E-01					0.0570	0.4180				0.0570	0.4180	0.1140	0.4060	0.1140	0.4060
23					1.5639E-01					3.6878E-01	4.4612E-01					0.0750	0.4570				0.0750	0.4570	0.0720	0.4150	0.0720	0.4150
24					#N/A					#N/A	#N/A										#N/A					
25					1.5898E-01					3.5511E-01	4.5368E-01					0.1270	0.4110				0.1270	0.4110	0.1580	0.4010	0.1580	0.4010
26					1.5743E-01					3.3781E-01	4.5488E-01					0.1490	0.4370				0.1490	0.4370	0.0970	0.4050	0.0970	0.4050
27					1.5803E-01					3.3826E-01	4.4883E-01					0.0740	0.2880				0.0740	0.2880	0.0690	0.3930	0.0690	0.3930

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Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12458
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

CSU Factors (2 Sigma)
UE1 6.71%
UE2 13.23%
UE3 10.00%
UE4 0.00%

Diet No.	Effective Calibration Date			Alpha Efficiency	Alpha to Beta Cross-Talk			Beta Efficiency	11/20/2006			Beta to Alpha Cross-Talk	Beta Eff: ax + b			Beta-to-Alpha Xtalk: ax + b			Alpha Bkg	Beta Bkg	Alpha Bkg	Beta Bkg	BKG 1 Date	6/3/2012	BKG 2 Date	7/13/2012			
	a	b	c		d	e	a		b	c	d		e	a	b	c	d	e									a	b	c
28					1.5338E-01							3.4328E-01			4.3728E-01							0.0810	0.3330	0.1500	0.3480				
29					1.5363E-01							3.4570E-01			4.4186E-01								0.0840	0.3220	0.1630	0.2740			
30					1.5497E-01							3.5154E-01			4.4737E-01								0.0720	0.4090	0.2330	0.4240			
31					1.5353E-01							3.5204E-01			4.4881E-01								0.0880	0.3870	0.0900	0.3660			
32					1.5823E-01							3.3321E-01			4.6019E-01								0.0540	0.4120	0.0530	0.3380			
33					1.5147E-01							3.4650E-01			4.5824E-01								0.0900	0.3870	0.1200	0.4100			
34					1.5117E-01							3.3480E-01			4.4688E-01								0.0760	0.4040	0.1250	0.4480			
35					#N/A							#N/A			#N/A								0.1970	0.3930	0.2070	3.6640			
36					1.4953E-01							3.6059E-01			4.5203E-01								0.0930	0.4070	0.0870	0.3320			
37					1.5981E-01							3.1889E-01			4.4695E-01								0.0420	0.3190	0.2180	0.4600			
38					1.5254E-01							3.4693E-01			4.4279E-01								0.1100	0.3990	0.1040	0.3900			
39					1.7614E-01							2.7763E-01			4.5734E-01								0.0780	12.4760	0.0780	12.4760			
40					1.8176E-01							2.5395E-01			4.5470E-01								0.2530	12.5520	0.2530	12.5520			
41					#N/A							#N/A			#N/A								2.7170	386.8100	2.7170	386.8100			
42					1.4541E-01							4.5586E-01			3.3592E-01								0.2050	9.9000	0.2050	9.9000			
43					1.7364E-01							2.8197E-01			4.4459E-01								0.1620	1.1560	0.1620	1.1560			
44					1.7507E-01							2.9247E-01			4.5198E-01								0.1110	0.9900	0.1110	0.9900			
45					1.8586E-01							2.6541E-01			4.3550E-01								0.1410	1.7460	0.1410	1.7460			
46					1.6416E-01							2.9296E-01			4.4755E-01								0.2330	0.9840	0.2330	0.9840			
47					1.7203E-01							2.9040E-01			4.5901E-01								0.0940	1.1670	0.0940	1.1670			
48					1.8314E-01							2.6983E-01			4.6967E-01								0.1650	2.0860	0.1650	2.0860			
49					1.6993E-01							2.9322E-01			4.4190E-01								0.3330	1.3450	0.3330	1.3450			
50					1.6594E-01							2.8046E-01			4.5406E-01								0.2050	1.4600	0.2050	1.4600			
51					1.7880E-01							2.8623E-01			4.5625E-01								0.1500	1.3750	0.1500	1.3750			
52					1.7970E-01							2.8847E-01			4.5669E-01								0.1070	1.1480	0.1070	1.1480			
53					1.7780E-01							2.7454E-01			4.7119E-01								0.1070	1.3970	0.1070	1.3970			

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Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

CSU Analysis for Preparation

Planchet Weighing

uncert (g)	gross (g)	tare (g)	net (g)	CSU (g)	
0.0003	9.1463	9.1273	0.019	0.000424264	2.23%

Volume Aliquot

(mL)	vol (mL)	rel unc
1.00	100.0	1.00%

CSU for Preparation (UE1) 6.71%

Description	relative	of Critical	Uncertainty	Uncertainty
Sample Aliquoting	1.00%	1	1.00%	0.01%
Planchet Weighing	2.23%	2	3.16%	0.10%
Sample transfer to planchet	3.00%	1	3.00%	0.09%
Additional Uncertainty due to differences in the distribution of residue on the planchet	5.00%	1	5.00%	0.25%

CSU Analysis for Analysis

Mass Aliquot

	Ref mass	uncert (g)	Rel unc
Tare	5	0.0004	
Gross	6	0.0004	Use max of 1%
net	1	0.000565685	0.057%

CSU for Analysis (UE2) 13.23%

Description	Maximum	of Critical	Uncertainty	Uncertainty
SRM Uncertainty	5.00%	1	5.00%	0.25%
Mass transfer	0.06%	2	0.08%	0.00%
Source Reproducibility	5.00%	1	5.00%	0.25%
Curve Fitting Uncertainty	5.00%	1	5.00%	0.25%
Estimated Additional Uncertainty (variations in efficiency and self-absorption due to chemical composition of residue)	10.00%	1	10.00%	1.00%

CSU Analysis for Yield Correction

CSU for Yield (UE3) 10.00%

Description	Maximum	of Critical	Uncertainty	Uncertainty
Additional Sample Uncertainty due to analysis without a tracer or chemical carrier	10.00%	1	10.00%	1.00%

2011/11/12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

SAMPLE_ID	Det#	BEG_DATE	BATCH_ID	ACPM	BCPM	CNT_TIME
3072058084	15	7/11/2012 9:01	GAB12458	0.291666667	0.591666667	120
3072058085	33	7/11/2012 9:01	GAB12458	0.183333333	0.475	120
3072058086	14	7/11/2012 9:04	GAB12458	0.075	0.383333333	120
3072058087	18	7/11/2012 9:04	GAB12458	0.141666667	0.483333333	120
3072058088	20	7/11/2012 9:10	GAB12458	0.075	0.466666667	120
3072058089	23	7/11/2012 9:05	GAB12458	0.108333333	0.425	120
3072058090	37	7/11/2012 9:05	GAB12458	0.275	0.591666667	120
3072058091	30	7/11/2012 9:29	GAB12458	0.216666667	0.633333333	120
3072058092	19	7/11/2012 9:37	GAB12458	0.083333333	0.583333333	120
3072058093	31	7/11/2012 9:42	GAB12458	0.158333333	0.425	120
3072058094	34	7/11/2012 9:42	GAB12458	0.108333333	0.541666667	120
3072058095	29	7/11/2012 10:22	GAB12458	0.066666667	0.45	120
3072058096	19	7/11/2012 17:09	GAB12458	0.075	0.541666667	120
LCS12458	17	7/17/2012 9:18	GAB12458	0.511111111	5.322222222	90
LCSD12458	18	7/17/2012 9:18	GAB12458	0.455555556	4.566666667	90
458970	1	7/11/2012 8:07	GAB12458	0.062	0.85	130
3072058081	3	7/11/2012 8:07	GAB12458	0.1	0.85	130
3072058082	7	7/11/2012 8:07	GAB12458	0.15	0.88	130
3072058083	9	7/11/2012 8:07	GAB12458	0.077	0.93	130
3072058097	1	7/11/2012 10:20	GAB12458	0.062	1.008	130
3072058098	3	7/11/2012 10:20	GAB12458	0.069	0.71	130
3072058099	7	7/11/2012 10:20	GAB12458	0.077	0.6	130
3072058100	9	7/11/2012 10:20	GAB12458	0.046	0.83	130

Alpha
7/17/12

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LCSD12458	7/17/2012 9:18:41 AM	18	GAB12458	0.456	4.5667	90.0
LCS12458	7/17/2012 9:18:34 AM	17	GAB12458	0.511	5.3222	90.0
3072058096	7/11/2012 5:09:40 PM	19	GAB12458	0.075	0.5417	120.0
3072058095	7/11/2012 10:22:47 AM	29	GAB12458	0.067	0.4500	120.0
3072058094	7/11/2012 9:42:12 AM	34	GAB12458	0.108	0.5417	120.0
3072058093	7/11/2012 9:42:06 AM	31	GAB12458	0.158	0.4250	120.0
3072058092	7/11/2012 9:37:10 AM	19	GAB12458	0.083	0.5833	120.0
3072058091	7/11/2012 9:29:33 AM	30	GAB12458	0.217	0.6333	120.0
3072058088	7/11/2012 9:10:57 AM	20	GAB12458	0.075	0.4667	120.0
3072058090	7/11/2012 9:05:30 AM	37	GAB12458	0.275	0.5917	120.0
3072058089	7/11/2012 9:05:22 AM	23	GAB12458	0.108	0.4250	120.0
3072058087	7/11/2012 9:04:34 AM	18	GAB12458	0.142	0.4833	120.0
3072058086	7/11/2012 9:04:18 AM	14	GAB12458	0.075	0.3833	120.0
3072058085	7/11/2012 9:01:08 AM	33	GAB12458	0.183	0.4750	120.0
3072058084	7/11/2012 9:01:01 AM	15	GAB12458	0.292	0.5917	120.0

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2/1/12
20

Sample Measurement
C:\UMS\GAB12458.SDT

Sample Measurement Parameters:

User: MBT
Preset Time: 130:00
Alpha Preset Error: 1.0%
User Protocol: GAB

Instrument Name: LB770PC
Cycles: 1
Beta Preset Error: 1.0%

Cycle 1 of 2 (1/1 in group 1 of 2)

Start Time: 07/11/2012 8:07:48

Elapsed Time: 130:00

Guard: 820.9 cpm

	<u>Spl #</u>	<u>Sample Name</u>	<u>Alpha (raw cpm)</u>	<u>MDA</u>	<u>MRA</u>	<u>Beta (raw cpm)</u>	<u>MDA</u>	<u>MRA</u>
1	12458	458970	0.062 (±35.4%)	0.0039	0.0020	0.85 (±9.53%)	0.0112	0.0055
2	12757	E	0.13 (±24.3%)	0.0047	0.0024	0.71 (±10.4%)	0.0105	0.0051
3	12458	3072058081	0.100 (±27.7%)	0.0054	0.0027	0.85 (±9.49%)	0.0107	0.0053
4	12757	E	0.18 (±20.9%)	0.0047	0.0024	0.62 (±11.1%)	0.0112	0.0055
5	12791	E	0.038 (±44.7%)	0.0047	0.0024	5.377 (±3.78%)	0.0202	0.0099
6	12791	E	0.085 (±30.2%)	0.0054	0.0027	Outliers!	0.0298	0.0148
7	12458	3072058082	0.15 (±22.4%)	0.0054	0.0027	0.88 (±9.33%)	0.0112	0.0055
8	12757	E	0.077 (±31.6%)	0.0039	0.0020	0.67 (±10.7%)	0.0102	0.0050
9	12458	3072058083	0.077 (±31.6%)	0.0054	0.0027	0.93 (±9.09%)	0.0114	0.0056
10	12791	E	0.100 (±27.7%)	undef.	undef.	Outliers!	0.0118	0.0058

Cycle 2 of 2 (1/1 in group 2 of 2)

Start Time: 07/11/2012 10:20:01

Elapsed Time: 130:00

Guard: 820.3 cpm

	<u>Spl #</u>	<u>Sample Name</u>	<u>Alpha (raw cpm)</u>	<u>MDA</u>	<u>MRA</u>	<u>Beta (raw cpm)</u>	<u>MDA</u>	<u>MRA</u>
1	12458	3072058097	0.062 (±35.4%)	0.0039	0.0020	1.008 (±8.74%)	0.0112	0.0055
2	12767	E	0.046 (±40.8%)	0.0047	0.0024	0.53 (±12.0%)	0.0105	0.0051
3	12458	3072058098	0.069 (±33.3%)	0.0054	0.0027	0.71 (±10.4%)	0.0107	0.0053
4	12767	E	0.100 (±27.7%)	0.0047	0.0024	0.57 (±11.6%)	0.0112	0.0055
5	12801	E	0.085 (±30.2%)	0.0047	0.0024	5.408 (±3.77%)	0.0202	0.0099
6	12801	E	0.077 (±31.6%)	0.0054	0.0027	Outliers!	0.0298	0.0148
7	12458	3072058099	0.077 (±31.6%)	0.0054	0.0027	0.60 (±11.3%)	0.0112	0.0055
8	12767	E	0.023 (±57.7%)	0.0039	0.0020	0.69 (±10.5%)	0.0102	0.0050
9	12458	3072058100	0.046 (±40.8%)	0.0054	0.0027	0.83 (±9.62%)	0.0114	0.0056
10	12801	E	0.054 (±37.8%)	undef.	undef.	0.92 (±9.17%)	0.0118	0.0058

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/ time	Analyst	Re-Analysis Code	Comments
MB3	52	LCSD12570	7A12570	20	7-11-12 7.43	WAL	NA	N/A
GAB	1	458970	GAB12458	130	7-11-12 0808	MBT	NA	NA
	3	3072058081						
	7	82						
	9	83						
GAB	43	458909	GAB12457	300	7-11-12 0813	MBT	NA	NA
	44	3072058041						
	45	642						
	46	643						
	47	674						
	48	685						
	49	696						
	50	67						
	51	68						
	52	69						
	53	70						
GAB	15	3072058084	GAB12458	120	7-11-12 0901	MBT	NA	NA
	33	85						
GAB	14	3072058086	GAB12458	120	7-11-12 0905	MBT	NA	
	18	87						
	20	88						
	23	89						
	87	90						
GAB	72	3072058081	GAB12458	260	7/11/12 0900		NA	NA

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

7/12/12
Bob

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
GAB	30	3072058091	GAB12458	120	7-11-12 0929	WBT	NA	NA
	19	3072058092	GAB12458	120	7-11-12 0937	WBT	NA	NA
GAB	31	3072058093	GAB12458	120	7-11-12 0942	WBT	NA	NA
	34	↓ 094	↓	↓	↓	↓	↓	↓
	12	3072058095	GAB12458	120	7-11-12 0951	WBT	NA	NA
	10	3072058096	GAB12458	120	7-11-12 1010	WBT	NA	NA WBT 7-11-12
	1	97	↓	130	1020	↓	↓	↓
	3	98	↓	↓	↓	↓	↓	↓
	7	99	↓	↓	↓	↓	↓	↓
	9	100	↓	↓	↓	↓	↓	↓
	29	LOS#1-12458	GAB12458	90	7-11-12 1022	WBT	NA	NA
GAB	29	3072058095	GAB12458	120	7-11-12 1022	WBT	NA	NA
GAB	19	GB-20120614-N1	GB Cal	7	7-11-12 1145	WBT	NA	NA
	20	-N2	↓	↓	↓	↓	↓	↓
	21	-N3	↓	↓	↓	↓	↓	↓
	22	-N4	↓	↓	↓	↓	↓	↓
	23	-N5	↓	↓	↓	↓	↓	↓
	27	-N6	↓	↓	↓	↓	↓	↓
	19	-N8	↓	↓	7-11-12 1153	↓	↓	↓
	20	-N1	↓	↓	↓	↓	↓	↓
	21	-N2	↓	↓	↓	↓	↓	↓
	22	-N3	↓	↓	↓	↓	↓	↓
	23	-N4	↓	↓	↓	↓	↓	↓
	27	-N5	↓	↓	↓	↓	↓	↓

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

Pace Analytical Services, Inc.-Pittsburgh
 Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/ time	Analyst	Re-Analysis Code	Comments
	37	3072060018	GAB12459	120	8053		NA	NA
	1	19						
	19	3072058096	GAB12458	120	7/11/12 1710	BSH	NA	NA
GAB	13	3072434002	GAB12537	200	7/12/12 1800			
GAB	17	307200700110	GAB12408	90				
	32	72410001		340				
	35	72931		1000				
	36	72703						
	38	72770						
		72181						
		3560800						
		603						
		3072020001	GAB12578					
		72574						
		72587						
		72588						
GAS	11	458-12461	GAB12461	120	7/12/12 921	DL	NA	NA
	17	454-12461			922			
	22	3072000000	GAB12462		920			
	36	458975		130	924			
	38	3072009059	GAB12461	150	924			
	35	72000001	12462		7/12/12 928	DL	NA	NA
	12	458-12462	GAB12462	120	7-12-12	DL	NA	NA

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

Pace Analytical Services, Inc. -Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 25-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/ time	Analyst	Re-Analysis Code	Comments
GAB	12	35010200100	GAB12035	90	7/17/12	WBT	N/A	N/A
	14	35010200105		140				
	15	1098177001		90				
GAB	14	460308	GAB12037	90	7/9/12 0731	WBT	N/A	Sample added to Pooly.
	32	307208001			7/10/12 0834			
	35	307208002			7/10/12 0831			
	3	307208003			7/10/12 0844			
GAB	15	LOS#1-12456	GAB12456	90	7-17-12 0915	WBT	N/A	
	16	LOS#2-12456						
	17	LOS#3-12458	GAB12458	90				
	18	LOS#4-12458						
	19	3072080019	GAB12459	110	7-17-12 0928	WBT	N/A	
	20	458981	GAB12467	120				MDC
	21	3072080083	GAB12468	110				MDC
	22	87		100				MDC
	24	3072080093	GAB12468	110				MDC
	31	3072080008	GAB12469	120				MDC
	33	010		120				N/A
	34	3072080011		100				
	36	12		130				
	37	13		90				
	38	14		150				
GAB	23	3072080015	GAB12469	100	07-17-12 0949	WBT	N/A	
	27	16				WBT		

- Legend:
1. Detector daily check failure
 2. MDC > Contract RL
 3. Sample re-ingrowth
 4. Sample was re-prepped
 5. Other noted comments

2012/7/17

Gross Alpha and Beta Sample Analysis Data

Quality Control Review



Batch RADC/12459 HBN 91029
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

1 458971-BLANK for HBN 91029 [RADC/1245

Type BLANK Matrix Impact Plate Collected % Moisture
 Client QCACCOUNT WO Work ID

Prep Information

Procedure 9000 I Batch RADC/12459 Prep Date 7/11/2012 17:09 Dilution
 Method EPA 900.0m HBN 91029 Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795641 Instru NONE CC ok F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 17:09 Dilution
 Method EPA 900.0m Col ID Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795641 File CC ok F

Analyte	CC	Posted Result	Result	MDL	RDL
Rad Chemistry	OK				
Gross Alpha	OK	-0.301U ± 0.290 (0.992)	pCi/sa -0.301U ± 0.290 (0.992)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					
Gross Beta	OK	-0.108U ± 0.244 (0.643)	pCi/sa -0.108U ± 0.244 (0.643)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					

2 3072058101-2540-SU3-39

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072058 Work ID Fort Monmouth Location
 1207071

Prep Information

Procedure 9000 I Batch RADC/12459 Prep Date 7/11/2012 17:10 Dilution
 Method EPA 900.0m HBN 91029 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784080 Instru NONE CC ok F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 17:10 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784080 File CC ok F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						
Gross Alpha	OK	-0.160U ± 0.279 (0.888)	pCi/sa -0.160U ± 0.279 (0.888)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review

Batch RADC/12459 HBN 91029
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT



2 3072058101-2540-SU3-39

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Beta	OK	-0.051U ± 0.278 (0.694)	pCi/sa -0.051U ± 0.278 (0.694)			dpm/sa	

The lab does not hold TNI accreditation for this parameter.

4 3072060001-2540-SU3-40

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072060 Work ID Fort Monmouth 1207072 Location

Prep Information

Procedure 9000 I Batch RADC/12459 Prep Date 7/11/2012 17:18 Dilution
 Method EPA 900.0m HBN 91029 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784197 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 17:18 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784197 File CC OK F

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.223U ± 0.360 (0.785)	pCi/sa 0.223U ± 0.360 (0.785)			dpm/sa	

The lab does not hold TNI accreditation for this parameter.

Gross Beta OK 0.180U ±
0.311
(0.685) pCi/sa 0.180U ±
0.311
(0.685)

The lab does not hold TNI accreditation for this parameter.

5 3072060002-2540-SU3-41

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072060 Work ID Fort Monmouth 1207072 Location

Prep Information

Procedure 9000 I Batch RADC/12459 Prep Date 7/11/2012 20:51 Dilution
 Method EPA 900.0m HBN 91029 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784200 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12459 HBN 91029
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

5 3072060002-2540-SU3-41

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 20:51 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784200 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.507J ± 0.500 (0.974)	pCi/sa 0.507J ± 0.500 (0.974)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.112U ± 0.278 (0.619)	pCi/sa 0.112U ± 0.278 (0.619)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

6 3072060003-2540-SU3-42

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072060 Work ID Fort Monmouth 1207072 Location

Prep Information

Procedure 9000 I Batch RADC/12459 Prep Date 7/11/2012 20:51 Dilution
 Method EPA 900.0m HBN 91029 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784202 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 20:51 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784202 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.056U ± 0.261 (0.785)	pCi/sa -0.056U ± 0.261 (0.785)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.223U ± 0.312 (0.685)	pCi/sa 0.223U ± 0.312 (0.685)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

7 3072060004-2540-SU3-43

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072060 Work ID Fort Monmouth 1207072 Location

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12459 HBN 91029
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

7 3072060004-2540-SU3-43

Prep Information

Procedure 9000 I **Batch** RADC/12459 **Prep Date** 7/11/2012 20:51 **Dilution**
Method EPA 900.0m **HBN** 91029 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784204 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/11/2012 20:51 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784204 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.462J ± 0.448 (0.853)	pCi/sa 0.462J ± 0.448 (0.853)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.677 ± 0.369 (0.637)	pCi/sa 0.677 ± 0.369 (0.637)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

8 3072060005-2540-SU3-43D

Type PS **Matrix** Wipe **Collected** 6/14/2012 00:01 **% Moisture**
Client RTI **WO** 3072060 **Work ID** Fort Monmouth
 1207072 **Location**

Prep Information

Procedure 9000 I **Batch** RADC/12459 **Prep Date** 7/11/2012 20:52 **Dilution**
Method EPA 900.0m **HBN** 91029 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784206 **Instru** NONE **CC** OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I **Instru** NONE **Run Date** 7/11/2012 20:52 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2784206 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	1.56 ± 0.720 (0.924)	pCi/sa 1.56 ± 0.720 (0.924)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.270J ± 0.352 (0.719)	pCi/sa 0.270J ± 0.352 (0.719)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12459 HBN 91029
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

8 3072060005-2540-SU3-43D

9 3072060006-2540-SU3-44

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072060 Work ID Fort Monmouth 1207072 Location

Prep Information

Procedure 9000 I Batch RADC/12459 Prep Date 7/11/2012 20:52 Dilution
 Method EPA 900.0m HBN 91029 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784208 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 20:52 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784208 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.308J ± 0.400 (0.829)	pCi/sa 0.308J ± 0.400 (0.829)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.020U ± 0.277 (0.656)	pCi/sa 0.020U ± 0.277 (0.656)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

10 3072060007-2540-SU3-45

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072060 Work ID Fort Monmouth 1207072 Location

Prep Information

Procedure 9000 I Batch RADC/12459 Prep Date 7/11/2012 20:52 Dilution
 Method EPA 900.0m HBN 91029 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784210 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 20:52 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784210 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12459 HBN 91029
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

10 3072060007-2540-SU3-45

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Alpha	OK	0.570J ± 0.476 (0.845)	pCi/sa 0.570J ± 0.476 (0.845)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.439J ± 0.335 (0.641)	pCi/sa 0.439J ± 0.335 (0.641)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

11 3072060008-2540-SU3-46

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072060 Work ID Fort Monmouth 1207072 Location

Prep Information

Procedure 9000 I Batch RADC/12459 Prep Date 7/11/2012 20:52 Dilution
 Method EPA 900.0m HBN 91029 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784212 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 20:52 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784212 File CC OK F

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.067U ± 0.320 (0.912)	pCi/sa -0.067U ± 0.320 (0.912)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.066U ± 0.287 (0.676)	pCi/sa 0.066U ± 0.287 (0.676)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

12 3072060009-2540-SU3-47

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072060 Work ID Fort Monmouth 1207072 Location

Prep Information

Procedure 9000 I Batch RADC/12459 Prep Date 7/11/2012 20:52 Dilution
 Method EPA 900.0m HBN 91029 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784214 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12459 HBN 91029
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

12 3072060009-2540-SU3-47

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 20:52 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2784214 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.179U ± 0.425 (0.992)	pCi/sa 0.179U ± 0.425 (0.992)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.224J ± 0.299 (0.643)	pCi/sa 0.224J ± 0.299 (0.643)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

13 3072060010-2540-SU4-1

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture
 Client RTI WO 3072060 Work ID Fort Monmouth 1207072 Location

Prep Information

Procedure 9000 I Batch RADC/12459 Prep Date 7/11/2012 20:52 Dilution
 Method EPA 900.0m HBN 91029 Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784216 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 20:52 Dilution
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784216 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.320U ± 0.219 (0.888)	pCi/sa -0.320U ± 0.219 (0.888)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.399J ± 0.336 (0.694)	pCi/sa 0.399J ± 0.336 (0.694)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

14 3072060011-2540-SU4-2

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture
 Client RTI WO 3072060 Work ID Fort Monmouth 1207072 Location

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12459 HBN 91029
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

14 3072060011-2540-SU4-2

Prep Information

Procedure 9000 I Batch RADC/12459 Prep Date 7/11/2012 20:52 Dilution
 Method EPA 900.0m HBN 91029 Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784218 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 20:52 Dilution
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784218 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.006U ± 0.328 (0.874)	pCi/sa 0.006U ± 0.328 (0.874)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.397J ± 0.291 (0.558)	pCi/sa 0.397J ± 0.291 (0.558)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

15 3072060012-2540-SU4-2D

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture
 Client RTI WO 3072060 Work ID Fort Monmouth Location
 1207072

Prep Information

Procedure 9000 I Batch RADC/12459 Prep Date 7/11/2012 20:52 Dilution
 Method EPA 900.0m HBN 91029 Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784220 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 20:52 Dilution
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784220 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.659J ± 0.520 (0.923)	pCi/sa 0.659J ± 0.520 (0.923)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.283J ± 0.303 (0.612)	pCi/sa 0.283J ± 0.303 (0.612)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12459 HBN 91029
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

15 3072060012-2540-SU4-2D

16 3072060013-2540-SU4-3

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture
 Client RTI WO 3072060 Work ID Fort Monmouth Location
 1207072

Prep Information

Procedure 9000 I Batch RADC/12459 Prep Date 7/11/2012 20:52 Dilution
 Method EPA 900.0m HBN 91029 Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784222 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 20:52 Dilution
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784222 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.167U ± 0.306 (0.948)	pCi/sa -0.167U ± 0.306 (0.948)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.329J ± 0.291 (0.596)	pCi/sa 0.329J ± 0.291 (0.596)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

17 3072060014-2540-SU4-4

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture
 Client RTI WO 3072060 Work ID Fort Monmouth Location
 1207072

Prep Information

Procedure 9000 I Batch RADC/12459 Prep Date 7/11/2012 20:53 Dilution
 Method EPA 900.0m HBN 91029 Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784224 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 20:53 Dilution
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784224 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12459 HBN 91029
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

17 3072060014-2540-SU4-4

Analyte	CC	Posted Result		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Gross Alpha	OK	0.772J ± 0.535 (0.881)	pCi/sa 0.772J ± 0.535 (0.881)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								
Gross Beta	OK	0.240J ± 0.315 (0.657)	pCi/sa 0.240J ± 0.315 (0.657)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								

18 3072060015-2540-SU4-5

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture
 Client RTI WO 3072060 Work ID Fort Monmouth 1207072 Location

Prep Information

Procedure 9000 I Batch RADC/12459 Prep Date 7/11/2012 20:53 Dilution
 Method EPA 900.0m HBN 91029 Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784226 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 20:53 Dilution
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784226 File CC OK F

Analyte	CC	Posted Result		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Rad Chemistry	OK					dpm/sa		
Gross Alpha	OK	-0.037U ± 0.357 (0.972)	pCi/sa -0.037U ± 0.357 (0.972)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								
Gross Beta	OK	0.449J ± 0.322 (0.623)	pCi/sa 0.449J ± 0.322 (0.623)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								

19 3072060016-2540-SU4-6

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture
 Client RTI WO 3072060 Work ID Fort Monmouth 1207072 Location

Prep Information

Procedure 9000 I Batch RADC/12459 Prep Date 7/11/2012 20:53 Dilution
 Method EPA 900.0m HBN 91029 Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784228 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12459 HBN 91029
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

19 3072060016-2540-SU4-6

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 20:53 Dilution
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784228 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.114U ± 0.383 (0.929)	pCi/sa 0.114U ± 0.383 (0.929)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.095U ± 0.246 (0.626)	pCi/sa -0.095U ± 0.246 (0.626)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

20 3072060017-2540-SU4-7

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture
 Client RTI WO 3072060 Work ID Fort Monmouth 1207072 Location

Prep Information

Procedure 9000 I Batch RADC/12459 Prep Date 7/11/2012 20:53 Dilution
 Method EPA 900.0m HBN 91029 Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784230 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 20:53 Dilution
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784230 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.161U ± 0.271 (0.866)	pCi/sa -0.161U ± 0.271 (0.866)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.812 ± 0.388 (0.654)	pCi/sa 0.812 ± 0.388 (0.654)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

21 3072060018-2540-SU4-8

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture
 Client RTI WO 3072060 Work ID Fort Monmouth 1207072 Location

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review



Batch RADC/12459 HBN 91029
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

21 3072060018-2540-SU4-8

Prep Information

Procedure 9000 I Batch RADC/12459 Prep Date 7/11/2012 20:53 Dilution
 Method EPA 900.0m HBN 91029 Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784232 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/11/2012 20:53 Dilution
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784232 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	1.46 ± 0.647 (0.686)	pCi/sa 1.46 ± 0.647 (0.686)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.500J ± 0.336 (0.587)	pCi/sa 0.500J ± 0.336 (0.587)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

22 3072060019-2540-SU4-9

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture
 Client RTI WO 3072060 Work ID Fort Monmouth 1207072 Location

Prep Information

Procedure 9000 I Batch RADC/12459 Prep Date 7/18/2012 15:22 Dilution
 Method EPA 900.0m HBN 91029 Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784234 Instru NONE CC OK F

Initial Volume 1 mL Default 1 mL
 Final Volume, 1 mL Default 1 mL

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/18/2012 15:22 Dilution
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT
 Schedule 2784234 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.085U ± 0.303 (0.936)	pCi/sa -0.085U ± 0.303 (0.936)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.590J ± 0.348 (0.612)	pCi/sa 0.590J ± 0.348 (0.612)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Quality Control Review

Batch	RADC/12459	HBN	91029
Rule	9000 I	Status	RE
Create Date	6/28/2012	Analyst	MBT



22 3072060019-2540-SU4-9

** Indicates QC failure. For example, blank contamination or recoveries out of range.

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Creation Date 06/28/2012 13:04
Batch ID 12459
Assigned Analyst MBT
Earliest Due Date 07/04/2012 07:12
A-code 9000 I 9000W or NJ HBN 91029
Method EPA 900.0m EPA 900.0 or NJAC7186

Workorder	Sample ID	Sample Type	Matrix	Collection Date/Time	Client ID	Alpha Activity	Alpha Unc.	Alpha MDC	Beta Activity	Beta Unc.	Beta MDC	Analysis Date/Time	Alpha	Beta
	458971	BLANK	IP		QCACCOUNT	-0.301U	0.290	0.992	-0.108U	0.244	0.643	7/11/12 17:09		
3072058	3072058101	PS	WP	6/14/2012 0:01	RTI	-0.160U	0.279	0.888	-0.051U	0.278	0.694	7/11/12 17:10		
3072060	3072060001	PS	WP	6/14/2012 0:01	RTI	0.223U	0.360	0.785	0.180U	0.311	0.685	7/11/12 17:18		
3072060	3072060002	PS	WP	6/14/2012 0:01	RTI	0.507J	0.500	0.974	0.112U	0.278	0.619	7/11/12 20:51		
3072060	3072060003	PS	WP	6/14/2012 0:01	RTI	-0.056U	0.261	0.785	0.223U	0.312	0.685	7/11/12 20:51		
3072060	3072060004	PS	WP	6/14/2012 0:01	RTI	0.462J	0.448	0.853	0.677	0.369	0.637	7/11/12 20:51		
3072060	3072060005	PS	WP	6/14/2012 0:01	RTI	1.56	0.720	0.924	0.270J	0.352	0.719	7/11/12 20:52		
3072060	3072060006	PS	WP	6/14/2012 0:01	RTI	0.308J	0.400	0.829	0.020U	0.277	0.656	7/11/12 20:52		
3072060	3072060007	PS	WP	6/14/2012 0:01	RTI	0.570J	0.476	0.845	0.439J	0.335	0.641	7/11/12 20:52		
3072060	3072060008	PS	WP	6/14/2012 0:01	RTI	-0.067U	0.320	0.912	0.066U	0.287	0.676	7/11/12 20:52		
3072060	3072060009	PS	WP	6/14/2012 0:01	RTI	0.179U	0.425	0.992	0.224J	0.299	0.643	7/11/12 20:52		
3072060	3072060010	PS	WP	6/18/2012 0:01	RTI	-0.320U	0.219	0.888	0.399J	0.336	0.694	7/11/12 20:52		
3072060	3072060011	PS	WP	6/18/2012 0:01	RTI	0.006U	0.328	0.874	0.397J	0.291	0.558	7/11/12 20:52		
3072060	3072060012	PS	WP	6/18/2012 0:01	RTI	0.659J	0.520	0.923	0.283J	0.303	0.612	7/11/12 20:52		
3072060	3072060013	PS	WP	6/18/2012 0:01	RTI	-0.167U	0.306	0.948	0.329J	0.291	0.596	7/11/12 20:52		
3072060	3072060014	PS	WP	6/18/2012 0:01	RTI	0.772J	0.535	0.881	0.240J	0.315	0.557	7/11/12 20:53		
3072060	3072060015	PS	WP	6/18/2012 0:01	RTI	-0.037U	0.357	0.972	0.449J	0.322	0.623	7/11/12 20:53		
3072060	3072060016	PS	WP	6/18/2012 0:01	RTI	0.114U	0.383	0.929	-0.095U	0.246	0.626	7/11/12 20:53		
3072060	3072060017	PS	WP	6/18/2012 0:01	RTI	-0.161U	0.271	0.866	0.812	0.388	0.654	7/11/12 20:53		
3072060	3072060018	PS	WP	6/18/2012 0:01	RTI	1.46	0.647	0.686	0.500J	0.336	0.587	7/11/12 20:53		
3072060	3072060019	PS	WP	6/18/2012 0:01	RTI	-0.085U	0.303	0.936	0.590J	0.348	0.612	7/18/12 15:22		

* This indicates a possible MCL exceedance may exist for this sample. Results greater than 15.0 pCi/L gross alpha must be reviewed expeditiously and the PM, Radchem Supervisor, and QA Manager notified immediately upon validation of the result. If the gross beta result is above 50 pCi/L, this may also indicate a reportable exceedance.

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Gross Alpha and Gross Beta Preparation Sheet

Batch: 12459
 Transfer Analyst: MBT
 Prep Date/Time: 7-9-12 12:00
 Matrix: Filter
 Logbook ID: 3-R021-5

Spike Analyst: NA
 QC ID: a: NA
 LCS QC Vol (mL): a: NA
 MS/MSD QC Vol (mL): a: NA
 Pipette ID: NA

Aliquot Balance ID: NA
 Tare Balance ID: NA
 Tare Wgt. Date: NA
 Gross Balance ID: NA
 Gross Wgt. Date: NA

Bottle ID	Sample No.	Analyst Initials		Analyst Initials		Analyst Initials		Sample Comments
		Tare Mass (g)	5mL Test Mass (g)	Sample Volume (mL)	Gross Mass (g)			
NA	458971	NA	NA	1.0	NA	NA	NA	
	30720580101							
	3072060001							
	2							
	3							
	4							
	5							
	6							
	7							
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	37							
	38							

Batch Comments: Ludox: 8N HNO₃: Conc HNO₃: MBT7-11-12

Date Placed in oven / / @ Date Removed / / @

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12459
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012
Reporting Units: dpm

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

Sigma 1.96
Zero Factor 2.71

Sample ID	Aliquot	Units	Tare (g)	Gross (g)	Residue (mg)	Det. ID	Count Date	Alpha Gross CPM	Beta Gross CPM	Count Duration (min)	Alpha Bkg CPM	Beta Bkg CPM	Bkg Count Duration (min)	Req Activity Units
458971	1.00000	S	9.0000	9.0000	0.00	20	7/11/2012 17:09	0.0500	0.3167	120	0.0970	0.3820	1000	dpm
3072058101	1.00000	S	9.0000	9.0000	0.00	23	7/11/2012 17:10	0.0500	0.4250	120	0.0750	0.4570	1000	dpm
3072060001	1.00000	S	9.0000	9.0000	0.00	13	7/11/2012 17:18	0.0833	0.4167	120	0.0500	0.3330	1000	dpm
3072060002	1.00000	S	9.0000	9.0000	0.00	12	7/11/2012 20:51	0.1667	0.4583	120	0.0890	0.3780	1000	dpm
3072060003	1.00000	S	9.0000	9.0000	0.00	13	7/11/2012 20:51	0.0417	0.4167	120	0.0500	0.3330	1000	dpm
3072060004	1.00000	S	9.0000	9.0000	0.00	14	7/11/2012 20:51	0.1417	0.7083	120	0.0690	0.3800	1000	dpm
3072060005	1.00000	S	9.0000	9.0000	0.00	15	7/11/2012 20:52	0.3250	0.7000	120	0.0820	0.4950	1000	dpm
3072060006	1.00000	S	9.0000	9.0000	0.00	16	7/11/2012 20:52	0.1083	0.4167	120	0.0610	0.3910	1000	dpm
3072060007	1.00000	S	9.0000	9.0000	0.00	18	7/11/2012 20:52	0.1500	0.6083	120	0.0630	0.3820	1000	dpm
3072060008	1.00000	S	9.0000	9.0000	0.00	19	7/11/2012 20:52	0.0667	0.4833	120	0.0770	0.4570	1000	dpm
3072060009	1.00000	S	9.0000	9.0000	0.00	20	7/11/2012 20:52	0.1250	0.4917	120	0.0970	0.3820	1000	dpm
3072060010	1.00000	S	9.0000	9.0000	0.00	23	7/11/2012 20:52	0.0250	0.6167	120	0.0750	0.4570	1000	dpm
3072060011	1.00000	S	9.0000	9.0000	0.00	27	7/11/2012 20:52	0.0750	0.4667	120	0.0740	0.2880	1000	dpm
3072060012	1.00000	S	9.0000	9.0000	0.00	28	7/11/2012 20:52	0.1833	0.4917	120	0.0810	0.3330	1000	dpm
3072060013	1.00000	S	9.0000	9.0000	0.00	29	7/11/2012 20:52	0.0583	0.4583	120	0.0840	0.3220	1000	dpm
3072060014	1.00000	S	9.0000	9.0000	0.00	30	7/11/2012 20:53	0.1917	0.5583	120	0.0720	0.4090	1000	dpm
3072060015	1.00000	S	9.0000	9.0000	0.00	31	7/11/2012 20:53	0.0833	0.5667	120	0.0890	0.3670	1000	dpm
3072060016	1.00000	S	9.0000	9.0000	0.00	33	7/11/2012 20:53	0.1083	0.3500	120	0.0900	0.3870	1000	dpm
3072060017	1.00000	S	9.0000	9.0000	0.00	34	7/11/2012 20:53	0.0500	0.7583	120	0.0760	0.4040	1000	dpm
3072060018	1.00000	S	9.0000	9.0000	0.00	37	7/11/2012 20:53	0.2750	0.6167	120	0.0420	0.3190	1000	dpm
3072060019	1.00000	S	9.0000	9.0000	0.00	29	7/18/2012 15:22	0.0500	0.5300	100	0.0630	0.2740	1000	dpm
LCS12459	1.00000	S	9.0000	9.0000	0.00	13	7/17/2012 12:53	0.5333	3.7667	90	0.1230	0.3450	1000	dpm
LCSD12459	1.00000	S	9.0000	9.0000	0.00	13	7/17/2012 14:24	0.4444	4.2667	90	0.1230	0.3450	1000	dpm

7/17/2012

MBT

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12459
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

Gross Alpha Results

Sample ID	Alpha Activity	Two-Sigma Count Uncertainty	Two-Sigma CSU	MDC	Critical Value	Units	Alpha Net CPM	Residue (mg)	Beta to Alpha Xtlk CPM	Xtlk corr. Net alpha CPM	Alpha eff	Activity Conversion
458971	-0.301	0.285	0.290	0.992	0.318	dpm/S	-0.047	0.00	0.000000	-0.047	15.61%	1
3072058101	-0.160	0.278	0.279	0.888	0.279	dpm/S	-0.025	0.00	0.000000	-0.025	15.64%	1
3072060001	0.223	0.357	0.360	0.785	0.238	dpm/S	0.033	0.00	0.000000	0.033	14.96%	1
3072060002	0.507	0.492	0.500	0.974	0.310	dpm/S	0.078	0.00	0.000000	0.078	15.32%	1
3072060003	-0.056	0.261	0.261	0.785	0.238	dpm/S	-0.008	0.00	0.000000	-0.008	14.96%	1
3072060004	0.462	0.441	0.448	0.853	0.266	dpm/S	0.073	0.00	0.000000	0.073	15.72%	1
3072060005	1.557	0.663	0.720	0.924	0.293	dpm/S	0.243	0.00	0.000000	0.243	15.61%	1
3072060006	0.308	0.396	0.400	0.829	0.256	dpm/S	0.047	0.00	0.000000	0.047	15.37%	1
3072060007	0.570	0.465	0.476	0.845	0.262	dpm/S	0.087	0.00	0.000000	0.087	15.27%	1
3072060008	-0.067	0.320	0.320	0.912	0.287	dpm/S	-0.010	0.00	0.000000	-0.010	15.39%	1
3072060009	0.179	0.424	0.425	0.992	0.318	dpm/S	0.028	0.00	0.000000	0.028	15.61%	1
3072060010	-0.320	0.211	0.219	0.888	0.279	dpm/S	-0.050	0.00	0.000000	-0.050	15.64%	1
3072060011	0.006	0.328	0.328	0.874	0.274	dpm/S	0.001	0.00	0.000000	0.001	15.80%	1
3072060012	0.659	0.506	0.520	0.923	0.292	dpm/S	0.102	0.00	0.000000	0.102	15.54%	1
3072060013	-0.167	0.305	0.306	0.948	0.301	dpm/S	-0.026	0.00	0.000000	-0.026	15.36%	1
3072060014	0.772	0.517	0.535	0.881	0.276	dpm/S	0.120	0.00	0.000000	0.120	15.50%	1
3072060015	-0.037	0.357	0.357	0.972	0.310	dpm/S	-0.006	0.00	0.000000	-0.006	15.35%	1
3072060016	0.114	0.382	0.383	0.929	0.296	dpm/S	0.018	0.00	0.000000	0.018	16.15%	1
3072060017	-0.161	0.270	0.271	0.866	0.273	dpm/S	-0.026	0.00	0.000000	-0.026	16.12%	1
3072060018	1.458	0.592	0.647	0.686	0.204	dpm/S	0.233	0.00	0.000000	0.233	15.98%	1
3072060019	-0.085	0.303	0.303	0.936	0.283	dpm/S	-0.013	0.00	0.000000	-0.013	15.36%	1
LCS12459	2.743	1.019	1.131	1.350	0.426	dpm/S	0.410	0.00	0.000000	0.410	14.96%	1
LCSD12459	2.149	0.932	1.008	1.350	0.426	dpm/S	0.321	0.00	0.000000	0.321	14.96%	1

M 7/20/12

MBT

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12459
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

Gross Beta Results

Sample ID	Beta Activity	Two-Sigma Count Uncertainty	Two-Sigma CSU	MDC	Critical Value	Units	Beta Net CPM	Residue (mg)	Alpha to Beta Xtlk CPM	Xtlk corr. Net beta CPM	Beta eff	Activity Conversion
458971	-0.108	0.243	0.244	0.643	0.222	dpm/S	-0.065	0.00	-0.017380	-0.048	44.32%	1
3072058101	-0.051	0.278	0.278	0.694	0.242	dpm/S	-0.032	0.00	-0.009220	-0.023	44.61%	1
3072060001	0.180	0.310	0.311	0.685	0.236	dpm/S	0.084	0.00	0.013581	0.070	39.03%	1
3072060002	0.112	0.277	0.278	0.619	0.214	dpm/S	0.080	0.00	0.029029	0.051	45.83%	1
3072060003	0.223	0.310	0.312	0.685	0.236	dpm/S	0.084	0.00	-0.003395	0.087	39.03%	1
3072060004	0.677	0.348	0.369	0.637	0.220	dpm/S	0.328	0.00	0.026079	0.302	44.64%	1
3072060005	0.270	0.349	0.352	0.719	0.251	dpm/S	0.205	0.00	0.084377	0.121	44.66%	1
3072060006	0.020	0.277	0.277	0.656	0.227	dpm/S	0.026	0.00	0.016774	0.009	43.92%	1
3072060007	0.439	0.326	0.335	0.641	0.222	dpm/S	0.226	0.00	0.031337	0.195	44.42%	1
3072060008	0.066	0.287	0.287	0.676	0.235	dpm/S	0.026	0.00	-0.003953	0.030	45.78%	1
3072060009	0.224	0.296	0.299	0.643	0.222	dpm/S	0.110	0.00	0.010354	0.099	44.32%	1
3072060010	0.399	0.329	0.336	0.694	0.242	dpm/S	0.160	0.00	-0.018439	0.178	44.61%	1
3072060011	0.397	0.282	0.291	0.558	0.191	dpm/S	0.179	0.00	0.000338	0.178	44.88%	1
3072060012	0.283	0.298	0.303	0.612	0.210	dpm/S	0.159	0.00	0.035124	0.124	43.73%	1
3072060013	0.329	0.285	0.291	0.596	0.205	dpm/S	0.136	0.00	-0.008873	0.145	44.19%	1
3072060014	0.240	0.312	0.315	0.657	0.228	dpm/S	0.149	0.00	0.042068	0.107	44.74%	1
3072060015	0.449	0.312	0.322	0.623	0.215	dpm/S	0.200	0.00	-0.001995	0.202	44.88%	1
3072060016	-0.095	0.246	0.246	0.626	0.216	dpm/S	-0.037	0.00	0.006353	-0.043	45.82%	1
3072060017	0.812	0.360	0.388	0.654	0.227	dpm/S	0.354	0.00	-0.008705	0.363	44.69%	1
3072060018	0.500	0.324	0.336	0.587	0.201	dpm/S	0.298	0.00	0.074301	0.223	44.70%	1
3072060019	0.590	0.331	0.348	0.612	0.205	dpm/S	0.256	0.00	-0.004494	0.260	44.19%	1
LCS12459	8.338	1.032	1.813	0.815	0.273	dpm/S	3.422	0.00	0.167178	3.254	39.03%	1
LCS12459	9.712	1.097	2.055	0.815	0.273	dpm/S	3.922	0.00	0.130963	3.791	39.03%	1

Jul 2012

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Quality Control Sample Performance Assessment

RCDU Upload

Analyst: MBT
Date: 7/16/2012
Worklist: 12459
Matrix: Filter

Method: EPA 900.0m
SOP: PGH-R-001
MB Sample ID: 458971



Sample Matrix Spike Control Assessment	
Analyte:	
Sample Collection Date:	
Sample I.D.:	
Sample MS I.D.:	
Sample MSD I.D.:	
Spike I.D.:	
MS/MSD Decay Corrected Spike Conc. (DPM/Sample):	
Spike Volume Used in MS (mL):	
Spike Volume Used in MSD (mL):	
MS Aliquot (L, g, F):	
MS Target Conc.(DPM/Sample, g, F):	
MSD Aliquot (L, g, F):	
MSD Target Conc. (DPM/Sample, g, F):	
MS Spike uncertainty (calculated):	
MSD Spike uncertainty (calculated):	
Sample Result:	
Sample 1.96 Sigma Unc.:	
Sample Matrix Spike Result:	
Sample MS 1.96 Sigma Unc.:	
Sample Matrix Spike Duplicate Result:	
Sample MSD 1.96 Sigma Unc.:	
MS % Recovery:	
MSD % Recovery:	
MS Assessment:	
MSD Assessment:	
MS/MSD Upper % Recovery Limits:	
MS/MSD Lower % Recovery Limits:	
Matrix Spike/Matrix Spike Duplicate Sample Assessment	

Method Blank Assessment		Laboratory Control Sample Assessment		Duplicate Sample Assessment	
Activity	1.96 Sig Unc.	MDC	Critical Value	Flag	Assessment
Gross Alpha	-0.3010	0.2900	0.31800		
Gross Beta	-0.1080	0.2440	0.22200		

Analyte:	Gross Alpha		Gross Beta	
	LCS	LCS/D	LCS	LCS/D
Count Date:	7/17/12 12:53	7/17/12 14:24	7/17/12 12:53	7/17/12 14:24
Spike I.D.:	12-018-F1	12-018-F2	12-014-F1	12-014-F2
Spike Concentration (DPM/Sample):	2.353	2.353	9.799	9.799
Volume Used (mL):	1.000	1.000	1.000	1.000
Aliquot Volume (L, g, F):	1.000	1.000	1.000	1.000
Target Conc. (DPM/Sample, g, F):	2.353	2.353	9.799	9.799
1.96 Sigma Uncertainty (Calculated):	0.138	0.138	0.192	0.192
Result (DPM/Sample, g, F):	2.743	2.149	8.338	9.712
1.96 Sigma Unc:	1.131	1.008	1.813	2.055
% Recovery:	116.58%	91.33%	86.09%	99.11%
Assessment:	Pass	Pass	Pass	Pass
Upper % Recovery Limits:	119.00%	119.00%	130.00%	130.00%
Lower % Recovery Limits:	62.00%	62.00%	79.00%	79.00%

LCS/LCSD Y or N?:	Y		Y	
	Gross Alpha	Gross Beta	Gross Alpha	Gross Beta
Sample I.D.:	LCS12459	LCS12459	LCS12459	LCS12459
Duplicate Sample I.D.:	LCSD12459	LCSD12459	LCSD12459	LCSD12459
Sample Result (DPM/Sample, g, F):	1.1310	1.1310	8.3380	8.3380
1.96 Sigma Unc:	1.1310	1.1310	1.8130	1.8130
Duplicate Result (DPM/Sample, g, F):	2.1490	2.1490	9.7120	9.7120
Duplicate Sample 1.96 Sigma Unc:	1.0090	1.0090	2.0550	2.0550
Either results below MDC?	N	N	N	N
Relative Percent Difference:	24.28%	15.22%		
Assessment:	Pass	Pass		
% RPD Limit:	35.00%	17.00%		

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

07/20/12

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Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12459
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

Analyst: MBT
PrepSOP1: PGH-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

CSU Factors (2 Sigma)
UE1 6.71%
UE2 13.23%
UE3 10.00%
UE4 0.00%

Det No.	Effective Calibration Date				Alpha Efficiency	Alpha to Beta Cross-Talk				Beta to Alpha Cross-Talk	Beta Eff: ax + b				Alpha Bkg	Beta Bkg	Alpha Bkg	Beta Bkg	BKG 1 Date	BKG 2 Date	7/13/2012
	a	b	c	d		e	a	b	c		d	e	a	b							
1					1.4286E-01					3.2336E-01	4.5624E-01				0.0640	0.8040	0.0640	0.8040			
2					1.5524E-01					2.7392E-01	4.5633E-01				0.0620	0.7010	0.0620	0.7010			
3					1.5070E-01					3.0910E-01	4.4491E-01				0.0600	0.6670	0.0600	0.6670			
4					1.4437E-01					2.9231E-01	4.3452E-01				0.1120	0.6050	0.1120	0.6050			
5					#N/A					#N/A	#N/A				0.0520	5.1640	0.0520	5.1640			
6					#N/A					#N/A	#N/A				0.0510		0.0510				
7					1.5705E-01					2.4638E-01	4.4360E-01				0.1070	0.8890	0.1070	0.8890			
8					1.4091E-01					3.0938E-01	4.2938E-01				0.0960	0.6310	0.0960	0.6310			
9					1.3453E-01					3.4289E-01	4.4454E-01				0.0550	0.6370	0.0550	0.6370			
10					#N/A					#N/A	#N/A				0.0590	0.7940	0.0590	0.7940			
11					1.5103E-01					4.0303E-01	4.5335E-01				0.1620	0.4680	0.1770	0.4410			
12					1.5319E-01					3.7376E-01	4.5830E-01				0.0890	0.3780	0.1550	0.4240			
13					1.4959E-01					4.0742E-01	3.9032E-01				0.0500	0.3330	0.1230	0.3450			
14					1.5721E-01					3.5899E-01	4.4635E-01				0.0690	0.3900	0.0820	0.4390			
15					1.5605E-01					3.4723E-01	4.4658E-01				0.0820	0.4950	0.1200	0.4700			
16					1.5965E-01					3.5438E-01	4.3920E-01				0.0610	0.3910	0.0870	0.5430			
17					1.5472E-01					3.2964E-01	4.4691E-01				0.1370	0.3960	0.0840	0.3710			
18					1.5273E-01					3.6020E-01	4.4422E-01				0.0630	0.3620	0.0730	0.3840			
19					1.5393E-01					3.8255E-01	4.5782E-01				0.0970	0.3620	0.0700	0.4330			
20					1.5610E-01					3.6978E-01	4.4321E-01				0.0780	0.3760	0.0590	0.3810			
21					1.5130E-01					4.0476E-01	4.5533E-01				0.0570	0.4160	0.1140	0.4060			
22					1.5360E-01					3.9282E-01	4.3554E-01				0.0750	0.4570	0.0720	0.4150			
23					1.5639E-01					3.6878E-01	4.4612E-01										
24					#N/A					#N/A	#N/A										
25					1.5698E-01					3.5511E-01	4.5368E-01				0.1270	0.4110	0.1580	0.4010			
26					1.5743E-01					3.3781E-01	4.5456E-01				0.1490	0.4370	0.0970	0.4050			
27					1.5803E-01					3.3826E-01	4.4883E-01				0.0740	0.2880	0.0690	0.3930			

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12459
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

Analyst: MBT
PrepSOP1: PGR-R-001
PrepSOP2: n/a
AnalSOP1: EPA 900.0
AnalSOP2: n/a

CSU Factors (2 Sigma)
UE1 6.71%
UE2 13.23%
UE3 10.00%
UE4 0.00%

Det No.	Effective Calibration Date				Alpha Efficiency	11/20/2006	Alpha to Beta Cross-Talk				Beta Efficiency	11/20/2006	Beta to Alpha Cross-Talk				N/A	BKG 1 Date: 6/3/2012	BKG 2 Date: 7/13/2012	
	a	b	c	d			e	a	b	c			d	e	a	b				c
26						1.5536E-01											0.0810	0.3330	0.1500	0.3480
29						1.5363E-01											0.0840	0.3220	0.0630	0.2740
30						1.5497E-01											0.0720	0.4090	0.2330	0.4240
31						1.5353E-01											0.0690	0.3670	0.0900	0.3660
32						1.5323E-01											0.0540	0.4120	0.0550	0.3380
33						1.6147E-01											0.0900	0.3870	0.1200	0.4100
34						1.6117E-01											0.0760	0.4040	0.1250	0.4480
35						#N/A											0.1970	0.3930	0.2070	0.3640
36						1.4953E-01											0.0930	0.4070	0.0670	0.3320
37						1.5981E-01											0.0420	0.3190	0.2180	0.4600
38						1.5294E-01											0.1100	0.3990	0.1040	0.3900
39						1.7614E-01											0.0780	12.4760	0.0780	12.4760
40						1.8178E-01											0.2530	12.6520	0.2530	12.5520
41						#N/A											2.7170	366.8100	2.7170	366.8100
42						1.4541E-01											0.2050	9.9000	0.2050	9.9000
43						1.7364E-01											0.1620	1.1560	0.1620	1.1560
44						1.7507E-01											0.1110	0.8900	0.1110	0.9900
45						1.6898E-01											0.1410	1.7460	0.1410	1.7460
46						1.6416E-01											0.0940	0.9840	0.2330	0.9840
47						1.7203E-01											0.1650	2.0860	0.1650	2.0860
48						1.8314E-01											0.3330	1.3450	0.3330	1.3450
49						1.6993E-01											0.2050	1.4900	0.2050	1.4600
50						1.6594E-01											0.1500	1.3750	0.1500	1.3750
51						1.7880E-01											0.1070	1.1480	0.1070	1.1480
52						1.7970E-01											0.1070	1.3970	0.1070	1.3970
53						1.7780E-01											0.1070	1.3970	0.1070	1.3970

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

CSU Analysis for Preparation

Planchet Weighing

uncert (g)	gross (g)	tare (g)	net (g)	CSU (g)	
0.0003	9.1463	9.1273	0.019	0.000424264	2.23%

Volume Aliquot

(mL)	vol (mL)	rel unc
1.00	100.0	1.00%

Description	relative	of Critical	CSU for Preparation (UE1)	Uncertainty	6.71%
Sample Aliquoting	1.00%	1	1.00%	0.01%	
Planchet Weighing	2.23%	2	3.16%	0.10%	
Sample transfer to planchet	3.00%	1	3.00%	0.09%	
Additional Uncertainty due to differences in the distribution of residue on the planchet	5.00%	1	5.00%	0.25%	

CSU Analysis for Analysis

Mass Aliquot

	Ref mass	uncert (g)	Rel unc
Tare	5	0.0004	
Gross	6	0.0004	Use max of 1%
net	1	0.000565685	0.057%

Description	Maximum	of Critical	CSU for Analysis (UE2)	Uncertainty	13.23%
SRM Uncertainty	5.00%	1	5.00%	0.25%	
Mass transfer	0.06%	2	0.08%	0.00%	
Source Reproducibility	5.00%	1	5.00%	0.25%	
Curve Fitting Uncertainty	5.00%	1	5.00%	0.25%	
Estimated Additional Uncertainty (variations in efficiency and self-absorption due to chemical composition of residue)	10.00%	1	10.00%	1.00%	

CSU Analysis for Yield Correction

Description	Maximum	of Critical	CSU for Yield (UE3)	Uncertainty	10.00%
Additional Sample Uncertainty due to analysis without a tracer or chemical carrier	10.00%	1	10.00%	1.00%	

2 Analyt
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Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

SAMPLE_ID	Det#	BEG_DATE	BATCH_ID	ACPM	BCPM	CNT_TIME
458971	20	7/11/2012 17:09	GAB12459	0.05	0.316666667	120
3072058101	23	7/11/2012 17:10	GAB12459	0.05	0.425	120
3072060001	13	7/11/2012 17:18	GAB12459	0.083333333	0.416666667	120
3072060002	12	7/11/2012 20:51	GAB12459	0.166666667	0.458333333	120
3072060003	13	7/11/2012 20:51	GAB12459	0.041666667	0.416666667	120
3072060004	14	7/11/2012 20:51	GAB12459	0.141666667	0.708333333	120
3072060005	15	7/11/2012 20:52	GAB12459	0.325	0.7	120
3072060006	16	7/11/2012 20:52	GAB12459	0.108333333	0.416666667	120
3072060007	18	7/11/2012 20:52	GAB12459	0.15	0.608333333	120
3072060008	19	7/11/2012 20:52	GAB12459	0.066666667	0.483333333	120
3072060009	20	7/11/2012 20:52	GAB12459	0.125	0.491666667	120
3072060010	23	7/11/2012 20:52	GAB12459	0.025	0.616666667	120
3072060011	27	7/11/2012 20:52	GAB12459	0.075	0.466666667	120
3072060012	28	7/11/2012 20:52	GAB12459	0.183333333	0.491666667	120
3072060013	29	7/11/2012 20:52	GAB12459	0.058333333	0.458333333	120
3072060014	30	7/11/2012 20:53	GAB12459	0.191666667	0.558333333	120
3072060015	31	7/11/2012 20:53	GAB12459	0.083333333	0.566666667	120
3072060016	33	7/11/2012 20:53	GAB12459	0.108333333	0.35	120
3072060017	34	7/11/2012 20:53	GAB12459	0.05	0.758333333	120
3072060018	37	7/11/2012 20:53	GAB12459	0.275	0.616666667	120
3072060019	19	7/17/2012 9:26	GAB12459	0.154545455	0.527272727	110
LCS12459	13	7/17/2012 12:53	GAB12459	0.533333333	3.766666667	90
LCS12459	13	7/17/2012 14:24	GAB12459	0.444444444	4.266666667	90
3072060019	29	7/18/2012 15:22	GAB12459	0.05	0.53	100

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
3072060019	7/18/2012 3:22:49 PM	29	GAB12459	0.050	0.5300	100.0
LCS12459	7/17/2012 2:24:57 PM	13	GAB12459	0.444	4.2667	90.0
LCS12459	7/17/2012 12:53:44 PM	13	GAB12459	0.533	3.7667	90.0
3072060019	7/17/2012 9:26:48 AM	19	GAB12459	0.155	0.5273	110.0
3072060018	7/11/2012 8:53:30 PM	37	GAB12459	0.275	0.6167	120.0
3072060017	7/11/2012 8:53:21 PM	34	GAB12459	0.050	0.7583	120.0
3072060016	7/11/2012 8:53:15 PM	33	GAB12459	0.108	0.3500	120.0
3072060015	7/11/2012 8:53:10 PM	31	GAB12459	0.083	0.5667	120.0
3072060014	7/11/2012 8:53:04 PM	30	GAB12459	0.192	0.5583	120.0
3072060013	7/11/2012 8:52:57 PM	29	GAB12459	0.058	0.4583	120.0
3072060012	7/11/2012 8:52:50 PM	28	GAB12459	0.183	0.4917	120.0
3072060011	7/11/2012 8:52:45 PM	27	GAB12459	0.075	0.4667	120.0
3072060010	7/11/2012 8:52:36 PM	23	GAB12459	0.025	0.6167	120.0
3072060009	7/11/2012 8:52:31 PM	20	GAB12459	0.125	0.4917	120.0
3072060008	7/11/2012 8:52:25 PM	19	GAB12459	0.067	0.4833	120.0
3072060007	7/11/2012 8:52:16 PM	18	GAB12459	0.150	0.6083	120.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
3072060006	7/11/2012 8:52:10 PM	16	GAB12459	0.108	0.4167	120.0
3072060005	7/11/2012 8:52:05 PM	15	GAB12459	0.325	0.7000	120.0
3072060004	7/11/2012 8:51:58 PM	14	GAB12459	0.142	0.7083	120.0
3072060003	7/11/2012 8:51:52 PM	13	GAB12459	0.042	0.4167	120.0
3072060002	7/11/2012 8:51:47 PM	12	GAB12459	0.167	0.4583	120.0
3072060001	7/11/2012 5:18:19 PM	13	GAB12459	0.083	0.4167	120.0
3072058101	7/11/2012 5:10:14 PM	23	GAB12459	0.050	0.4250	120.0
458971	7/11/2012 5:09:55 PM	20	GAB12459	0.050	0.3167	120.0

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/ time	Analyst	Re-Analysis Code	Comments
GAF	2	GAF-20170609-NS	GAFcal	210	7/11/12 16:26	R	NA	
	8	- N6		↓				
	21	- N1		150				
	22	- N2		↓				
	27	- N4						
	20	458971	GAB12459	120	7/11/12 17:10		NA	NA
	23	3072058101			↓			
	13	3072060001			17:18			
	19				20:53			
	13							
	14							
	15							
	16							
	18							
	19							
	20							
	23							
	27							
	28							
	30							
	31							
	32							
	33							
	34							
	35							
	36							
	37							

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/ time	Analyst	Re-Analysis Code	Comments
	37	3072060018	GAB12459	120	8053		NA	NA
	1	↓ 19	↓	↓			↓	↓
	19	3072059096	GAB12458	120	7/11/12 1710	BSH	NA	NA
GAB	13	3072434002	GAB12537	260	7/12/12 0800			
GAB	17	30727070010	GAB12403	90				
	32	72910001		340				
	35	72931		1000				
	34	72703						
	38	72770						
		↓ 72151						
		3560800						
		↓ 003						
		3072030001	GAB12575					
		72599						
		↓ 72587						
		↓ 72588						
GAB	11	453-12461	GAB12461	120	7/12/12 921	BSH	NA	NA
	17	454-12461	↓	↓	922			
	22	307200000	GAB12462	↓	920			
	36	45895	↓	130	924			
	38	5072000059	GAB12461	150	924			
	35	7206001	↓ 12462	↓	7/12/12 928	BSH	NA	NA
	12	45895	GAB12462	120	7-12-12	BSH	NA	NA

Page 218 of 388

- Legend:
- 1. Detector daily check failure
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 - 4. Sample was re-prepped
 - 5. Other noted comments

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 25-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
WAB	12	35010200100	GAB12033	90	7/17/12	J	WJA	WJA
J	14	354102005	J	140	J	J	J	J
J	15	1019517001	J	90	J	J	J	J
GAB	14	460308	GAB12033	90	7/9/12 0737	O	WJA	Sample added to Bank
J	32	307208001	J	J	7/10/12 0834	J	J	J
J	35	307208001	J	J	7/10/12 0831	J	J	J
J	3	307208001	J	J	7/10/12 0844	J	J	J
GAB	15	LOS#1 - 12456	GAB12456	90	7-17-12 0915	MUST	NA	NA
J	16	LOS#2 - 12456	J	J	J	J	J	J
J	17	LOS#3 - 12458	GAB12458	90	J	J	J	J
J	18	LOS#4 - 12458	J	J	J	J	J	J
J	19	3072080019	GAB12459	110	7-17-12 0928	MUST	NA	NA
J	20	458981	GAB12467	120	J	J	J	MDC
J	21	3072085083	GAB12468	110	J	J	J	MDC
J	22	J 87	J	100120	J	J	J	MDC
J	29	3072085093	GAB12468	110	J	J	J	MDC
J	31	3072086008	GAB12469	120	J	J	J	MDC
J	33	J 010	J	120	J	J	J	NA
J	34	3072086011	J	100	J	J	J	J
J	36	J 12	J	130	J	J	J	J
J	37	J 13	J	90	J	J	J	J
J	38	J 14	J	150	J	J	J	J
GAB	23	3072086015	GAB12469	100	07-17-12 0949	MUST	NA	NA
J	27	J 16	J	J	J	MUST	J	J

Page 219 of 388

- Legend:
1. Detector daily check failure
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 5. Other noted comments

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
GAS	25	3072086036	64312470	210	7/18/12 1402	RL	2	
	26	020		120	1410			
	27	021		100	1402			
	29	022		100	1328			
	30	040	64312471	270	1402			
	31	024	64312470	120	1505			
	36	031		100	1402			
	37	058		220	1328			
	33	035		130	1328			
	30	80040		17/18/12				
GAS	29	3072060019	64312459	100	7/18/12 1523	RL	2	
	14	3072086002	64312469	110	7/18/12 1611			
	16	041	12471	100	1627			
	17	042		110	1607			
	18	044			1652			
	19	045		120	1627			
	20	051		100	1602			
	21	053			1627			
	23	050			1602			
	24	LUSD12466 #4	64312466	100	1602			
27	3072086057	12471	100	1554				
29	058			1612				
36	458487	12472	100	1553				
38	LUSD12466 #3	64312466	90					

- Legend:
- 1. Detector daily check failure
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 - 5. Other noted comments

Pace Analytical Services, Inc.-Pittsburgh
 Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
GAB	51	3072085 027	GAB124465	300	7-13-12 0800	MST	NA	NA
	52	↓ 28	↓	↓	↓	↓	↓	↓
	53	↓ 29	↓	↓	↓	↓	↓	↓
GAB	43	LCS3 12475	GAB12475	90	7-10-12-125	MST	NA	NA
	44	↓ 4	↓	↓	↓	↓	↓	↓
	45	LCS1-12460	GAB12460	↓	↓	↓	↓	↓
	46	LCS2-12460	↓	↓	↓	↓	↓	↓
GAB	2	3072085 027	GAB12459	1000	7/10/12 1504	g	NA	NA
	3	↓ 7208061	↓	↓	↓	↓	↓	↓
	6	3072085 027	GAB12458	↓	7/10/12 1504	↓	↓	↓
	7	↓ 7208061	↓	↓	↓	↓	↓	↓
	8	↓ 7208061	↓	↓	↓	↓	↓	↓
	9	↓ 7208061	↓	↓	↓	↓	↓	↓
	10	↓ 7208061	↓	↓	↓	↓	↓	↓
GAB	13	LCS12459 #1	GAB12459	90	7/12/12 1253	Q	NA	NA
GAB	↓	LCS12459 #2	↓	↓	↓ 172F	↓	↓	↓

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

Gross Alpha and Beta Calibration Documentation

Gross Alpha and Beta Analysis of Smears Calibration Narrative

Date: 7/2/2012

Source Preparation Analyst: JLK

Calibration Analyst: JLK

Instrument ID: GFPC Systems LB770 Detectors 1-10
Protean Detectors 11-38
GFPC LB4110 Detectors 39-53

Calibration Description Details:

Twelve smears were prepared by weighing a portion of SRM 81005-493 (Sr-90/Y-90) onto six of the smears and a portion of Pace Standard Reference Material 12-028 (Th-230) onto the remaining six smears. The source material was evenly distributed over the whole of the smear and allowed to air dry to a constant weight.

In each detector, one smear of each, alpha and beta, was counted, and the efficiency of the detector determined by the observed net cpm divided by the decay corrected source dpm.

The sources were counted on each detector to obtain a minimum of 10000 net counts. Sources were prepared on 6/29/2012 using the balance with Pace ID 7A-7879.

The count information was entered into an excel spreadsheet to determine the alpha and beta efficiency of the detector for each counted source.

In addition, during alpha counting on a gas flow proportional counter, a certain number of alpha counts are also detected as beta counts. Using the count beta cpm for each source, an alpha to beta crosstalk factor for each detector was established.

JLK
7/2/12

Pace Analytical Services
Calibration

Cal. Isotope Th-230 Sr/Y-90
Cal Source ID: 12-028 81005-493
Source Conc. (dpm/g): 4719.33 87076.60
Source Ref. Date: 11/5/2009 11/5/2009
Source Half-Life (years): 75380 28.802

		Th-230	
Calibration Source I. D.	Mass of Th-230 Source Added (g)	Alpha Standard	DPM
GAF-20120629-N1	0.1012		477.60
GAF-20120629-N2	0.1000		471.93
GAF-20120629-N3	0.1008		475.71
GAF-20120629-N4	0.1006		474.76
GAF-20120629-N5	0.1007		475.24
GAF-20120629-N6	0.1008		475.71

		Sr/Y-90	
Calibration Source I. D.	Mass of Sr/Y-90 Source Added (g)	Sr/Y-90 Standard	DPM
GBF-20120629-N1	0.0396		3448.23
GBF-20120629-N2	0.0393		3422.11
GBF-20120629-N3	0.0402		3500.48
GBF-20120629-N4	0.0395		3439.53
GBF-20120629-N5	0.0400		3483.06
GBF-20120629-N6	0.0396		3448.23

9/27/2012

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

81005-493

Sr-90 5 mL Liquid in Flame Sealed Vial

Customer: Pace Analytical Services, Inc.
P.O. No.: PI-12089, Item 12

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated by liquid scintillation counting. Radionuclide purity and calibration were checked by germanium gamma-ray spectrometry and liquid scintillation counting. The nuclear decay rate and assay date for this source are given below. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 1, February, 1979, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Isotope	Half-Life, Days	Activity (Bq)	Uncertainty*, %			Reference Date (12:00 PM EST)
			μ_A	μ_B	U	
Sr-90	1.052E+04	3.630E+03	0.1	0.9	1.8	11/05/2009

***Uncertainty:** U - Relative expanded uncertainty, $k = 2$. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

Comments:

Impurities: γ -impurities <0.1%. 5.00249 g 0.1M HCl solution with approximately 30 $\mu\text{g/g}$ Sr carrier.

Source Prepared by: N. E. Kasate
N. E. Kasate, Radiochemist

QA Approved: D. M. Montgomery
D. M. Montgomery, QA Manager

Date: 11-6-09





Pace Analytical Services, Inc.-PGH

Radiological Standards Dilution Logbook

Logbook ID: 2-R056-0

Standard ID: <u>12-028</u>	Nuclide: <u>Th-230</u>	Std Conc.: <u>4719.33 dpm/g</u>
Parent Source: <u>81003-493</u>	<u>Calibration Solution</u>	Prepared By: <u>SLC</u>
Parent Conc: <u>3833.13 Bq/g</u>		Prep Date: <u>6/14/12</u>
Reference Date: <u>11/5/2009 12:00</u>		Expiration Date: <u>6/14/17</u>
Balance ID: <u>88914</u>	Conversions: 60 dpm = 1 dps	
Diluent: <u>1.0 N HNO₃ + DI (0.5 N HNO₃)</u>	1 Bq = 1 dps	
Diluent IDs: <u>DL12-1111</u>	2.22 dpm = 1 pCi	
Dilution Description: <u>CANNOT BE USED TO PREPARE GROSS ALPHA SPIKES</u>		
<u>diluted 1.0722 g of 81003-493 to 52.2516 g w/ 0.5 N 1 N HNO₃ + DI water</u>		
Eckert & Ziegler Analytics Atlanta, GA 30318 USA 404-352-8677		
Th-230 <u>4.893g</u> SRS: 81003-493 Activity: 0.52 µCi Date: 11/05/09 12:00 EST Exp: XXXXXX PO#: PI-12089, Item 8 5.02201 g 0.5M HNO ₃ solution QA: <u>MM</u>		
Dilution Calculations: $\frac{1.0722 \text{ g}}{3833.13 \text{ Bq/g}} \times \frac{60 \text{ dpm}}{\text{Bq}} = \frac{4719.33 \text{ dpm}}{\text{g}}$		
Vial initial 18.8665 final 17.7943		



Container Tare Weight: 37.4418 Balance ID: _____

Container + Standard Final Weight: 89.6934

Standard Final Disposal (circle one) Consumed Destroyed Discarded

Analyst initials: _____ Date: _____

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

81003-493

Th-230 5 mL Liquid in Flame Sealed Vial

Customer: Pace Analytical Services, Inc.
P.O. No.: PI-12089, Item 8

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated by liquid scintillation counting. Radionuclide purity and calibration were checked by germanium gamma-ray spectrometry and liquid scintillation counting. The nuclear decay rate and assay date for this source are given below. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 1, February, 1979, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Isotope	Half-Life, Days	Activity (Bq)	Uncertainty* , %			Reference Date (12:00 PM EST)
			u_A	u_B	U	
Th-230	2.763E+07	1.925E+04	0.1	0.9	1.8	11/05/2009

*Uncertainty: U - Relative expanded uncertainty, $k = 2$. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

Comments:

Impurities: γ -impurities <0.1%, α -impurities <0.04%. 5.02201 g 0.5M HNO3 solution, carrier free.

Source Prepared by: N. E. Kasate
N. E. Kasate, Radiochemist

QA Approved: D. M. Montgomery
D. M. Montgomery, QA Manager

Date: 11-6-09



Gross Alpha Calibration for Filters and Smears

Jun-12

Detector ID	Source Name	Th-230 12-028 Mass (g)	Source dpm	Source CPM	Alpha Eff. cpm/dpm	Det Alpha BKG	Source Beta CPM	Det Beta BKG	Alpha to beta Cross talk Eff
1	GAF-20120629-N1	0.1012	477.6	68.150	0.1426	0.064	22.820	0.804	0.3234
2	GAF-20120629-N5	0.1007	475.2	73.840	0.1552	0.062	20.910	0.701	0.2739
3	GAF-20120629-N2	0.1000	471.9	71.180	0.1507	0.060	22.650	0.667	0.3091
4	GAF-20120629-N3	0.1008	475.7	68.790	0.1444	0.112	20.680	0.605	0.2923
7	GAF-20120629-N4	0.1006	474.8	74.670	0.1571	0.107	19.060	0.689	0.2464
8	GAF-20120629-N6	0.1008	475.7	67.130	0.1409	0.096	21.370	0.631	0.3094
9	GAF-20120629-N6	0.1008	475.7	64.050	0.1345	0.055	22.580	0.637	0.3429
11	GAF-20120629-N1	0.1012	477.6	72.293	0.1510	0.162	29.540	0.469	0.4030
12	GAF-20120629-N2	0.1000	471.9	72.387	0.1532	0.089	27.400	0.378	0.3738
13	GAF-20120629-N3	0.1008	475.7	71.213	0.1496	0.050	29.327	0.333	0.4074
14	GAF-20120629-N1	0.1012	477.6	75.153	0.1572	0.069	27.327	0.380	0.3589
15	GAF-20120629-N2	0.1000	471.9	73.727	0.1560	0.082	26.067	0.495	0.3472
16	GAF-20120629-N3	0.1008	475.7	73.153	0.1536	0.061	26.293	0.391	0.3544
17	GAF-20120629-N4	0.1006	474.8	73.593	0.1547	0.137	24.600	0.386	0.3296
18	GAF-20120629-N5	0.1007	475.2	72.847	0.1527	0.063	26.527	0.382	0.3602
19	GAF-20120629-N2	0.1000	471.9	72.720	0.1539	0.077	28.247	0.457	0.3826
20	GAF-20120629-N1	0.1012	477.6	74.650	0.1561	0.097	27.950	0.382	0.3698
21	GAF-20120629-N1	0.1012	477.6	72.340	0.1513	0.078	29.627	0.378	0.4048
22	GAF-20120629-N2	0.1000	471.9	72.547	0.1536	0.057	28.893	0.418	0.3928
23	GAF-20120629-N3	0.1008	475.7	74.473	0.1564	0.075	27.893	0.457	0.3688
25	GAF-20120629-N3	0.1008	475.7	75.753	0.1590	0.127	27.267	0.411	0.3551
26	GAF-20120629-N4	0.1006	474.8	74.993	0.1574	0.149	25.687	0.437	0.3378
27	GAF-20120629-N4	0.1006	474.8	75.100	0.1580	0.074	25.667	0.288	0.3383
28	GAF-20120629-N6	0.1008	475.7	73.987	0.1554	0.081	25.700	0.333	0.3432
29	GAF-20120629-N3	0.1008	475.7	73.167	0.1536	0.084	25.587	0.322	0.3457
30	GAF-20120629-N4	0.1006	474.8	73.647	0.1550	0.072	26.273	0.409	0.3515
31	GAF-20120629-N5	0.1007	475.2	73.053	0.1535	0.089	26.053	0.367	0.3520
32	GAF-20120629-N6	0.1008	475.7	75.327	0.1582	0.054	25.493	0.412	0.3332
33	GAF-20120629-N4	0.1006	474.8	76.750	0.1615	0.090	26.950	0.387	0.3465
34	GAF-20120629-N3	0.1008	475.7	76.747	0.1612	0.076	26.073	0.404	0.3348
36	GAF-20120629-N4	0.1006	474.8	71.087	0.1495	0.093	26.007	0.407	0.3606
37	GAF-20120629-N4	0.1006	474.8	75.913	0.1598	0.042	24.513	0.319	0.3189
38	GAF-20120629-N6	0.1008	475.7	72.673	0.1525	0.110	25.573	0.399	0.3469
39	GAF-20120629-N1	0.1012	477.6	84.202	0.1761	0.078	35.832	12.476	0.2776
40	GAF-20120629-N2	0.1000	471.9	86.031	0.1818	0.253	34.336	12.552	0.2540
42	GAF-20120629-N5	0.1007	475.2	69.311	0.1454	0.205	44.167	9.900	0.4959
43	GAF-20120629-N4	0.1006	474.8	82.599	0.1736	0.162	24.401	1.156	0.2820
44	GAF-20120629-N5	0.1007	475.2	83.913	0.1751	0.111	25.324	0.990	0.2925
45	GAF-20120629-N6	0.1008	475.7	80.517	0.1690	0.141	23.079	1.746	0.2654
46	GAF-20120629-N6	0.1008	475.7	78.325	0.1642	0.233	23.862	0.984	0.2930
47	GAF-20120629-N1	0.1012	477.6	82.254	0.1720	0.094	25.026	1.167	0.2904
48	GAF-20120629-N2	0.1000	471.9	86.594	0.1831	0.165	25.407	2.086	0.2698
49	GAF-20120629-N3	0.1008	475.7	81.172	0.1699	0.333	25.048	1.345	0.2932
50	GAF-20120629-N4	0.1006	474.8	78.986	0.1659	0.205	23.555	1.460	0.2805
51	GAF-20120629-N1	0.1012	477.6	85.544	0.1788	0.150	25.305	1.375	0.2802
52	GAF-20120629-N2	0.1000	471.9	84.912	0.1797	0.107	25.611	1.148	0.2885
53	GAF-20120629-N3	0.1008	475.7	84.689	0.1778	0.107	24.618	1.397	0.2745

	Alpha Cts	Beta Cts	Ct Time
39	GAF-20120629-N1	10100	4298
40	GAF-20120629-N2	10100	4031
42	GAF-20120629-N3	10100	6436
43	GAF-20120629-N4	10101	2984
44	GAF-20120629-N5	10100	3070
45	GAF-20120629-N6	10100	2895
46	GAF-20120629-N6	10100	3077
47	GAF-20120629-N1	10100	3073
48	GAF-20120629-N2	10102	2964
49	GAF-20120629-N3	10101	3117
50	GAF-20120629-N4	10100	3012
51	GAF-20120629-N1	10101	2988
52	GAF-20120629-N2	10102	3047
53	GAF-20120629-N3	10100	2936

M 7/21/12

Sample Measurement
 C:\UMS\UTL0001\GBFCAL.SDT

Sample Measurement Parameters:

User: JLK
 Preset Time: 15:00
 Alpha Preset Error: 1.0%
 User Protocol: GAB

Instrument Name: LB770PC
 Cycles: 1
 Beta Preset Error: 1.0%

Cycle 1 of 2 (1/1 in group 1 of 2)

Start Time: 07/02/2012 10:21:02

Elapsed Time: 15:00

Guard: 830 cpm

	<u>Spl #</u>	<u>Sample Name</u>	<u>Alpha (raw cpm)</u>	<u>MDA</u>	<u>MRA</u>	<u>Beta (raw cpm)</u>	<u>MDA</u>	<u>MRA</u>
1	12457	GBF-20120629-N1	0.067 (±100%)	0.0077	0.0025	1476 (±0.672%)	0.0191	0.0081
2	12457	GBF-20120629-N2	0.067 (±100%)	0.0090	0.0031	1465 (±0.675%)	0.0180	0.0075
3	12457	GBF-20120629-N3	0.13 (±70.7%)	0.0100	0.0036	1461 (±0.675%)	0.0184	0.0077
4	12457	GBF-20120629-N4	0.27 (±50.0%)	0.0090	0.0031	1402 (±0.689%)	0.0191	0.0081
5	12491	E	0.13 (±70.7%)	0.0090	0.0031	7.1 (±9.71%)	0.0331	0.0151
6	12491	E	0.000	0.0100	0.0036	7.5 (±9.45%)	0.0482	0.0226
7	12457	E	0.000	0.0100	0.0036	1.1 (±25.0%)	0.0191	0.0081
8	12457	GBF-20120629-N5	0.000	0.0077	0.0025	1403 (±0.689%)	0.0176	0.0073
9	12457	GBF-20120629-N6	0.27 (±50.0%)	0.0100	0.0036	1438 (±0.681%)	0.0194	0.0082
10	12491	E	0.20 (±57.7%)	undef.	undef.	1.7 (±20.0%)	0.0201	0.0086

Cycle 2 of 2 (1/1 in group 2 of 2)

Start Time: 07/02/2012 10:44:20

Elapsed Time: 15:00

Guard: 837 cpm

	<u>Spl #</u>	<u>Sample Name</u>	<u>Alpha (raw cpm)</u>	<u>MDA</u>	<u>MRA</u>	<u>Beta (raw cpm)</u>	<u>MDA</u>	<u>MRA</u>
1	12467	E	0.000	0.0077	0.0025	0.9 (±26.7%)	0.0191	0.0081
2	12467	E	0.000	0.0090	0.0031	0.8 (±28.9%)	0.0180	0.0075
3	12467	E	0.33 (±44.7%)	0.0100	0.0036	0.9 (±27.7%)	0.0184	0.0077
4	12467	E	0.13 (±70.7%)	0.0090	0.0031	1.0 (±25.8%)	0.0191	0.0081
5	12501	E	0.20 (±57.7%)	0.0090	0.0031	7.0 (±9.76%)	0.0331	0.0151
6	12501	E	0.13 (±70.7%)	0.0100	0.0036	Outliers!	0.0482	0.0226
7	12467	GBF-20120629-N1	0.000	0.0100	0.0036	1435 (±0.682%)	0.0191	0.0081
8	12467	E	0.13 (±70.7%)	0.0077	0.0025	0.6 (±33.3%)	0.0176	0.0073
9	12467	E	0.067 (±100%)	0.0100	0.0036	0.5 (±35.4%)	0.0194	0.0082
10	12501	E	0.20 (±57.7%)	undef.	undef.	0.8 (±28.9%)	0.0201	0.0086

Sample Measurement
C:\UMS\UTL0001\12579.SDT

Sample Measurement Parameters:

Comment: FILTER CAL

User: JLK

Preset Time: 150:00

Alpha Preset Error: 1.0%

User Protocol: GAB

Instrument Name: LB770PC

Cycles: 1

Beta Preset Error: 1.0%

Calculated

Cycle 1 of 1

Start Time: 07/06/2012 14:51:00

Elapsed Time: 150:00

Guard: 821.5 cpm

Outlier

	<u>Spl #</u>	<u>Sample Name</u>	<u>Alpha (raw cpm)</u>	<u>MDA</u>	<u>MRA</u>	<u>Beta (raw cpm)</u>	<u>MDA</u>	<u>MRA</u>
1	12617	GAF20120629-N1	68.15 (±0.989%)	0.0038	0.0020	22.82 (±1.71%)	0.0110	0.0054
2	12617	3072445001 ✗	0.307 (±14.7%)	0.0047	0.0024	0.887 (±8.67%)	0.0103	0.0051
3	12617	GAF20120629-N2	71.18 (±0.968%)	0.0053	0.0027	22.65 (±1.72%)	0.0106	0.0052
4	12617	GAF20120629-N3	68.79 (±0.984%)	0.0047	0.0024	20.68 (±1.80%)	0.0110	0.0054
5	12651	3072515001 ✗	0.113 (±24.3%)	0.0047	0.0024	5.053 (±3.63%)	0.0199	0.0098
6	12651	3072439001 ✗	0.167 (±20.0%)	0.0053	0.0027	1.033 (±8.03%)	0.0294	0.0146
7	12617	GAF20120629-N4	74.67 (±0.945%)	0.0053	0.0027	19.06 (±1.87%)	0.0110	0.0054
8	12617	GAF20120629-N5	65.85 (±1.01%)	0.0038	0.0020	Outliers!	0.0101	0.0050
9	12617	GAF20120629-N6	64.05 (±1.02%)	0.0053	0.0027	22.58 (±1.72%)	0.0112	0.0055
10	12651	3072441001 ✗	0.253 (±16.2%)	undef.	undef.	Outliers!	0.0117	0.0057

Sample Measurement
C:\UMS\GAB12548.SDT

Sample Measurement Parameters:

Comment: DET2,8-GAF

User: MAW

Preset Time: 210:00

Alpha Preset Error: 1.0%

User Protocol: GAB

Instrument Name: LB770PC

Cycles: 1

Beta Preset Error: 1.0%

myella

Cycle 1 of 1

Start Time: 07/11/2012 16:26:04

Elapsed Time: 210:00

Guard: 822.6 cpm

	<u>Spl #</u>	<u>Sample Name</u>	<u>Alpha (raw cpm)</u>	<u>MDA</u>	<u>MRA</u>	<u>Beta (raw cpm)</u>	<u>MDA</u>	<u>MRA</u>
1	12478	460442	0.071 (±25.8%)	0.0037	0.0020	0.862 (±7.43%)	0.0107	0.0053
2	12787	20120629N5	73.84 (±0.803%)	0.0045	0.0023	20.91 (±1.51%)	0.0100	0.0050
3	12478	3072554002	0.048 (±31.6%)	0.0051	0.0026	0.633 (±8.67%)	0.0103	0.0051
4	12787	3072554003	0.110 (±20.9%)	0.0045	0.0023	0.657 (±8.51%)	0.0107	0.0053
5	12821	E	0.062 (±27.7%)	0.0045	0.0023	5.705 (±2.89%)	0.0194	0.0096
6	12821	E	0.033 (±37.8%)	0.0051	0.0026	35.65 (±1.16%)	0.0287	0.0142
7	12478	3072512001	0.124 (±19.6%)	0.0051	0.0026	0.743 (±8.01%)	0.0107	0.0053
8	12787	20120629N6	67.13 (±0.842%)	0.0037	0.0020	21.37 (±1.49%)	0.0098	0.0049
9	12478	3072512002	0.038 (±35.4%)	0.0051	0.0026	0.867 (±7.41%)	0.0109	0.0054
10	12821	E	0.057 (±28.9%)	undef.	undef.	Outliers!	0.0113	0.0056

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
GAF-20120629-N1	7/3/2012 9:47:19 AM	11	FilterCal	72.293	29.5400	150.0
GBF-20120629-N1	7/3/2012 9:29:22 AM	11	FilterCal	0.600	1466.2000 ✓	10.0

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
GAF-20120629-N2	7/3/2012 9:47:32 AM	12	FilterCal	72.387	27.4000	150.0
GBF-20120629-N2	7/3/2012 9:29:37 AM	12	FilterCal	0.100	1470.9000	10.0

Pace Analytical Protean GFPC System Count Data

<u>SAMPLE ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N3	7/11/2012 2:36:44 PM	13	FilterCal	71.213	29.3267	150.0
GBF-20120629-N3	7/11/2012 2:19:24 PM	13	FilterCal	0.000	1280.7000	10.0

Pace Analytical Protean GFPC System Count Data

<u>SAMPLE_ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH_ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N1	7/3/2012 2:24:41 PM	14	FilterCal	75.153	27.3267	150.0
GBF-20120629-N1	7/3/2012 10:42:05 AM	14	FilterCal	0.200	1443.5000	10.0

Pace Analytical Protean GFPC System Count Data

SAMPLE_ID	Count Start:	DET#	BATCH_ID	Alpha cpm	Beta cpm	Ct. Time (min)
GAF-20120629-N2	7/3/2012 2:02:30 PM	15	FilterCal	73.727	26.0667	150.0
GBF-20120629-N4	7/2/2012 11:11:45 AM	15	FilterCal	0.500	1440.8000	10.0

Pace Analytical Protean GFPC System Count Data

<u>SAMPLE_ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH_ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N3	7/3/2012 9:29:59 AM	16	FilterCal	73.153	26.2933	150.0
GBF-20120629-N2	7/2/2012 10:43:46 AM	16	FilterCal	0.300	1409.7000	10.0

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
GAF-20120629-N4	7/3/2012 9:30:16 AM	17	FilterCal	73.593	24.6000	150.0
GBF-20120629-N3	7/2/2012 10:43:59 AM	17	FilterCal	0.400	1467.3000	10.0

Pace Analytical Protean GFPC System Count Data

<u>SAMPLE ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N5	7/3/2012 9:48:13 AM	18	FilterCal	72.647	26.5267	150.0
GBF-20120629-N6	7/3/2012 9:30:48 AM	18	FilterCal	0.800	1436.6000	10.0

Pace Analytical Protean GFPC System Count Data

<u>SAMPLE ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N2	7/2/2012 1:49:37 PM	19	FilterCal	72.720	28.2467	150.0
GBF-20120629-N4	7/2/2012 10:45:02 AM	19	FilterCal	0.400	1477.0000	10.0

Pace Analytical Protean GFPC System Count Data

<u>SAMPLE ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GBF-20120629-N5	7/2/2012 10:45:16 AM	20	FilterCal	1.200	1447.9000	10.0
GAF-20120629-N1	7/2/2012 9:15:23 AM	20	FilterCal	74.650	27.9500	20.0

Pace Analytical Protean GFPC System Count Data

<u>SAMPLE_ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH_ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N1	7/11/2012 4:56:45 PM	21	FilterCal	72.340	29.6267	150.0
GBF-20120629-N4	7/3/2012 9:31:14 AM	21	FilterCal	0.100	1468.8000	10.0

Pace Analytical Protean GFPC System Count Data

<u>SAMPLE_ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH_ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N2	7/11/2012 4:56:49 PM	22	FilterCal	72.547	28.8933	150.0
GBF-20120629-N5	7/3/2012 9:31:27 AM	22	FilterCal	0.100	1422.8000	10.0

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
GAF-20120629-N6	7/3/2012 9:31:51 AM	23	FilterCal	74.473	27.8933	150.0
GBF-20120629-N6	7/2/2012 10:45:30 AM	23	FilterCal	0.100	1442.9000	10.0

Pace Analytical Protean GFPC System Count Data

<u>SAMPLE_ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH_ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N3	7/11/2012 9:40:23 AM	25	FilterCal	75.753	27.2667	150.0
GBF-20120629-N1	7/2/2012 11:01:12 AM	25	FilterCal	0.700	1467.3000	10.0

Pace Analytical Protean GFPC System Count Data

<u>SAMPLE_ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH_ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N4	7/11/2012 9:40:34 AM	26	FilterCal	74.893	25.6867	150.0
GBF-20120629-N2	7/2/2012 11:00:59 AM	26	FilterCal	0.700	1459.1000	10.0

Pace Analytical Protean GFPC System Count Data

<u>SAMPLE_ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH_ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N4	7/11/2012 4:57:04 PM	27	FilterCal	75.100	25.6667	150.0
GBF-20120629-N3	7/3/2012 9:33:31 AM	27	FilterCal	1.600	1473.4000	10.0

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
GAF-20120629-N6	7/11/2012 8:57:09 AM	28	FilterCal	73.987	25.7000	150.0
GBF-20120629-N5	7/2/2012 11:12:08 AM	28	FilterCal	1.000	1428.4000	10.0

Pace Analytical Protean GFPC System Count Data

SAMPLE_ID	Count Start:	DET#	BATCH_ID	Alpha cpm	Beta cpm	Ct. Time (min)
GAF-20120629-N3	7/3/2012 2:56:52 PM	29	FilterCal	73.167	25.5867	150.0
GBF-20120629-N6	7/2/2012 11:12:21 AM	29	FilterCal	0.500	1429.0000	10.0

Pace Analytical Protean GFPC System Count Data

<u>SAMPLE_ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH_ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N4	7/3/2012 2:25:53 PM	30	FilterCal	73.647	26.2733	150.0
GBF-20120629-N1	7/3/2012 9:52:01 AM	30	FilterCal	0.300	1446.8000	10.0

Pace Analytical Protean GFPC System Count Data

<u>SAMPLE_ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH_ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N5	7/3/2012 2:20:47 PM	31	FilterCal	73.053	26.0533	150.0
GBF-20120629-N3	7/2/2012 11:00:42 AM	31	FilterCal	0.300	1473.5000	10.0

Pace Analytical Protean GFPC System Count Data

<u>SAMPLE_ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH_ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N6	7/3/2012 1:37:00 PM	32	FilterCal	75.327	25.4933	150.0
GBF-20120629-N2	7/3/2012 9:52:17 AM	32	FilterCal	1.000	1477.0000	10.0

Pace Analytical Protean GFPC System Count Data

<u>SAMPLE ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GBF-20120629-N4	7/2/2012 11:00:28 AM	33	FilterCal	0.600	1478.3000	10.0
GAF-20120629-N4	7/2/2012 9:15:53 AM	33	FilterCal	76.750	26.9500	20.0

Pace Analytical Protean GFPC System Count Data

<u>SAMPLE_ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH_ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N3	7/2/2012 1:50:53 PM	34	FilterCal	76.747	26.0733	150.0
GBF-20120629-N5	7/2/2012 11:00:14 AM	34	FilterCal	0.500	1459.9000	10.0

Pace Analytical Protean GFPC System Count Data

<u>SAMPLE_ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH_ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N4	7/2/2012 1:51:09 PM	36	FilterCal	71.087	26.0067	150.0
GBF-20120629-N5	7/2/2012 9:29:29 AM	36	FilterCal	0.000	1412.4000	10.0
GBF-20120629-N4	7/2/2012 9:16:09 AM	36	FilterCal	0.300	1458.3000	10.0

Pace Analytical Protean GFPC System Count Data

<u>SAMPLE_ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH_ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N4	7/2/2012 9:43:05 AM	37	FilterCal	75.913	24.5133	150.0
GBF-20120629-N4	7/2/2012 9:29:44 AM	37	FilterCal	0.600	1441.8000	10.0

Pace Analytical Protean GFPC System Count Data

<u>SAMPLE_ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH_ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N6	7/2/2012 1:51:25 PM	38	FilterCal	72.673	25.5733	150.0
GBF-20120629-N6	7/2/2012 10:59:58 AM	38	FilterCal	0.800	1432.1000	10.0



Batch Report

Batch Name: GAF Cal
Procedure: GAB Filter Counting
Calibration: Water

Count Date: 7/9/2012 2:56:48 PM

Preset Count Time: 9000

Count Mode: Simultaneous

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
39-GAF20120629-N1	39	10100	4298	7/9/2012 2:56:42 PM	119.95
40-GAF20120629-N2	40	10100	4031	7/9/2012 2:56:42 PM	117.4
42-GAF20120629-N3	42	9128	7355	7/9/2012 2:56:42 PM	150
43-GAF20120629-N4	43	10101	2984	7/9/2012 2:56:43 PM	122.29
44-GAF20120629-N5	44	10100	3070	7/9/2012 2:56:43 PM	121.23
45-GAF20120629-N6	45	10100	2895	7/9/2012 2:56:43 PM	125.44

Batch Report

Batch Name: GAF CAL 2 **Count Date:** 7/10/2012 10:39:50 AM
Procedure: GAB Filter Counting **Preset Count Time:** 9000
Calibration: Water **Count Mode:** Simultaneous

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
47-GAF20120629-N1	47	10100	3073	7/10/2012 10:39:46 AM	122.79
48-GAF20120629-N2	48	10102	2964	7/10/2012 10:39:46 AM	116.66
49-GAF20120629-N3	49	10101	3117	7/10/2012 10:39:46 AM	124.44
50-GAF20120629-N4	50	10100	3012	7/10/2012 10:39:46 AM	127.87
42-GAF20120629-N5	42	10100	6436	7/10/2012 10:39:45 AM	145.72



Batch Report

Batch Name: GAF CAL 4

Procedure: GAB Filter Counting

Calibration: Water

Count Date: 7/10/2012 1:34:52 PM

Preset Count Time: 9000

Count Mode: Simultaneous

Sample ID

DetectorName

Alpha Counts

Beta Counts

Count Date/Time

Count Duration
(minutes)

46-GAF20120629-N6

46

10100

3077

7/10/2012 1:34:49 PM

128.95

Batch Report

Batch Name: GAF CAL 3

Procedure: GAB Filter Counting

Calibration: Water

Count Date: 7/10/2012 12:52:40 PM

Preset Count Time: 9000

Count Mode: Simultaneous

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
51-GAF20120629-N1	51	10101	2988	7/10/2012 12:52:37 PM	118.08
52-GAF20120629-N2	52	10102	3047	7/10/2012 12:52:37 PM	118.97
53-GAF20120629-N3	53	10100	2936	7/10/2012 12:52:37 PM	119.26



Batch Report

Batch Name: GBF Cal Count Date: 7/9/2012 2:00:28 PM

Procedure: GAB Filter Counting

Preset Count Time: 900

Calibration: Water

Count Mode: Simultaneous

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
39-GBF20120629-N1	39	110	10508	7/9/2012 2:00:24 PM	7.05
40-GBF20120629-N2	40	42	10517	7/9/2012 2:00:24 PM	7.15
41-GBF20120629-N3	41	1	10504	7/9/2012 2:00:24 PM	12.02
42-GBF20120629-N4	42	9	10514	7/9/2012 2:00:24 PM	9.69
43-GBF20120629-N5	43	126	10516	7/9/2012 2:00:24 PM	7.24
44-GBF20120629-N6	44	69	10509	7/9/2012 2:00:25 PM	7.19
45-GBF20120629-N5	45	77	10519	7/9/2012 2:31:09 PM	7.39
46-GBF20120629-N6	46	70	10508	7/9/2012 2:31:09 PM	7.26
47-GBF20120629-N1	47	90	10511	7/9/2012 2:31:10 PM	7.08
48-GBF20120629-N2	48	90	10514	7/9/2012 2:31:10 PM	6.97
49-GBF20120629-N3	49	59	10506	7/9/2012 2:31:10 PM	7.24
50-GBF20120629-N4	50	63	10520	7/9/2012 2:31:10 PM	7.18
51-GBF20120629-N5	51	86	10510	7/9/2012 2:40:13 PM	7.05
52-GBF20120629-N6	52	79	10502	7/9/2012 2:40:13 PM	7.11
53-GBF20120629-N1	53	68	10517	7/9/2012 2:40:13 PM	6.9

Background Report

Batch Name: Batch_1884
Procedure: BACKGROUND
Calibration: DAILY BKG CHECK

Count Date: 7/6/2012 2:38:20 PM
Preset Count Time: 60000
Count Mode: Simultaneous

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
51	1.5000E-001 +/- 1.2247E-002	1.3750E+000 +/- 3.7081E-002

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
52	1.0700E-001 +/- 1.0344E-002	1.1480E+000 +/- 3.3882E-002

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
53	1.0700E-001 +/- 1.0344E-002	1.3970E+000 +/- 3.7376E-002

Batch Name: Batch_1886
Procedure: BACKGROUND
Calibration: DAILY BKG CHECK

Count Date: 7/6/2012 2:38:19 PM
Preset Count Time: 60000
Count Mode: Simultaneous

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
43	1.6200E-001 +/- 1.2728E-002	1.1560E+000 +/- 3.4000E-002

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
44	1.1100E-001 +/- 1.0536E-002	9.9000E-001 +/- 3.1464E-002

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
45	1.4100E-001 +/- 1.1874E-002	1.7460E+000 +/- 4.1785E-002

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
46	2.3300E-001 +/- 1.5264E-002	9.8400E-001 +/- 3.1369E-002

Batch Name: Batch_1885
Procedure: BACKGROUND
Calibration: DAILY BKG CHECK

Count Date: 7/6/2012 2:38:16 PM
Preset Count Time: 60000
Count Mode: Simultaneous

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
47	9.4000E-002 +/- 9.6954E-003	1.1670E+000 +/- 3.4161E-002

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
48	1.6500E-001 +/- 1.2845E-002	2.0860E+000 +/- 4.5673E-002

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
49	3.3300E-001 +/- 1.8248E-002	1.3450E+000 +/- 3.6674E-002

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
50	2.0500E-001 +/- 1.4318E-002	1.4600E+000 +/- 3.8210E-002

Batch Name: Batch_1887
 Procedure: BACKGROUND
 Calibration: DAILY BKG CHECK

Count Date: 7/6/2012 2:38:16 PM
 Preset Count Time: 60000
 Count Mode: Simultaneous

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
39	7.8000E-002 +/- 8.8318E-003	1.2476E+001 +/- 1.1170E-001

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
40	2.5300E-001 +/- 1.5906E-002	1.2552E+001 +/- 1.1204E-001

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
41	2.7170E+000 +/- 5.2125E-002	3.6681E+002 +/- 6.0564E-001

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
42	2.0500E-001 +/- 1.4318E-002	9.9000E+000 +/- 9.9499E-002

Pace Analytical Services, Inc.-Pittsburgh
 Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/ time	Analyst	Re-Analysis Code	Comments
CAF	40	CAF-20120629-N07	20120629	30	6/26/12	RL	5	10000 cpo
	50	-N08		↓				
	50	-N07		30	6/26/12 1556			
	41	-N08		↓				
	41	-N07		↓	6:50			
CAF	20	CAF-20120629-N1	Filtered	20	7/2/12	RL	nd	nd
	33	-N4		↓				
	36	GBF-20120629-N4		10				
	36	-N5		10	7/2/12			
	37	-N4		↓				
	37	CAF-20120629-N4		150	7/2/12 9:43	RL	nd	nd
	1	GBF-20120629-N1	filtered	15	7/2/12 1021	RL	nd	nd
	2	-N2		↓				
	3	-N3		↓				
	4	-N4		↓				
	8	-N5		↓				
	9	-N6		↓				
	7	-N1		15	7/2/12 1044	RL	MA	MA
	16	-N2		10	7/2/12 1045			
	17	-N3		↓				
	19	-N4		↓				
	20	-N5		↓				
	23	-N6		↓				
	25	-N1		↓	7/2/12 1101	RL	nd	nd

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/ time	Analyst	Re-Analysis Code	Comments
6ABF	26	GBF-20120629-N2	Filter Cal	10	7/2/12 1100	R	NA	
	31	-N3						
	33	-N4						
	34	-N5						
	38	-N6						
	15	N4			7/2/12 1113			
	28	N5						
	29	N6						
GA	39	89GA Cal 20120629-N10	GA Cal C	15	7/2/12 1330	R	NA	
CAP	19	CAF-20120629-N2	Filter Cal	150	7/2/12	R	NA	
	34	-N3						
	36	-N4						
	37	-N6						
	38	-N6						
	14	-N5						
	39	-N1						
	40	40-GA20120629-N10	GA Cal D	15	7/2/12	R	NA	
	41	-N10						
	42	-N10						
	47	-N10						
	48	-N10						
	49	-N10						
	50	-N10						

Legend:
1. Detector daily check failure
2. MDC > Contract RL

3. Sample re-ingrowth
4. Sample was re-prepped

5. Other noted comments

Pace Analytical Services, Inc. -Pittsburgh
 Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
TAR	38	TAR20120614-N3	FILTED	3	7/3/12 1056	Ch	NA	
GBF	14	GBF20120629-N1	FILTED	10	7/3/12 1042			
TAR	20	TAR20120614-N3	TARCD	3	1101			
	21							
	22							
	25							
	26							
	27							
	28							
	33							
	37							
	38							
	20				1107			
	21							
	22							
	25							
	26							
	27							
	28							
	33							
	37							
	38							
GBF	32	GBF-20120629-N6	FILTED	150	1337			
	14				1425			

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
	15	CAF-20100629-N2	Filter Cal	150	7/3/12 1402	R	nd	nd
	29	- N3			1456			
	30	- N4			1425			
	31	- N5			↓			
SR	1	MPR	SR KC MIN DL	90	7/5/12 0733	Q	N/A	N/A
	2	W01						
	3	2						
	4	3						
	7	4						
	8	MB	SR QUM DL					
	9	W01						
SR	33	W02	SR DS MIN DL	90	7/5/12 0820	Q	N/A	N/A
	34	3						
	26	4						
WAB	11	3072341001	6AB1205Z					
	12	391						
	13	421						
	14	W012252						
	15	W01						
	16	3072341001						
	17	460307	6AB1253Z					
	19	W013524						
	22	W01						
	24	3072347021						

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/ time	Analyst	Re-Analysis Code	Comments
Sr	1	4161358	SR 12565	90	7/9/12 0915	C	N/A	N/A
	2	3070448001						
	3	10						
	4	12						
	7	3073131001						
	8	173258						
	9	173260						
Sr	1	3073240001	SR 12565	90	7/9/12 1045	C	N/A	N/A
	2	72559						
	3	72743						
	7	72707						
	7	6013565						
	8	6013565						
GR	29	50662020059 N1	GBFC01	15	7/9/12 1401	Q	N/A	N/A
	40	40						
	41	41						
	42	42						
	43	43						
	44	44						
	45	45						
	46	46						
	47	47						
	48	48						
	49	49						

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

Peer Review

Date: 7/12/12

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
6B	52	52-6870020614-N16	6800E	15	7/10/12	AN	NA	
	53	-N7						
	43	-N4			7/10/12 1030	AN	NA	
	44	-N1						
	45	-N2						
	46	-N3						
	51	-N8						
	52	-N5						
	53	-N6						
	43	-N3			7/16/12 1059	AN	NA	
	44	-N4						
	45	-N1						
	46	-N2						
	51	-N7						
	52	-N8						
	53	-N5						
	43	-N2			7/16/12 1055	AN	NA	
	44	-N3						
	45	-N4						
	46	-N1						
	51	-N6						
	52	-N7						
	53	-N8						
	42	40-6870020614-N5	CAF Cal	200	7/10/12	AN	NA	Accurate

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
CAF	47	47-CAF20100629-N1	CAF cal	150	7/10/12 1039	A	NA	not
	48	-N2						
	49	-N3						
	50	-N4						
GB	43	43-GB20120614-N5	GB cal	15	7/10/12 1107			
	44	-N6						
	45	-N7						
	46	-N8						
	51	-N1						
	52	-N2						
	53	-N3						
	43	-N8			1123			
	44	-N5						
	45	-N6						
	46	-N7						
	51	-N4						
	52	-N1						
	53	-N2						
	43	-N7			1:51			
	44	-N8						
	45	-N5						
	46	-N6						
	51	-N3						
	52	-N4						

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
GAS	11	GA 00120614 -N03	GACal	23	7/11/12 1053	AL	N03	
	12	-N04		23	7/11/12 1030-1050			
	13	-N05						
	14	-N05			1130			
	15	-N06			↓			
	16	-N07		23	7/11/12 1020			
	17	-N08		23	1112			
	18	-N10		23	1127			
	19	-N09		23	1032			
	20	-N03		23	7/11/12 1020			
	21	-N04		↓	1112			
	22	-N06		23	1106			
	23	-N07		23	1102			
	24	-N08		23	1050-1050			
	25	-N01		20	7/11/12			
	26	-ND1		20	1106			
CAF	46	46-CAF20120629-N06	CAF Cal	150	7/11/12	AL	N06	
GAF	49	49-CAF1-12455	12455	90	7/10/12 1438	AL	N06	
	50	49-CAF2-12455	↓	↓	↓	↓	↓	
GAF	43	43-CAF1-12455	12455	300	7/10/12	AL	N06	
	44	44-CAF2-12455	↓	↓	↓	↓	↓	
	45	45-CAF3-12455	↓	↓	↓	↓	↓	
	46	46-CAF4-12455	↓	↓	↓	↓	↓	
	47	47-CAF5-12455	↓	↓	↓	↓	↓	

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

Peer Review AL Date: 7/11/12

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/ time	Analyst	Re-Analysis Code	Comments
GAB	23	CAF 20120614-N8	GAF Cal	23	7/11/12 1539	DL	NA	
	25	-N1						
	26	-N10						
	27	-N3						
	19	-N3			1007			
	20	-N4						
	21	-N5						
	22	-N6						
	23	-N7						
	25	-N8						
	26	-N1						
	27	-N10						
	14	-N10			1633			
	20	-N3						
	21	-N4						
	22	-N5						
	23	-N6						
	25	-N7						
	26	-N8						
	27	-N1						
BE	13	GAF-20120629-N3	GAF Cal	10	7/11/12 01470	DL	NA	
AF	13	GAF-20120629-N3	GAF Cal	150	1436			
25	32	4626148	N1	180	DC 7/11/12 1800	DL	NA	
	35	307298001		1				

Page 276 of 388

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

Pace Analytical Services, Inc.-Pittsburgh
Gas Flow Proportional Counter Run Log

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/ time	Analyst	Re-Analysis Code	Comments
GF	2	GAF-20120609-N5	GAF04	210	7/11/12 11:26	R	NA	
	8	- N6		↓				
	21	- N1		150				
	22	- N2		↓				
	27	- N4		↓				
	20	458971	GAB12459	120	7/11/12 17:10		NA	NA
	23	3072058101			↓			
	13	3072060001			17:18			
	19				20:53			
	13							
	14							
	15							
	16							
	18							
	19							
	20							
	23							
	27							
	28							
	30							
	33							
	35							
	36							
	37							
	38							
	39							
	40							
	41							
	42							
	43							
	44							
	45							
	46							
	47							

- Legend:
- 1. Detector daily check failure
 - 2. MDC > Contract RL
 - 3. Sample re-ingrowth
 - 4. Sample was re-prepped
 - 5. Other noted comments

Gross Alpha and Beta Laboratory Control Sample Documentation

Laboratory Control Sample Preparation for Gross Alpha and Beta Smear Counting

Date: 7/2/2012

Source Preparation Analyst: JLK

LCS Preparation Details:

Four smears were centered onto four engraved planchets. Onto each filter, 40 uL of Pace Th-230 standard 12-018 was evenly distributed over the entire filter and allowed to air dry. Additionally, onto each filter, 50 uL of Pace Sr-90/Y-90 standard 12-014 was evenly distributed over the entire filter and allowed to air dry.

Upon drying, two filters were counted for each batch of samples. The filters used were noted for reference, and the dpm/sample calculated to determine LCS/LCSD recovery.

Decay correction to the count date of each LCS was utilized in determining the final recovery.

Source ID	Amount Added (ml)	Source dpm/ml	Filter LCS dpm/sample
12-014 Sr/Y-90	0.050	208.78	10.439
12-018 Th-230	0.040	58.823	2.353



Pace Analytical Services, Inc.-PGH

Radiological Standards Dilution Logbook

Logbook ID: 2-R056-0

Standard ID: <u>12-018</u>	Nuclide: <u>Th-230</u>	Std Conc.: <u>26.497 pCi/ml</u>
Parent Source: <u>85228-493</u>	Prepared By: <u>JAL</u>	Prep Date: <u>4/25/12</u>
Parent Conc: <u>3741.9175 Bq/g</u>	Reference Date: <u>7/13/2011 12:00</u>	Expiration Date: <u>4/25/17</u>
Balance ID: <u>88919</u>	Conversions: 60 dpm = 1 dps	
Diluent: <u>0.5 M HNO₃</u>	1 Bq = 1 dps	
Diluent IDs: <u>DL12-1111 (1.0M HNO₃)</u>	2.22 dpm = 1 pCi	

Dilution Description:

diluted 0.0655g of 85228-493 to 250.0ml w/ 0.5M HNO₃

(0.5M HNO₃ made by diluting 125ml of 1.0M HNO₃ to 250ml w/ DI water)

JAL 4/25/12

Dilution Calculations:

$$0.0655g \left| \frac{3741.9175 \text{ Bq}}{g} \right| \frac{60 \text{ dpm}}{\text{Bq}} \left| \frac{\text{pCi}}{2.22 \text{ dpm}} \right| \frac{1}{250.0 \text{ ml}} = 26.497 \text{ pCi/ml}$$

Container Tare Weight: _____ Balance ID: _____

Container + Standard Final Weight: _____

Standard Final Disposal (circle one) **Consumed** **Destroyed** **Discarded**

Analyst initials: _____ Date: _____

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

85228-493

5 mL Liquid in Flame Sealed Vial

Customer: Pace Analytical Services, Inc.
P.O. No.: PI-14763, Item 2

This standard radionuclide source was prepared gravimetrically from a master solution, calibrated by Eckert & Ziegler Analytics. The master solution was calibrated by liquid scintillation counting. Radionuclide purity and calibration were checked by germanium gamma-ray spectrometry and liquid scintillation counting. The nuclear decay rate and reference date for this source are given below. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 1, February, 1979, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Isotope	Half-Life, Days	Activity (Bq)	Uncertainty*, %			Reference Date (12:00 PM EST)
			u_A	u_B	U	
Th-230	2.753E+07	1.908E+04	0.1	0.9	1.8	07/13/2011

***Uncertainty:** U - Relative expanded uncertainty, $k = 2$. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

Comments:

Impurities: γ -impurities < 0.1 %, α -impurities < 0.01%. 5.09899 grams 0.5M HNO₃ solution.

Source Prepared by: _____

Z. Dimitrova, Radiochemist

QA Approved: _____

J. D. McCorvey, QA Manager Alternate

Date: _____

13-747-11





Pace Analytical Services, Inc.-PGH

Radiological Standards Dilution Logbook

Logbook ID: 2-R056-0

Standard ID: 12-014 Nuclide: Sr90 Std Conc.: 47.02 pCi/ml
 Parent Source: 1404-58-1 Prepared By: JLK
 Parent Conc: 714.1 Bq/g Prep Date: 2/27/2012
 Reference Date: 12/1/2009 1400 Expiration Date: 2/21/2017

Balance ID: 88919 Conversions: 60 dpm = 1 dps
 Diluent: 0.1 N HCl 1 Bq = 1 dps
 Diluent IDs: 042-0130 2.22 dpm = 1 pCi

Dilution Description:

diluted 0.6091g of 1404-58-1 to 250.0ml w/ 0.1 N HCl on 2/27/2012

Dilution Calculations:

$$0.6091 \text{ g} \left/ \frac{714.1 \text{ Bq}}{\text{g}} \right/ \frac{60 \text{ dpm}}{\text{Bq}} \left/ \frac{\text{pCi}}{2.22 \text{ dpm}} \right/ \frac{1}{250.0 \text{ ml}} = 47.02 \text{ pCi/ml}$$

(Sr90)

$$= 94.045 \text{ pCi/ml}$$

Beta (Sr + Y 90)

Container Tare Weight: _____
 Container + Standard Final Weight: _____

Balance ID: _____

Standard Final Disposal (circle one) **Consumed** **Destroyed** **Discarded**
 Analyst initials: _____ Date: _____

CERTIFICATE OF CALIBRATION

BETA STANDARD SOLUTION

Radionuclide:	Sr-90	Customer:	PACE ANALYTICAL	
Half-life:	28.5 ± 0.2 years	P.O. No.:	PI-12091	
Catalog No.:	7090	Reference Date:	1-Dec-09	12:00 PST
Source No.:	1404-58-1	Contained Radioactivity:	0.09651 μCi	3.571 kBq
			(Sr-90 only)	

Physical Description:

A. Mass of solution:	5.00022 g in 5 mL V-Vial
B. Chemical form:	SrCl ₂ in 0.1M HCl
C. Carrier content:	(10 μg Sr + 50 μg Y)/mL of solution
D. Density:	0.9996 g/mL @ 20°C

Radioimpurities:

None detected (Y-90 daughter in equilibrium)

Radionuclide Concentration: 0.01930 μCi/g, 0.7141 kBq/g**Method of Calibration:**

This source was prepared from a weighed aliquot of solution whose activity in μCi/g was determined using a liquid scintillation counter.

Uncertainty of Measurement:

A. Type A (random) uncertainty:	±	0.3	%
B. Type B (systematic) uncertainty:	±	3.0	%
C. Uncertainty in aliquot weighing:	±	0.6	%
D. Total uncertainty at the 99% confidence level:	±	3.1	%

Notes:

- See reverse side for leak test(s) performed on this source.
- EZIP participates in a NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (as in NRC Regulatory Guide 4.15).
- Nuclear data was taken from NCRP Report No. 58, 1985.
- This solution has a working life of 5 years.


Quality Control5-NOV-09
Date

EZIP Ref. No.: 1404-58

ISO 9001 CERTIFIED

Gas Flow Proportional Routine Checks

Pace Waltz Mill Protean System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	6/7/2009 3:46:02 PM	38	LONG BKG	0.048	0.3840	1000.0
LONG BKG 37	6/7/2009 3:45:55 PM	37	LONG BKG	0.079	0.3470	1000.0
LONG BKG 36	6/7/2009 3:45:49 PM	36	LONG BKG	0.070	0.4250	1000.0
LONG BKG 35	6/7/2009 3:45:42 PM	35	LONG BKG	0.096	1.3600	1000.0
LONG BKG 34	6/7/2009 3:45:36 PM	34	LONG BKG	0.082	0.4020	1000.0
LONG BKG 33	6/7/2009 3:45:30 PM	33	LONG BKG	0.090	0.3950	1000.0
LONG BKG 32	6/7/2009 3:45:24 PM	32	LONG BKG	0.037	0.3720	1000.0
LONG BKG 31	6/7/2009 3:45:17 PM	31	LONG BKG	0.059	0.3970	1000.0
LONG BKG 30	6/7/2009 3:45:08 PM	30	LONG BKG	0.074	0.3940	1000.0
LONG BKG 29	6/7/2009 3:45:02 PM	29	LONG BKG	0.040	0.2860	1000.0
LONG BKG 28	6/7/2009 3:44:56 PM	28	LONG BKG	0.049	0.3150	1000.0
LONG BKG 27	6/7/2009 3:44:51 PM	27	LONG BKG	0.052	0.3230	1000.0
LONG BKG 26	6/7/2009 3:44:45 PM	26	LONG BKG	0.058	0.4440	1000.0
LONG BKG 25	6/7/2009 3:44:40 PM	25	LONG BKG	0.103	0.4710	1000.0
LONG BKG 24	6/7/2009 3:44:34 PM	24	LONG BKG	0.082	0.3570	1000.0
LONG BKG 23	6/7/2009 3:44:29 PM	23	LONG BKG	0.039	0.5640	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	6/7/2009 3:44:22 PM	22	LONG BKG	0.046	0.3830	1000.0
LBKG 21	6/7/2009 3:44:18 PM	21	LONG BKG	0.070	0.4150	1000.0
LBKG 20	6/7/2009 3:44:12 PM	20	LONG BKG	0.044	0.3420	1000.0
LBKG 19	6/7/2009 3:44:07 PM	19	LONG BKG	0.031	0.5050	1000.0
LBKG 18	6/7/2009 3:44:01 PM	18	LONG BKG	0.055	0.3900	1000.0
LBKG 17	6/7/2009 3:43:56 PM	17	LONG BKG	0.072	0.3940	1000.0
LBKG 16	6/7/2009 3:43:52 PM	16	LONG BKG	0.047	0.4100	1000.0
LBKG 15	6/7/2009 3:43:48 PM	15	LONG BKG	0.072	0.4200	1000.0
LBKG 14	6/7/2009 3:43:44 PM	14	LONG BKG	0.034	0.3790	1000.0
LBKG 13	6/7/2009 3:43:40 PM	13	LONG BKG	0.027	0.2890	1000.0
LBKG 12	6/7/2009 3:43:37 PM	12	LONG BKG	0.084	0.3560	1000.0
LBKG 11	6/7/2009 3:43:32 PM	11	LONG BKG	0.035	0.4600	1000.0

Background Measurement
 C:\UMS\UTL0001\060709LB.BDT

Background Measurement Parameters:

User: JLK
 Preset Time: 1000:00
 Alpha Preset Error: 0.0%
 Voltage : 1650

Instrument Name: LB770PC
 Cycles: 1
 Beta Preset Error: 0.0%

Category List (cps)	Alpha		Beta	
	Lower	Upper	Lower	Upper
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:
 Start Time: 06/07/2009 15:48:25
 Elapsed Time: 1000:00
 Guard: 851.1 cpm

	Alpha (cpm)	Cat	Beta (cpm)	Cat
1	0.0320 (±17.7%)	1	0.7960 (±3.54%)	1
2	0.0420 (±15.4%)	1	0.5800 (±4.15%)	1
3	0.0420 (±15.4%)	1	0.5260 (±4.36%)	1
4	0.0830 (±11.0%)	1	0.5870 (±4.13%)	1
5	0.0660 (±12.3%)	1	4.3740 (±1.51%)	3
6	0.0550 (±13.5%)	1	0.8590 (±3.41%)	1
7	0.1430 (±8.36%)	1	0.6010 (±4.08%)	1
8	0.0490 (±14.3%)	1	0.5990 (±4.09%)	1
9	0.0480 (±14.4%)	1	0.5860 (±4.13%)	1
10	0.0790 (±11.3%)	1	0.8130 (±3.51%)	1



Pace Waltz Mill Protean System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	7/22/2009 12:16:21	38	LONG BKG	0.049	0.3740	1000.0
LONG BKG 37	7/21/2009 16:40:35	37	LONG BKG	0.053	0.3820	1000.0
LONG BKG 36	7/21/2009 16:40:30	36	LONG BKG	0.069	0.3810	1000.0
LONG BKG 35	7/21/2009 16:40:24	35	LONG BKG	0.107	0.5200	1000.0
LONG BKG 34	7/21/2009 16:40:15	34	LONG BKG	0.066	0.4240	1000.0
LONG BKG 33	7/21/2009 16:40:10	33	LONG BKG	0.094	0.3840	1000.0
LONG BKG 32	7/21/2009 16:40:04	32	LONG BKG	0.037	0.3760	1000.0
LONG BKG 31	7/21/2009 16:39:58	31	LONG BKG	0.047	0.4260	1000.0
LONG BKG 30	7/21/2009 16:39:51	30	LONG BKG	0.067	0.3790	1000.0
LONG BKG 29	7/21/2009 16:39:44	29	LONG BKG	0.031	0.2830	1000.0
LONG BKG 28	7/21/2009 16:39:37	28	LONG BKG	0.047	0.3200	1000.0
LONG BKG 27	7/21/2009 16:39:28	27	LONG BKG	0.041	0.3070	1000.0
LONG BKG 25	7/21/2009 16:39:20	25	LONG BKG	0.125	0.4670	1000.0
LONG BKG 26	7/21/2009 16:39:20	26	LONG BKG	0.034	0.4700	1000.0
LONG BKG 24	7/21/2009 16:39:05	24	LONG BKG	0.070	0.3660	1000.0
LONG BKG 23	7/21/2009 16:38:59	23	LONG BKG	0.047	0.5060	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	7/21/2009 16:38:52	22	LONG BKG	0.030	0.3800	1000.0
LBKG 21	7/21/2009 16:38:52	21	LONG BKG	0.064	0.4010	1000.0
LBKG 20	7/21/2009 16:38:39	20	LONG BKG	0.046	0.3500	1000.0
LBKG 19	7/21/2009 16:38:32	19	LONG BKG	0.029	0.5040	1000.0
LBKG 18	7/21/2009 16:38:24	18	LONG BKG	0.067	0.3850	1000.0
LBKG 17	7/21/2009 16:38:17	17	LONG BKG	0.057	0.3600	1000.0
LBKG 16	7/21/2009 16:38:10	16	LONG BKG	0.040	0.4360	1000.0
LBKG 15	7/21/2009 16:38:06	15	LONG BKG	0.066	0.4190	1000.0
LBKG 14	7/21/2009 16:38:01	14	LONG BKG	0.025	0.4240	1000.0
LBKG 13	7/21/2009 16:37:58	13	LONG BKG	0.033	0.3290	1000.0
LBKG 12	7/21/2009 16:37:54	12	LONG BKG	0.091	0.3420	1000.0
LBKG 11	7/21/2009 16:37:50	11	LONG BKG	0.031	0.3980	1000.0

Sample Measurement
 C:\UMS\UTL0001\LB072209.SDT

Sample Measurement Parameters:

Comment: LONG BKG
 User: ATB
 Preset Time: 1000:00
 Alpha Preset Error: 1.0%
 User Protocol: GAB

Instrument Name: LB770PC
 Cycles: 1
 Beta Preset Error: 1.0%

Cycle 1 of 1
 Start Time: 07/22/2009 12:10:06
 Elapsed Time: 1000:00
 Guard: 845.7 cpm

Spl #	Sample Name	Alpha (raw cpm)	MDA	MRA	Beta (raw cpm)	MDA	MRA
1	2796 BKG	0.0410 (±15.6%)	0.0006	0.0003	0.7840 (±3.57%)	0.0023	0.0011
2	2762 BKG	0.0480 (±14.4%)	0.0005	0.0003	0.5910 (±4.11%)	0.0019	0.0009
3	2762 BKG	0.0610 (±12.8%)	0.0007	0.0003	0.7500 (±3.65%)	0.0020	0.0010
4	2762 BKG	0.0890 (±10.6%)	0.0009	0.0004	0.7310 (±3.70%)	0.0021	0.0010
5	3121 BKG	0.0470 (±14.6%)	0.0006	0.0003	3.0190 (±1.82%)	0.0076	0.0038
6	2866 BKG	0.0510 (±14.0%)	undef.	undef.	0.9060 (±3.32%)	undef.	undef.
7	2797 BKG	0.1370 (±8.54%)	0.0009	0.0004	0.6370 (±3.96%)	0.0022	0.0011
8	2795 BKG	0.0490 (±14.3%)	0.0009	0.0004	0.6050 (±4.07%)	0.0022	0.0011
9	2795 BKG	0.0550 (±13.5%)	0.0007	0.0003	0.6260 (±4.00%)	0.0022	0.0011
10	2795 BKG	0.0450 (±14.9%)	0.0006	0.0003	0.7880 (±3.56%)	0.0024	0.0012

Pace Waltz Mill Protean System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 36	8/30/2009 15:43:17	36	LONG BKG	0.073	0.4070	1000.0
LONG BKG 38	8/30/2009 15:43:11	38	LONG BKG	0.049	0.3920	1000.0
LONG BKG 37	8/30/2009 15:43:06	37	LONG BKG	0.149	0.3450	1000.0
LONG BKG 35	8/30/2009 15:42:58	35	LONG BKG	0.110	0.5410	1000.0
LONG BKG 34	8/30/2009 15:42:46	34	LONG BKG	0.058	0.4090	1000.0
LONG BKG 33	8/30/2009 15:42:42	33	LONG BKG	0.089	0.3970	1000.0
LONG BKG 32	8/30/2009 15:42:37	32	LONG BKG	0.034	0.3270	1000.0
LONG BKG 31	8/30/2009 15:42:31	31	LONG BKG	0.080	0.4120	1000.0
LONG BKG 30	8/30/2009 15:42:23	30	LONG BKG	0.074	0.3760	1000.0
LONG BKG 29	8/30/2009 15:42:14	29	LONG BKG	0.033	0.2920	1000.0
LONG BKG 28	8/30/2009 15:41:54	28	LONG BKG	0.041	0.2890	1000.0
LONG BKG 27	8/30/2009 15:41:46	27	LONG BKG	0.028	0.3380	1000.0
LONG BKG 26	8/30/2009 15:41:46	26	LONG BKG	0.054	0.3990	1000.0
LONG BKG 25	8/30/2009 15:41:32	25	LONG BKG	0.126	0.4510	1000.0
LONG BKG 24	8/30/2009 15:41:26	24	LONG BKG	0.199	0.3910	1000.0
LONG BKG 23	8/30/2009 15:41:20	23	LONG BKG	0.045	0.4510	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	8/30/2009 15:41:14	22	LONG BKG	0.027	0.3600	1000.0
LBKG 21	8/30/2009 15:41:06	21	LONG BKG	0.063	0.3680	1000.0
LBKG 20	8/30/2009 15:41:01	20	LONG BKG	0.042	0.3370	1000.0
LBKG 19	8/30/2009 15:40:56	19	LONG BKG	0.023	0.4950	1000.0
LBKG 18	8/30/2009 15:40:49	18	LONG BKG	0.060	0.3700	1000.0
LBKG 17	8/30/2009 15:40:44	17	LONG BKG	0.049	0.3300	1000.0
LBKG 16	8/30/2009 15:40:41	16	LONG BKG	0.040	0.3910	1000.0
LBKG 15	8/30/2009 15:40:41	15	LONG BKG	0.051	0.4110	1000.0
LBKG 14	8/30/2009 15:40:41	14	LONG BKG	0.027	0.3950	1000.0
LBKG 13	8/30/2009 15:40:25	13	LONG BKG	0.046	0.2750	1000.0
LBKG 12	8/30/2009 15:40:22	12	LONG BKG	0.094	0.3450	1000.0
LBKG 11	8/30/2009 15:40:19	11	LONG BKG	0.016	0.3850	1000.0

Background Measurement
 C:\UMS\UTL0001\LB83010.BDT

Background Measurement Parameters:

User: JLK
 Preset Time: 1000:00
 Alpha Preset Error: 0.0%
 Voltage : 1650

Instrument Name: LB770PC
 Cycles: 1
 Beta Preset Error: 0.0%

Category List (cps)

	Alpha		Beta	
	Lower	Upper	Lower	Upper
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 08/30/2009 15:51:05

Elapsed Time: 1000:00
 Guard: 846.3 cpm

	Alpha (cpm)	Cat	Beta (cpm)	Cat
1	0.0830 (±11.0%)	1	0.8790 (±3.37%)	1
2	0.0320 (±17.7%)	1		3
3	0.0590 (±13.0%)	1	0.9610 (±3.23%)	1
4	0.0790 (±11.3%)	1	0.7180 (±3.73%)	1
5	0.0500 (±14.1%)	1	2.6760 (±1.93%)	3
6	0.0890 (±10.6%)	1	1.0260 (±3.12%)	2
7	0.0850 (±10.8%)	1	0.6610 (±3.89%)	1
8	0.0550 (±13.5%)	1	0.6450 (±3.94%)	1
9	0.0470 (±14.6%)	1	0.6430 (±3.94%)	1
10	0.0410 (±15.6%)	1	0.7740 (±3.59%)	1



Pace Waltz Mill Protean System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	10/11/2009 17:28:45	38	LONG BKG	0.039	0.3770	1000.0
LONG BKG 37	10/11/2009 17:28:40	37	LONG BKG	0.125	0.3810	1000.0
LONG BKG 36	10/11/2009 17:28:35	36	LONG BKG	0.058	0.3520	1000.0
LONG BKG 35	10/11/2009 17:28:30	35	LONG BKG	0.149	0.3430	1000.0
LONG BKG 34	10/11/2009 17:28:25	34	LONG BKG	0.080	0.4090	1000.0
LONG BKG 33	10/11/2009 17:28:20	33	LONG BKG	0.090	0.3660	1000.0
LONG BKG 32	10/11/2009 17:28:16	32	LONG BKG	0.033	0.3330	1000.0
LONG BKG 31	10/11/2009 17:28:11	31	LONG BKG	0.056	0.4010	1000.0
LONG BKG 30	10/11/2009 17:28:05	30	LONG BKG	0.072	0.3260	1000.0
LONG BKG 29	10/11/2009 17:28:01	29	LONG BKG	0.035	0.2740	1000.0
LONG BKG 28	10/11/2009 17:27:56	28	LONG BKG	0.040	0.2910	1000.0
LONG BKG 27	10/11/2009 17:27:51	27	LONG BKG	0.035	0.3150	1000.0
LONG BKG 26	10/11/2009 17:27:46	26	LONG BKG	0.036	0.4840	1000.0
LONG BKG 25	10/11/2009 17:27:45	25	LONG BKG	0.104	0.4190	1000.0
LONG BKG 24	10/11/2009 17:27:45	24	LONG BKG	0.042	0.3440	1000.0
LONG BKG 23	10/11/2009 17:27:45	23	LONG BKG	0.045	0.5210	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	10/11/2009 17:27:31	22	LONG BKG	0.035	0.3600	1000.0
LBKG 21	10/11/2009 17:27:27	21	LONG BKG	0.070	0.3980	1000.0
LBKG 20	10/11/2009 17:27:24	20	LONG BKG	0.041	0.3310	1000.0
LBKG 19	10/11/2009 17:27:24	19	LONG BKG	0.023	0.4500	1000.0
LBKG 18	10/11/2009 17:27:24	18	LONG BKG	0.060	0.3860	1000.0
LBKG 17	10/11/2009 17:27:11	17	LONG BKG	0.034	0.3660	1000.0
LBKG 16	10/11/2009 17:27:11	16	LONG BKG	0.035	0.4130	1000.0
LBKG 15	10/11/2009 17:27:11	15	LONG BKG	0.056	0.3850	1000.0
LBKG 14	10/11/2009 17:27:11	14	LONG BKG	0.044	0.3630	1000.0
LBKG 13	10/11/2009 17:26:59	13	LONG BKG	0.024	0.3190	1000.0
LBKG 12	10/11/2009 17:26:55	12	LONG BKG	0.087	0.3490	1000.0
LBKG 11	10/11/2009 17:26:33	11	LONG BKG	0.023	0.4130	1000.0

Background Measurement
 C:\UMS\UTL0001\LB101109.BDT

Background Measurement Parameters:

User: JLK
 Preset Time: 1000:00
 Alpha Preset Error: 0.0%
 Voltage : 1650

Instrument Name: LB770PC
 Cycles: 1
 Beta Preset Error: 0.0%

Category List (cps)

	Alpha		Beta	
	Lower	Upper	Lower	Upper
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 10/11/2009 17:17:32

Elapsed Time: 1000:00
 Guard: 847.1 cpm

	Alpha (cpm)	Cat	Beta (cpm)	Cat
1	0.0450 (±14.9%)	1	0.7530 (±3.64%)	1
2	0.0310 (±18.0%)	1	0.5300 (±4.34%)	1
3	0.0260 (±19.6%)	1	0.6120 (±4.04%)	1
4	0.0770 (±11.4%)	1	0.6990 (±3.78%)	1
5	0.0350 (±16.9%)	1	4.8510 (±1.44%)	3
6	0.0470 (±14.6%)	1	0.9270 (±3.28%)	1
7	0.0710 (±11.9%)	1	0.6550 (±3.91%)	1
8	0.0370 (±16.4%)	1	0.5680 (±4.20%)	1
9	0.0570 (±13.2%)	1	0.5940 (±4.10%)	1
10	0.0330 (±17.4%)	1	0.8550 (±3.42%)	1



Pace Waltz Mill Protean System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	11/17/2009 16:47:20	38	LONG BKG	0.040	0.3340	1000.0
LONG BKG 37	11/17/2009 16:47:09	37	LONG BKG	0.164	0.3290	1000.0
LONG BKG 36	11/17/2009 16:47:04	36	LONG BKG	0.067	0.3430	1000.0
LONG BKG 35	11/17/2009 16:46:59	35	LONG BKG	0.093	0.4140	1000.0
LONG BKG 34	11/17/2009 16:46:55	34	LONG BKG	0.082	0.4290	1000.0
LONG BKG 33	11/17/2009 16:46:51	33	LONG BKG	0.088	0.3710	1000.0
LONG BKG 32	11/17/2009 16:46:46	32	LONG BKG	0.029	0.3820	1000.0
LONG BKG 31	11/17/2009 16:46:41	31	LONG BKG	0.074	0.3770	1000.0
LONG BKG 30	11/17/2009 16:46:34	30	LONG BKG	0.064	0.4120	1000.0
LONG BKG 29	11/17/2009 16:46:29	29	LONG BKG	0.024	0.2660	1000.0
LONG BKG 28	11/17/2009 16:46:24	28	LONG BKG	0.049	0.2750	1000.0
LONG BKG 27	11/17/2009 16:46:19	27	LONG BKG	0.052	0.3610	1000.0
LONG BKG 26	11/17/2009 16:46:14	26	LONG BKG	0.047	0.4500	1000.0
LONG BKG 25	11/17/2009 16:46:11	25	LONG BKG	0.090	0.4010	1000.0
LONG BKG 24	11/17/2009 16:46:06	24	LONG BKG	0.045	0.3630	1000.0
LONG BKG 23	11/17/2009 16:46:02	23	LONG BKG	0.032	0.4810	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	11/17/2009 16:45:58	22	LONG BKG	0.034	0.3710	1000.0
LBKG 21	11/17/2009 16:45:55	21	LONG BKG	0.054	0.4140	1000.0
LBKG 20	11/17/2009 16:45:50	20	LONG BKG	0.034	0.3550	1000.0
LBKG 19	11/17/2009 16:45:46	19	LONG BKG	0.021	0.4590	1000.0
LBKG 18	11/17/2009 16:45:40	18	LONG BKG	0.084	0.4080	1000.0
LBKG 17	11/17/2009 16:45:37	17	LONG BKG	0.049	0.3460	1000.0
LBKG 16	11/17/2009 16:45:33	16	LONG BKG	0.033	0.3850	1000.0
LBKG 15	11/17/2009 16:45:30	15	LONG BKG	0.043	0.4140	1000.0
LBKG 14	11/17/2009 16:45:27	14	LONG BKG	0.045	0.4060	1000.0
LBKG 13	11/17/2009 16:45:24	13	LONG BKG	0.029	0.3150	1000.0
LBKG 12	11/17/2009 16:45:20	12	LONG BKG	0.088	0.3430	1000.0
LBKG 11	11/17/2009 16:45:17	11	LONG BKG	0.033	0.4390	1000.0

Background Measurement
 C:\UMS\UTL0001\LB111709.BDT

Background Measurement Parameters:

User: CMC	Instrument Name: LB770PC
Preset Time: 1000:00	Cycles: 1
Alpha Preset Error: 0.0%	Beta Preset Error: 0.0%
Voltage : 1650	

Category List (cps)

	Alpha		Beta	
	Lower	Upper	Lower	Upper
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 11/17/2009 9:09:33	Elapsed Time: 1000:00
	Guard: 852.4 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0380 (±16.2%)	1	0.9550 (±3.24%)	1
2	0.0420 (±15.4%)	1	0.6070 (±4.06%)	1
3	0.0400 (±15.8%)	1	0.6140 (±4.04%)	1
4	0.0820 (±11.0%)	1	0.6330 (±3.97%)	1
5	0.0420 (±15.4%)	1	2.9940 (±1.83%)	3
6	0.0440 (±15.1%)	1	1.0590 (±3.07%)	2
7	0.0860 (±10.8%)	1	0.6820 (±3.83%)	1
8	0.0320 (±17.7%)	1	0.5530 (±4.25%)	1
9	0.0530 (±13.7%)	1	0.6520 (±3.92%)	1
10	0.0390 (±16.0%)	1	0.8560 (±3.42%)	1

Pace Waltz Mill Protean System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	12/24/2009 12:24:03	38	LONG BKG	0.038	0.4660	1000.0
LONG BKG 37	12/24/2009 12:24:00	37	LONG BKG	0.133	0.3780	1000.0
LONG BKG 36	12/24/2009 12:23:56	36	LONG BKG	0.045	0.3760	1000.0
LONG BKG 35	12/24/2009 12:23:52	35	LONG BKG	0.082	0.4110	1000.0
LONG BKG 34	12/24/2009 12:23:47	34	LONG BKG	0.048	0.4810	1000.0
LONG BKG 33	12/24/2009 12:23:44	33	LONG BKG	0.096	0.4100	1000.0
LONG BKG 32	12/24/2009 12:23:41	32	LONG BKG	0.032	0.3840	1000.0
LONG BKG 31	12/24/2009 12:23:37	31	LONG BKG	0.055	0.4390	1000.0
LONG BKG 30	12/24/2009 12:23:32	30	LONG BKG	0.078	0.4110	1000.0
LONG BKG 29	12/24/2009 12:23:28	29	LONG BKG	0.032	0.3360	1000.0
LONG BKG 28	12/24/2009 12:23:24	28	LONG BKG	0.048	0.2930	1000.0
LONG BKG 27	12/24/2009 12:23:20	27	LONG BKG	0.031	0.2720	1000.0
LONG BKG 26	12/24/2009 12:23:16	26	LONG BKG	0.097	0.4020	1000.0
LONG BKG 25	12/24/2009 12:23:14	25	LONG BKG	0.097	0.4350	1000.0
LONG BKG 24	12/24/2009 12:23:14	24	LONG BKG	0.042	0.3540	1000.0
LONG BKG 23	12/24/2009 12:23:14	23	LONG BKG	0.034	0.5200	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	12/24/2009 12:23:02	22	LONG BKG	0.038	0.4010	1000.0
LBKG 21	12/24/2009 12:22:59	21	LONG BKG	0.069	0.4010	1000.0
LBKG 20	12/24/2009 12:22:55	20	LONG BKG	0.044	0.3670	1000.0
LBKG 19	12/24/2009 12:22:46	19	LONG BKG	0.027	0.4710	1000.0
LBKG 18	12/24/2009 12:22:42	18	LONG BKG	0.042	0.3950	1000.0
LBKG 17	12/24/2009 12:22:39	17	LONG BKG	0.052	0.3580	1000.0
LBKG 16	12/24/2009 12:22:36	16	LONG BKG	0.034	0.3710	1000.0
LBKG 15	12/24/2009 12:22:33	15	LONG BKG	0.054	0.4280	1000.0
LBKG 14	12/24/2009 12:22:29	14	LONG BKG	0.039	0.3760	1000.0
LBKG 13	12/24/2009 12:22:27	13	LONG BKG	0.022	0.2950	1000.0
LBKG 11	12/24/2009 12:22:24	11	LONG BKG	0.030	0.3850	1000.0
LBKG 12	12/24/2009 12:22:24	12	LONG BKG	0.079	0.3850	1000.0

Background Measurement
 C:\UMS\UTL0001\LB122409.BDT

Background Measurement Parameters:

User: ATB	Instrument Name: LB770PC
Preset Time: 1000:00	Cycles: 1
Alpha Preset Error: 0.0%	Beta Preset Error: 0.0%
Voltage : 1650	

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 12/24/2009 12:37:22	Elapsed Time: 1000:00
	Guard: 857.6 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0430 (±15.2%)	1	0.8700 (±3.39%)	1
2	0.0410 (±15.6%)	1	0.6550 (±3.91%)	1
3	0.0250 (±20.0%)	1	0.6240 (±4.00%)	1
4	0.0830 (±11.0%)	1	0.6470 (±3.93%)	1
5	0.0310 (±18.0%)	1	1.8600 (±2.32%)	2
6	0.0590 (±13.0%)	1	5.2020 (±1.39%)	3
7	0.1290 (±8.80%)	1	0.6810 (±3.83%)	1
8	0.0480 (±14.4%)	1	0.5930 (±4.11%)	1
9	0.0520 (±13.9%)	1	0.6880 (±3.81%)	1
10	0.0420 (±15.4%)	1	0.8060 (±3.52%)	1

Pace Waltz Mill Protean System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	1/29/2010 1:26:23 PM	38	LONG BKG	0.066	0.4590	1000.0
LONG BKG 37	1/29/2010 1:26:19 PM	37	LONG BKG	0.150	0.3880	1000.0
LONG BKG 36	1/29/2010 1:26:15 PM	36	LONG BKG	0.094	0.3930	1000.0
LONG BKG 35	1/29/2010 1:26:11 PM	35	LONG BKG	0.097	0.3660	1000.0
LONG BKG 34	1/29/2010 1:26:06 PM	34	LONG BKG	0.061	0.4210	1000.0
LONG BKG 33	1/29/2010 1:26:02 PM	33	LONG BKG	0.123	0.3810	1000.0
LONG BKG 32	1/29/2010 1:25:59 PM	32	LONG BKG	0.056	0.3840	1000.0
LONG BKG 31	1/29/2010 1:25:55 PM	31	LONG BKG	0.105	0.3960	1000.0
LONG BKG 30	1/29/2010 1:25:50 PM	30	LONG BKG	0.081	0.3650	1000.0
LONG BKG 29	1/29/2010 1:25:46 PM	29	LONG BKG	0.060	0.3080	1000.0
LONG BKG 28	1/29/2010 1:25:43 PM	28	LONG BKG	0.072	0.2990	1000.0
LONG BKG 27	1/29/2010 1:25:39 PM	27	LONG BKG	0.052	0.3540	1000.0
LONG BKG 26	1/29/2010 1:25:32 PM	26	LONG BKG	0.090	0.4440	1000.0
LONG BKG 25	1/29/2010 1:25:28 PM	25	LONG BKG	0.128	0.4350	1000.0
LONG BKG 24	1/29/2010 1:25:24 PM	24	LONG BKG	0.062	0.3380	1000.0
LONG BKG 23	1/29/2010 1:25:20 PM	23	LONG BKG	0.058	0.5020	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	1/29/2010 1:25:16 PM	22	LONG BKG	0.054	0.3610	1000.0
LBKG 21	1/29/2010 1:25:13 PM	21	LONG BKG	0.084	0.3720	1000.0
LBKG 20	1/29/2010 1:25:09 PM	20	LONG BKG	0.086	0.3820	1000.0
LBKG 19	1/29/2010 1:25:06 PM	19	LONG BKG	0.037	0.4550	1000.0
LBKG 18	1/29/2010 1:25:00 PM	18	LONG BKG	0.061	0.4310	1000.0
LBKG 17	1/29/2010 1:24:58 PM	17	LONG BKG	0.066	0.3460	1000.0
LBKG 16	1/29/2010 1:24:54 PM	16	LONG BKG	0.057	0.4440	1000.0
LBKG 15	1/29/2010 1:24:51 PM	15	LONG BKG	0.067	0.4640	1000.0
LBKG 14	1/29/2010 1:24:48 PM	14	LONG BKG	0.063	0.4170	1000.0
LBKG 13	1/29/2010 1:24:47 PM	13	LONG BKG	0.067	0.3370	1000.0
LBKG 12	1/29/2010 1:24:44 PM	12	LONG BKG	0.107	0.4090	1000.0
LBKG 11	1/29/2010 1:24:42 PM	11	LONG BKG	0.038	0.4060	1000.0

Background Measurement
 C:\UMS\UTL0001\LB012910.BDT

Background Measurement Parameters:

User: CMC Instrument Name: LB770PC
 Preset Time: 1000:00 Cycles: 1
 Alpha Preset Error: 0.0% Beta Preset Error: 0.0%
 Voltage : 1650

Category List (cps)

	Alpha		Beta	
	Lower	Upper	Lower	Upper
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 01/29/2010 10:56:26 Elapsed Time: 1000:00
 Guard: 863.5 cpm

	Alpha (cpm)	Cat	Beta (cpm)	Cat
1	0.0610 (±12.8%)	1	0.9420 (±3.26%)	1
2	0.0530 (±13.7%)	1	0.5900 (±4.12%)	1
3	0.0420 (±15.4%)	1	0.6650 (±3.88%)	1
4	0.0940 (±10.3%)	1	0.6270 (±3.99%)	1
5	0.0670 (±12.2%)	1	1.8090 (±2.35%)	2
6	0.0950 (±10.3%)	1	2.6220 (±1.95%)	3
7	0.1320 (±8.70%)	1	0.6610 (±3.89%)	1
8	0.0550 (±13.5%)	1	0.5950 (±4.10%)	1
9	0.0640 (±12.5%)	1	0.6080 (±4.06%)	1
10	0.0510 (±14.0%)	1	0.8430 (±3.44%)	1

Pace Waltz Mill Protean System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 30	3/6/2010 18:02:19	30	LONG BKG	0.084	0.3980	1000.0
LONG BKG 29	3/6/2010 18:00:09	29	LONG BKG	0.053	0.3640	1000.0
LONG BKG 28	3/6/2010 18:00:09	28	LONG BKG	0.061	0.2940	1000.0
LONG BKG 38	3/6/2010 17:59:59	38	LONG BKG	0.060	0.4080	1000.0
LONG BKG 37	3/6/2010 17:59:54	37	LONG BKG	0.150	0.3410	1000.0
LONG BKG 36	3/6/2010 17:59:49	36	LONG BKG	0.071	0.3530	1000.0
LONG BKG 35	3/6/2010 17:59:43	35	LONG BKG	0.124	0.3600	1000.0
LONG BKG 34	3/6/2010 17:59:38	34	LONG BKG	0.069	0.4350	1000.0
LONG BKG 33	3/6/2010 17:59:33	33	LONG BKG	0.104	0.3810	1000.0
LONG BKG 32	3/6/2010 17:59:30	32	LONG BKG	0.060	0.3870	1000.0
LONG BKG 31	3/6/2010 17:59:24	31	LONG BKG	0.207	0.4290	1000.0
LONG BKG 30	3/6/2010 17:59:17	110	LONG BKG	0.000	0.0000	0.0
LONG BKG 27	3/6/2010 17:59:08	27	LONG BKG	0.044	0.3060	1000.0
LONG BKG 26	3/6/2010 17:59:04	26	LONG BKG	0.088	0.4290	1000.0
LONG BKG 25	3/6/2010 17:59:00	25	LONG BKG	0.139	0.4450	1000.0
LONG BKG 24	3/6/2010 17:58:56	24	LONG BKG	0.047	0.3650	1000.0

2/3/8/10

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 23	3/6/2010 17:58:51	23	LONG BKG	0.048	0.4840	1000.0
LBKG 22	3/6/2010 17:58:47	22	LONG BKG	0.038	0.4160	1000.0
LBKG 21	3/6/2010 17:58:43	21	LONG BKG	0.073	0.3900	1000.0
LBKG 20	3/6/2010 17:58:39	20	LONG BKG	0.090	0.3780	1000.0
LBKG 19	3/6/2010 17:58:34	19	LONG BKG	0.040	0.5010	1000.0
LBKG 18	3/6/2010 17:58:28	18	LONG BKG	0.054	0.3910	1000.0
LBKG 17	3/6/2010 17:58:24	17	LONG BKG	0.068	0.3770	1000.0
LBKG 16	3/6/2010 17:58:21	16	LONG BKG	0.035	0.4510	1000.0
LBKG 15	3/6/2010 17:58:18	15	LONG BKG	0.062	0.3940	1000.0
LBKG 13	3/6/2010 17:58:14	13	LONG BKG	0.034	0.3250	1000.0
LBKG 14	3/6/2010 17:58:12	14	LONG BKG	0.052	0.4190	1000.0
LBKG 12	3/6/2010 17:58:06	12	LONG BKG	0.098	0.3760	1000.0
LBKG 11	3/6/2010 17:57:58	11	LONG BKG	0.044	0.3990	1000.0

Background Measurement
 C:\UMS\UTL0001\030610LB.BDT

Background Measurement Parameters:

User: JLK	Instrument Name: LB770PC
Preset Time: 1000:00	Cycles: 1
Alpha Preset Error: 0.0%	Beta Preset Error: 0.0%
Voltage : 1650	

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 03/06/2010 18:08:21	Elapsed Time: 1000:00
	Guard: 856.5 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0940 (±10.3%)	1	0.8160 (±3.50%)	1
2	0.0340 (±17.1%)	1	0.6560 (±3.90%)	1
3	0.0380 (±16.2%)	1	0.5850 (±4.13%)	1
4	0.0850 (±10.8%)	1	0.6390 (±3.96%)	1
5	0.0440 (±15.1%)	1	1.8560 (±2.32%)	2
6	0.0720 (±11.8%)	1	1.8410 (±2.33%)	2
7	0.1080 (±9.62%)	1	0.6660 (±3.87%)	1
8	0.0520 (±13.9%)	1	0.5820 (±4.15%)	1
9	0.0340 (±17.1%)	1	0.5810 (±4.15%)	1
10	0.0370 (±16.4%)	1	0.7840 (±3.57%)	1

Sample Measurement
 C:\UMS\UTL0001\GAB4436.SDT

Cycle 2 of 2 (1/1 in group 2 of 2)
 Start Time: 03/08/2010 14:46:37
 Comment: GAB4466
 User: JMC

Elapsed Time: 1000:00

Guard: 867.5 cpm

	Spl #	Sample Name	Alpha (raw cpm)	MDA	MRA	Beta (raw cpm)	MDA	MRA
1	4487	3023567001	0.1110 (±9.49%)	0.0006	0.0003	1.0190 (±3.13%)	0.0023	0.0011
2	4487	LONGBACKGROUND	0.0500 (±14.1%)	0.0005	0.0003	0.6160 (±4.03%)	0.0019	0.0009
3	4487	3023581001	0.5500 (±4.26%)	0.0007	0.0003	2.5670 (±1.97%)	0.0020	0.0010
4	4488	3023583001	0.3740 (±5.17%)	0.0009	0.0004	1.7200 (±2.41%)	0.0021	0.0010
5	4488	302379002	0.0570 (±13.2%)	0.0006	0.0003	2.5310 (±1.99%)	0.0076	0.0038
6	4731	EMPTY	0.1220 (±9.05%)	undef.	undef.	1.8390 (±2.33%)	undef.	undef.
7	4488	3023798001	0.5120 (±4.42%)	0.0009	0.0004	1.2740 (±2.80%)	0.0022	0.0011
8	4531	3023799001	0.4380 (±4.78%)	0.0009	0.0004	1.2470 (±2.83%)	0.0022	0.0011
9	4531	3023811001	0.1010 (±9.95%)	0.0007	0.0003	0.8730 (±3.38%)	0.0022	0.0011
10	4531	3023822001	0.0590 (±13.0%)	0.0006	0.0003	0.8950 (±3.34%)	0.0024	0.0012

Pace Waltz Mill Protean System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 12	4/11/2010 15:08:40	12	LONG BKG	0.111	0.3460	1000.0
LBKG 11	4/11/2010 15:08:36	11	LONG BKG	0.034	0.3860	1000.0
LONG BKG 38	4/10/2010 20:06:41	38	LONG BKG	0.049	0.4350	1000.0
LONG BKG 37	4/10/2010 20:06:37	37	LONG BKG	0.138	0.3870	1000.0
LONG BKG 36	4/10/2010 20:06:32	36	LONG BKG	0.069	0.4040	1000.0
LONG BKG 35	4/10/2010 20:06:27	35	LONG BKG	0.101	0.3790	1000.0
LONG BKG 34	4/10/2010 20:06:23	34	LONG BKG	0.045	0.4160	1000.0
LONG BKG 33	4/10/2010 20:06:19	33	LONG BKG	0.080	0.3520	1000.0
LONG BKG 32	4/10/2010 20:06:15	32	LONG BKG	0.040	0.3850	1000.0
LONG BKG 31	4/10/2010 20:06:09	31	LONG BKG	0.091	0.3820	1000.0
LONG BKG 30	4/10/2010 20:06:02	30	LONG BKG	0.080	0.4110	1000.0
LONG BKG 29	4/10/2010 20:05:57	29	LONG BKG	0.044	0.2880	1000.0
LONG BKG 28	4/10/2010 20:05:53	28	LONG BKG	0.057	0.2530	1000.0
LONG BKG 27	4/10/2010 20:05:49	27	LONG BKG	0.045	0.3400	1000.0
LONG BKG 26	4/10/2010 20:05:44	26	LONG BKG	0.094	0.3870	1000.0
LONG BKG 25	4/10/2010 20:05:41	25	LONG BKG	0.137	0.4220	1000.0

Handwritten: 01/11/2010
JRF

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 24	4/10/2010 20:05:37	24	LONG BKG	0.068	0.3580	1000.0
LONG BKG 23	4/10/2010 20:05:37	23	LONG BKG	0.054	0.5110	1000.0
LBKG 22	4/10/2010 20:05:37	22	LONG BKG	0.046	0.3870	1000.0
LBKG 21	4/10/2010 20:05:24	21	LONG BKG	0.086	0.3820	1000.0
LBKG 20	4/10/2010 20:05:20	20	LONG BKG	0.081	0.3460	1000.0
LBKG 19	4/10/2010 20:05:17	19	LONG BKG	0.018	0.4370	1000.0
LBKG 18	4/10/2010 20:05:11	18	LONG BKG	0.050	0.3460	1000.0
LBKG 17	4/10/2010 20:05:08	17	LONG BKG	0.058	0.3860	1000.0
LBKG 16	4/10/2010 20:05:05	16	LONG BKG	0.040	0.3910	1000.0
LBKG 13	4/10/2010 20:05:04	13	LONG BKG	0.036	0.3030	1000.0
LBKG 15	4/10/2010 20:05:04	15	LONG BKG	0.047	0.4850	1000.0
LBKG 14	4/10/2010 20:05:04	14	LONG BKG	0.053	0.3780	1000.0

Handwritten signature
4/11/10

Background Measurement
 C:\UMS\UTL0001\041010LB.BDT

Background Measurement Parameters:

User: JLK Instrument Name: LB770PC
 Preset Time: 1000:00 Cycles: 1
 Alpha Preset Error: 0.0% Beta Preset Error: 0.0%
 Voltage : 1650

Category List (cps)

	Alpha		Beta	
	Lower	Upper	Lower	Upper
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 04/10/2010 20:07:57 Elapsed Time: 1000:00
 Guard: 845.8 cpm

	Alpha (cpm)	Cat	Beta (cpm)	Cat
1	0.0980 (±10.1%)	1	0.7850 (±3.57%)	1
2	0.0410 (±15.6%)	1	0.5660 (±4.20%)	1
3	0.0520 (±13.9%)	1	0.5840 (±4.14%)	1
4	0.0680 (±12.1%)	1	0.5990 (±4.09%)	1
5	0.0460 (±14.7%)	1	2.4020 (±2.04%)	3
6	0.0700 (±12.0%)	1	1.7490 (±2.39%)	2
7	0.0940 (±10.3%)	1	0.5810 (±4.15%)	1
8	0.0470 (±14.6%)	1	0.5350 (±4.32%)	1
9	0.0400 (±15.8%)	1	0.6900 (±3.81%)	1
10	0.0370 (±16.4%)	1	0.7380 (±3.68%)	1

JRK
 4/12/10

Pace Waltz Mill Protean System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	4/30/2010 17:02:48	38	LONG BKG	0.058	0.4090	1000.0
LONG BKG 37	4/30/2010 17:02:41	37	LONG BKG	0.174	0.3890	1000.0
LONG BKG 36	4/30/2010 16:52:57	36	LONG BKG	0.110	0.3900	1000.0
LONG BKG 35	4/30/2010 16:52:52	35	LONG BKG	0.130	0.8220	1000.0
LONG BKG 34	4/30/2010 16:52:45	34	LONG BKG	0.127	0.4550	1000.0
LONG BKG 33	4/30/2010 16:52:41	33	LONG BKG	0.107	0.3930	1000.0
LONG BKG 32	4/30/2010 16:52:37	32	LONG BKG	0.052	0.9110	1000.0
LONG BKG 31	4/30/2010 16:52:32	31	LONG BKG	0.092	0.3700	1000.0
LONG BKG 30	4/30/2010 16:52:26	30	LONG BKG	0.075	0.5810	1000.0
LONG BKG 29	4/30/2010 16:52:20	29	LONG BKG	0.030	0.3860	1000.0
LONG BKG 28	4/30/2010 16:52:15	28	LONG BKG	0.050	0.5610	1000.0
LONG BKG 27	4/30/2010 16:52:10	27	LONG BKG	0.047	0.3660	1000.0
LONG BKG 26	4/30/2010 16:52:06	26	LONG BKG	0.051	0.5840	1000.0
LONG BKG 25	4/30/2010 16:52:02	25	LONG BKG	0.118	0.6260	1000.0
LONG BKG 24	4/30/2010 16:51:58	24	LONG BKG	0.049	0.4470	1000.0
LONG BKG 23	4/30/2010 16:51:55	23	LONG BKG	0.068	0.8590	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	4/30/2010 16:51:50	22	LONG BKG	0.042	0.5350	1000.0
LBKG 21	4/30/2010 16:51:46	21	LONG BKG	0.101	0.6180	1000.0
LBKG 20	4/30/2010 16:51:42	20	LONG BKG	0.073	0.4870	1000.0
LBKG 19	4/30/2010 16:51:38	19	LONG BKG	0.039	0.6240	1000.0
LBKG 18	4/30/2010 16:51:31	18	LONG BKG	0.057	0.5010	1000.0
LBKG 17	4/30/2010 16:51:27	17	LONG BKG	0.055	0.4360	1000.0
LBKG 16	4/30/2010 16:51:23	16	LONG BKG	0.048	0.4520	1000.0
LBKG 15	4/30/2010 16:51:20	15	LONG BKG	0.054	0.5890	1000.0
LBKG 14	4/30/2010 16:51:16	14	LONG BKG	0.039	0.4630	1000.0
LBKG 13	4/30/2010 16:51:12	13	LONG BKG	0.037	0.3320	1000.0
LBKG 12	4/30/2010 16:51:07	12	LONG BKG	0.106	0.6890	1000.0
LBKG 11	4/30/2010 16:51:03	11	LONG BKG	0.036	0.4940	1000.0

Pace Analytical Protean GFPC System Count Data

SAMPLE_ID	Count Start:	DET#	BATCH_ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 12	5/2/2010 17:17:08	12	LONG BKG	0.091	0.5610	1000.0
LONG BKG 35	5/2/2010 17:15:01	35	LONG BKG	0.113	1.1590	1000.0
LONG BKG 34	5/2/2010 17:14:55	34	LONG BKG	0.034	0.4430	1000.0
LONG BKG 32	5/2/2010 17:14:51	32	LONG BKG	0.056	1.2890	1000.0
LONG BKG 30	5/2/2010 17:14:42	30	LONG BKG	0.070	0.4830	1000.0
LONG BKG 29	5/2/2010 17:14:38	29	LONG BKG	0.054	0.3340	1000.0
LONG BKG 28	5/2/2010 17:14:32	28	LONG BKG	0.047	0.4840	1000.0
LONG BKG 26	5/2/2010 17:14:26	26	LONG BKG	0.051	0.6010	1000.0
LONG BKG 25	5/2/2010 17:14:21	25	LONG BKG	0.154	0.5480	1000.0
LONG BKG 23	5/2/2010 17:14:17	23	LONG BKG	0.037	0.7450	1000.0
LBKG 22	5/2/2010 17:14:14	22	LONG BKG	0.047	0.5170	1000.0
LBKG 21	5/2/2010 17:14:14	21	LONG BKG	0.096	0.5200	1000.0
LBKG 20	5/2/2010 17:14:02	20	LONG BKG	0.082	0.4410	1000.0
LBKG 19	5/2/2010 17:13:58	19	LONG BKG	0.055	0.5720	1000.0
LBKG 18	5/2/2010 17:13:52	18	LONG BKG	0.048	0.5040	1000.0
LONG BKG 38	4/30/2010 17:02:48	38	LONG BKG	0.058	0.4090	1000.0

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 36	6/6/2010 16:05:40	36	LONG BKG	0.198	0.3720	1000.0
LBKG 21	6/6/2010 16:05:31	21	LONG BKG	0.096	0.4820	1000.0
LBKG 20	6/6/2010 16:05:27	20	LONG BKG	0.087	0.4750	1000.0
LBKG 19	6/6/2010 16:05:23	19	LONG BKG	0.024	0.5530	1000.0
LBKG 22	6/6/2010 16:05:18	22	LONG BKG	0.093	0.5340	1000.0
LBKG 18	6/6/2010 16:04:57	18	LONG BKG	0.070	0.5230	1000.0
LBKG 17	6/6/2010 16:04:54	17	LONG BKG	0.101	0.4730	1000.0
LBKG 16	6/6/2010 16:04:50	16	LONG BKG	0.048	0.3980	1000.0
LBKG 15	6/6/2010 16:04:46	15	LONG BKG	0.044	0.5550	1000.0
LBKG 14	6/6/2010 16:04:42	14	LONG BKG	0.033	0.4280	1000.0
LBKG 13	6/6/2010 16:04:39	13	LONG BKG	0.034	0.3290	1000.0
LBKG 12	6/6/2010 16:04:36	12	LONG BKG	0.067	0.6150	1000.0
LBKG 11	6/6/2010 16:04:33	11	LONG BKG	0.034	0.4450	1000.0
LONG BKG 38	6/6/2010 13:40:22	38	LONG BKG	0.117	0.4100	1000.0
LONG BKG 37	6/6/2010 13:40:16	37	LONG BKG	0.175	0.3880	1000.0
LONG BKG 35	6/6/2010 13:40:06	35	LONG BKG	0.185	1.0790	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 34	6/6/2010 13:39:58	34	LONG BKG	0.058	0.4540	1000.0
LONG BKG 33	6/6/2010 13:39:53	33	LONG BKG	0.078	0.3940	1000.0
LONG BKG 32	6/6/2010 13:39:50	32	LONG BKG	0.046	2.8850	1000.0
LONG BKG 31	6/6/2010 13:39:46	31	LONG BKG	0.088	0.3940	1000.0
LONG BKG 30	6/6/2010 13:39:41	30	LONG BKG	0.071	0.5610	1000.0
LONG BKG 29	6/6/2010 13:39:37	29	LONG BKG	0.035	0.3410	1000.0
LONG BKG 28	6/6/2010 13:39:32	28	LONG BKG	0.048	0.4820	1000.0
LONG BKG 27	6/6/2010 13:39:24	27	LONG BKG	0.043	0.3340	1000.0
LONG BKG 26	6/6/2010 13:39:18	26	LONG BKG	0.078	0.6330	1000.0
LONG BKG 25	6/6/2010 13:39:14	25	LONG BKG	0.108	0.6440	1000.0
LONG BKG 24	6/6/2010 13:39:10	24	LONG BKG	0.219	0.4850	1000.0
LONG BKG 23	6/6/2010 13:39:05	23	LONG BKG	0.056	0.7210	1000.0

Background Measurement
 C:\UMS\UTL0001\060610LB.BDT

Instrument Name: LB770PC
 Cycles: 1
 Beta Preset Error: 0.0%

Background Measurement Parameters:

User: JLK
 Preset Time: 1000:00
 Alpha Preset Error: 0.0%
 Voltage : 1650

Category List (cps)

	Alpha		Beta	
	Lower	Upper	Lower	Upper
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 06/06/2010 13:44:35

Elapsed Time: 1000:00
 Guard: 853.5 cpm

	Alpha (cpm)	Cat	Beta (cpm)	Cat
1	0.0360 (±16.7%)	1	0.8190 (±3.49%)	1
2	0.0550 (±13.5%)	1		3
3	0.0240 (±20.4%)	1	0.6540 (±3.91%)	1
4	0.0650 (±12.4%)	1	0.6360 (±3.97%)	1
5	0.0700 (±12.0%)	1	7.3800 (±1.16%)	3
6	0.0420 (±15.4%)	1	1.4300 (±2.64%)	2
7	0.0780 (±11.3%)	1	0.6750 (±3.85%)	1
8	0.0580 (±13.1%)	1	0.5450 (±4.28%)	1
9	0.0440 (±15.1%)	1	0.5860 (±4.13%)	1
10	0.0350 (±16.9%)	1	0.8020 (±3.53%)	1



Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 37	7/18/2010 17:44:37	37	LONG BKG	0.199	0.4060	1000.0
LONG BKG 38	7/18/2010 17:44:33	38	LONG BKG	0.101	0.4180	1000.0
LONG BKG 36	7/18/2010 17:44:24	36	LONG BKG	0.376	0.4820	1000.0
LONG BKG 35	7/18/2010 17:44:20	35	LONG BKG	0.173	2.4830	1000.0
LONG BKG 34	7/18/2010 17:44:15	34	LONG BKG	0.044	0.4160	1000.0
LONG BKG 33	7/18/2010 17:44:12	33	LONG BKG	0.114	0.3930	1000.0
LONG BKG 32	7/18/2010 17:44:07	32	LONG BKG	0.042	1.1800	1000.0
LONG BKG 31	7/18/2010 17:44:02	31	LONG BKG	0.090	0.4130	1000.0
LONG BKG 30	7/18/2010 17:43:53	30	LONG BKG	0.069	0.4620	1000.0
LONG BKG 29	7/18/2010 17:43:49	29	LONG BKG	0.043	0.3460	1000.0
LONG BKG 28	7/18/2010 17:43:45	28	LONG BKG	0.047	0.4000	1000.0
LONG BKG 27	7/18/2010 17:43:39	27	LONG BKG	0.069	0.3190	1000.0
LONG BKG 25	7/18/2010 17:43:35	25	LONG BKG	0.184	0.6130	1000.0
LONG BKG 26	7/18/2010 17:43:31	26	LONG BKG	0.078	0.5520	1000.0
LONG BKG 24	7/18/2010 17:43:23	24	LONG BKG	0.099	0.4710	1000.0
LONG BKG 23	7/18/2010 17:43:20	23	LONG BKG	0.060	0.7220	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	7/18/2010 17:43:17	22	LONG BKG	0.093	0.5020	1000.0
LBKG 21	7/18/2010 17:43:13	21	LONG BKG	0.085	0.4870	1000.0
LBKG 20	7/18/2010 17:43:10	20	LONG BKG	0.081	0.4400	1000.0
LBKG 19	7/18/2010 17:43:07	19	LONG BKG	0.026	0.5700	1000.0
LBKG 17	7/18/2010 17:43:01	17	LONG BKG	0.067	0.4170	1000.0
LBKG 12	7/18/2010 17:42:57	12	LONG BKG	0.088	0.5110	1000.0
LBKG 18	7/18/2010 17:42:54	18	LONG BKG	0.047	0.4420	1000.0
LBKG 16	7/18/2010 17:42:47	16	LONG BKG	0.056	0.4160	1000.0
LBKG 15	7/18/2010 17:42:44	15	LONG BKG	0.057	0.4970	1000.0
LBKG 14	7/18/2010 17:42:41	14	LONG BKG	0.051	0.4200	1000.0
LBKG 13	7/18/2010 17:42:38	13	LONG BKG	0.049	0.3100	1000.0
LBKG 11	7/18/2010 17:42:31	11	LONG BKG	0.046	0.4550	1000.0

Background Measurement
C:\UMS\UTL0001\071810LB.BDT

Background Measurement Parameters:

User: JLK Instrument Name: LB770PC
Preset Time: 1000:00 Cycles: 1
Alpha Preset Error: 0.0% Beta Preset Error: 0.0%
Voltage : 1650

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 07/18/2010 17:13:39 Elapsed Time: 1000:00
Guard: 838.7 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0610 (±12.8%)	1	0.7670 (±3.61%)	1
2	0.0810 (±11.1%)	1		3
3	0.0250 (±20.0%)	1	0.5970 (±4.09%)	1
4	0.0920 (±10.4%)	1		3
5	0.0690 (±12.0%)	1	1.2910 (±2.78%)	2
6	0.0400 (±15.8%)	1	1.2870 (±2.79%)	2
7	0.0890 (±10.6%)	1		3
8	0.0320 (±17.7%)	1	0.6556 (±4.12%)	1
9	0.0330 (±17.4%)	1	0.6010 (±4.08%)	1
10	0.0490 (±14.3%)	1	0.8730 (±3.38%)	1

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	8/22/2010 12:56:40	38	LONG BKG	0.099	0.4520	1000.0
LONG BKG 37	8/22/2010 12:56:32	37	LONG BKG	0.204	0.4190	1000.0
LONG BKG 36	8/22/2010 12:56:24	36	LONG BKG	0.340	0.4520	1000.0
LONG BKG 35	8/22/2010 12:56:17	35	LONG BKG	0.191	3.3550	1000.0
LONG BKG 34	8/22/2010 12:56:07	34	LONG BKG	0.080	0.4350	1000.0
LONG BKG 33	8/22/2010 12:56:02	33	LONG BKG	0.136	0.4310	1000.0
LONG BKG 32	8/22/2010 12:55:56	32	LONG BKG	0.052	0.3680	1000.0
LONG BKG 31	8/22/2010 12:55:50	31	LONG BKG	0.088	0.4390	1000.0
LONG BKG 30	8/22/2010 12:55:44	30	LONG BKG	0.203	0.5160	1000.0
LONG BKG 29	8/22/2010 12:55:39	29	LONG BKG	0.129	0.3790	1000.0
LONG BKG 28	8/22/2010 12:55:35	28	LONG BKG	0.078	0.4500	1000.0
LONG BKG 27	8/22/2010 12:55:29	27	LONG BKG	0.033	0.3110	1000.0
LONG BKG 26	8/22/2010 12:55:22	26	LONG BKG	0.088	0.5820	1000.0
LONG BKG 25	8/22/2010 12:55:19	25	LONG BKG	0.128	0.6170	1000.0
LONG BKG 24	8/22/2010 12:55:14	24	LONG BKG	0.083	0.4770	1000.0
LONG BKG 23	8/22/2010 12:55:09	23	LONG BKG	0.045	0.7190	1000.0

Tuesday, August 24, 2010

Page 1 of 2

Handwritten: 7/13/10

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Cl. Time (min)
LBKG 21	8/22/2010 12:55:00	21	LONG BKG	0.116	0.4660	1000.0
LBKG 22	8/22/2010 12:54:55	22	LONG BKG	0.064	0.4840	1000.0
LBKG 20	8/22/2010 12:54:38	20	LONG BKG	0.080	0.4400	1000.0
LBKG 19	8/22/2010 12:54:34	19	LONG BKG	0.055	0.5670	1000.0
LBKG 18	8/22/2010 12:54:25	18	LONG BKG	0.029	0.4680	1000.0
LBKG 17	8/22/2010 12:54:22	17	LONG BKG	0.069	0.3970	1000.0
LBKG 16	8/22/2010 12:54:18	16	LONG BKG	0.055	0.4060	1000.0
LBKG 15	8/22/2010 12:54:13	15	LONG BKG	0.081	0.5790	1000.0
LBKG 14	8/22/2010 12:54:09	14	LONG BKG	0.028	0.4140	1000.0
LBKG 13	8/22/2010 12:54:05	13	LONG BKG	0.034	0.2710	1000.0
LBKG 12	8/22/2010 12:54:02	12	LONG BKG	0.103	0.5490	1000.0
LBKG 11	8/22/2010 12:53:59	11	LONG BKG	0.028	0.4800	1000.0

Tuesday, August 24, 2010

Auditorio

Background Measurement Parameters:

User: SHS	Instrument Name: LB770PC
Preset Time: 1000:00	Cycles: 1
Alpha Preset Error: 0.0%	Beta Preset Error: 0.0%
Voltage : 1650	

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 08/22/2010 13:53:46

Elapsed Time: 1000:00

Guard: 838.3 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0370 (±16.4%)	1	0.8060 (±3.52%)	1
2	0.0180 (±23.6%)	1	0.6230 (±4.01%)	1
3	0.0260 (±19.6%)	1	0.5920 (±4.11%)	1
4	0.0620 (±12.7%)	1	0.7770 (±3.59%)	1
5	0.0600 (±12.9%)	1	1.0970 (±3.02%)	2
6	0.0430 (±15.2%)	1	1.4590 (±2.62%)	2
7	0.0790 (±11.3%)	1	0.6490 (±3.93%)	1
8	0.0600 (±12.9%)	1	0.6540 (±3.91%)	1
9	0.0450 (±14.9%)	1	0.5670 (±4.20%)	1
10	0.0340 (±17.1%)	1	0.8030 (±3.53%)	1

DL 8/22/10

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	9/20/2010 20:28:25	38	LONG BKG	0.064	0.4540	1000.0
LONG BKG 37	9/20/2010 20:28:19	37	LONG BKG	0.254	0.4950	1000.0
LONG BKG 36	9/20/2010 20:28:12	36	LONG BKG	0.327	0.5440	1000.0
LONG BKG 35	9/20/2010 20:28:06	35	LONG BKG	0.182	0.8160	1000.0
LONG BKG 34	9/20/2010 20:27:58	34	LONG BKG	0.081	0.4310	1000.0
LONG BKG 33	9/20/2010 20:27:53	33	LONG BKG	0.247	0.4620	1000.0
LONG BKG 32	9/20/2010 20:27:47	32	LONG BKG	0.058	0.9380	1000.0
LONG BKG 31	9/20/2010 20:27:41	31	LONG BKG	0.108	0.4040	1000.0
LONG BKG 30	9/20/2010 20:27:28	30	LONG BKG	0.200	0.5470	1000.0
LONG BKG 29	9/20/2010 20:27:23	29	LONG BKG	0.058	0.3920	1000.0
LONG BKG 28	9/20/2010 20:27:19	28	LONG BKG	0.095	0.5120	1000.0
LONG BKG 27	9/20/2010 20:27:13	27	LONG BKG	0.051	0.3280	1000.0
LONG BKG 26	9/20/2010 20:27:05	26	LONG BKG	0.126	0.5430	1000.0
LONG BKG 25	9/20/2010 20:27:00	25	LONG BKG	0.125	0.5780	1000.0
LONG BKG 24	9/20/2010 20:27:00	24	LONG BKG	0.070	0.4860	1000.0
LONG BKG 23	9/20/2010 20:26:49	23	LONG BKG	0.053	0.6160	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	9/20/2010 20:26:43	22	LONG BKG	0.075	0.5300	1000.0
LBKG 21	9/20/2010 20:26:38	21	LONG BKG	0.101	0.4670	1000.0
LBKG 20	9/20/2010 20:26:33	20	LONG BKG	0.098	0.4260	1000.0
LBKG 19	9/20/2010 20:26:28	19	LONG BKG	0.048	0.5800	1000.0
LBKG 18	9/20/2010 20:26:21	18	LONG BKG	0.063	0.5400	1000.0
LBKG 17	9/20/2010 20:26:16	17	LONG BKG	0.082	0.4070	1000.0
LBKG 16	9/20/2010 20:26:11	16	LONG BKG	0.053	0.4380	1000.0
LBKG 15	9/20/2010 20:26:07	15	LONG BKG	0.092	0.5950	1000.0
LBKG 14	9/20/2010 20:26:03	14	LONG BKG	0.035	0.4700	1000.0
LBKG 13	9/20/2010 20:25:59	13	LONG BKG	0.039	0.2850	1000.0
LBKG 12	9/20/2010 20:25:54	12	LONG BKG	0.128	0.5740	1000.0
LBKG 11	9/20/2010 20:25:49	11	LONG BKG	0.081	0.4510	1000.0

Background Measurement
 C:\UMS\UTL0001\LB92011.BDT

Background Measurement Parameters:

Comment: DB09_10

User: ALL

Preset Time: 1000:00

Alpha Preset Error: 0.0%

Voltage : 1650

Instrument Name: LB770PC

Cycles: 1

Beta Preset Error: 0.0%

Category List (cps)

	Alpha		Beta	
	Lower	Upper	Lower	Upper
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 09/20/2010 20:32:25

Elapsed Time: 1000:00

Guard: 835.8 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0430 (±15.2%)	1	0.8830 (±3.37%)	1
2	0.0420 (±15.4%)	1	0.6090 (±4.05%)	1
3	0.0750 (±11.5%)	1	0.5900 (±4.12%)	1
4	0.1060 (±9.71%)	1	0.7290 (±3.70%)	1
5	0.0500 (±14.1%)	1	4.7950 (±1.44%)	3
6	0.0560 (±13.4%)	1		3
7	0.1160 (±9.28%)	1	0.6480 (±3.93%)	1
8	0.0650 (±12.4%)	1	0.5360 (±4.32%)	1
9	0.0520 (±13.9%)	1	0.6200 (±4.02%)	1
10	0.0860 (±10.8%)	1	0.8550 (±3.42%)	1

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DE#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	10/10/2010 10:34:26 AM	38	LONG BKG	0.116	0.5240	1000.0
LONG BKG 37	10/10/2010 10:34:20 AM	37	LONG BKG	0.194	0.4230	1000.0
LONG BKG 36	10/10/2010 10:34:14 AM	36	LONG BKG	0.362	0.5590	1000.0
LONG BKG 35	10/10/2010 10:34:08 AM	35	LONG BKG	0.226	1.0030	1000.0
LONG BKG 34	10/10/2010 10:34:00 AM	34	LONG BKG	0.068	0.4590	1000.0
LONG BKG 33	10/10/2010 10:33:55 AM	33	LONG BKG	0.117	0.4090	1000.0
LONG BKG 32	10/10/2010 10:33:49 AM	32	LONG BKG	0.062	2.6600	1000.0
LONG BKG 31	10/10/2010 10:33:44 AM	31	LONG BKG	0.105	0.4100	1000.0
LONG BKG 30	10/10/2010 10:33:37 AM	30	LONG BKG	0.203	0.4880	1000.0
LONG BKG 29	10/10/2010 10:33:32 AM	29	LONG BKG	0.055	0.3730	1000.0
LONG BKG 28	10/10/2010 10:33:25 AM	28	LONG BKG	0.091	0.4500	1000.0
LONG BKG 27	10/10/2010 10:33:19 AM	27	LONG BKG	0.066	0.4070	1000.0
LONG BKG 26	10/10/2010 10:33:11 AM	26	LONG BKG	0.114	0.5890	1000.0
LONG BKG 25	10/10/2010 10:33:04 AM	25	LONG BKG	0.143	0.6240	1000.0
LONG BKG 24	10/10/2010 10:33:00 AM	24	LONG BKG	0.089	0.4940	1000.0
LONG BKG 23	10/10/2010 10:32:56 AM	23	LONG BKG	0.078	0.6180	1000.0

RET 10/11/10

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	10/10/2010 10:32:48 AM	22	LONG BKG	0.088	0.5290	1000.0
LBKG 21	10/10/2010 10:32:44 AM	21	LONG BKG	0.087	0.5240	1000.0
LBKG 20	10/10/2010 10:32:41 AM	20	LONG BKG	0.082	0.4670	1000.0
LBKG 19	10/10/2010 10:32:36 AM	19	LONG BKG	0.053	0.6200	1000.0
LBKG 18	10/10/2010 10:32:30 AM	18	LONG BKG	0.073	0.5210	1000.0
LBKG 17	10/10/2010 10:32:29 AM	17	LONG BKG	0.054	0.4140	1000.0
LBKG 16	10/10/2010 10:32:29 AM	16	LONG BKG	0.068	0.4640	1000.0
LBKG 15	10/10/2010 10:32:29 AM	15	LONG BKG	0.109	0.6140	1000.0
LBKG 14	10/10/2010 10:32:13 AM	14	LONG BKG	0.036	0.4660	1000.0
LBKG 13	10/10/2010 10:32:09 AM	13	LONG BKG	0.053	0.3300	1000.0
LBKG 12	10/10/2010 10:32:05 AM	12	LONG BKG	0.133	0.5670	1000.0
LBKG 11	10/10/2010 10:32:00 AM	11	LONG BKG	0.107	0.4690	1000.0

Handwritten signature

Background Measurement
C:\UMS\UTL0001\DB101010.BDT

Background Measurement Parameters:

Comment: DB10_10

User: AREH

Preset Time: 1000:00

Alpha Preset Error: 0.0%

Voltage : 1650

Instrument Name: LB770PC

Cycles: 1

Beta Preset Error: 0.0%

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 10/10/2010 10:43:54

Elapsed Time: 1000:00

Guard: 856.7 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0530 (±13.7%)	1	0.7880 (±3.56%)	1
2	0.0450 (±14.9%)	1	0.6270 (±3.99%)	1
3	0.0760 (±11.5%)	1	0.5870 (±4.13%)	1
4	0.0990 (±10.1%)	1	0.7250 (±3.71%)	1
5	0.0430 (±15.2%)	1	2.0070 (±2.23%)	3
6	0.0530 (±13.7%)	1	2.1490 (±2.16%)	3
7	0.1080 (±9.62%)	1	0.7110 (±3.75%)	1
8	0.0420 (±15.4%)	1	0.6050 (±4.07%)	1
9	0.0490 (±14.3%)	1	0.6430 (±3.94%)	1
10	0.0510 (±14.0%)	1	0.7990 (±3.54%)	1

AREH
10/11/10

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	11/2/2010 10:08:01 PM	38	LONG BKG	0.145	0.4570	1000.0
LONG BKG 37	11/2/2010 10:07:57 PM	37	LONG BKG	0.193	0.4550	1000.0
LONG BKG 36	11/2/2010 10:07:52 PM	36	LONG BKG	0.433	0.5330	1000.0
LONG BKG 35	11/2/2010 10:07:47 PM	35	LONG BKG	0.180	0.6460	1000.0
LONG BKG 34	11/2/2010 10:07:41 PM	34	LONG BKG	0.070	0.3590	1000.0
LONG BKG 33	11/2/2010 10:07:37 PM	33	LONG BKG	0.156	0.4410	1000.0
LONG BKG 32	11/2/2010 10:07:32 PM	32	LONG BKG	0.057	0.4200	1000.0
LONG BKG 31	11/2/2010 10:07:27 PM	31	LONG BKG	0.097	0.4590	1000.0
LONG BKG 30	11/2/2010 10:07:18 PM	30	LONG BKG	0.218	0.5600	1000.0
LONG BKG 29	11/2/2010 10:07:14 PM	29	LONG BKG	0.045	0.3760	1000.0
LONG BKG 28	11/2/2010 10:07:09 PM	28	LONG BKG	0.079	0.4280	1000.0
LONG BKG 27	11/2/2010 10:07:04 PM	27	LONG BKG	0.062	0.3890	1000.0
LONG BKG 26	11/2/2010 10:06:57 PM	26	LONG BKG	0.118	0.5270	1000.0
LONG BKG 25	11/2/2010 10:06:53 PM	25	LONG BKG	0.125	0.6020	1000.0
LONG BKG 24	11/2/2010 10:06:48 PM	24	LONG BKG	0.101	0.4470	1000.0
LONG BKG 23	11/2/2010 10:06:44 PM	23	LONG BKG	0.071	0.5980	1000.0

RRH 11/11/10

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	11/2/2010 10:06:39 PM	22	LONG BKG	0.093	0.5300	1000.0
LBKG 21	11/2/2010 10:06:35 PM	21	LONG BKG	0.078	0.4710	1000.0
LBKG 20	11/2/2010 10:06:30 PM	20	LONG BKG	0.099	0.4510	1000.0
LBKG 19	11/2/2010 10:06:27 PM	19	LONG BKG	0.037	0.5960	1000.0
LBKG 18	11/2/2010 10:06:20 PM	18	LONG BKG	0.064	0.4930	1000.0
LBKG 17	11/2/2010 10:06:16 PM	17	LONG BKG	0.079	0.4470	1000.0
LBKG 16	11/2/2010 10:06:11 PM	16	LONG BKG	0.080	0.4070	1000.0
LBKG 15	11/2/2010 10:06:05 PM	15	LONG BKG	0.107	0.6170	1000.0
LBKG 14	11/2/2010 10:06:00 PM	14	LONG BKG	0.057	0.5000	1000.0
LBKG 13	11/2/2010 10:05:57 PM	13	LONG BKG	0.037	0.2920	1000.0
LBKG 12	11/2/2010 10:05:53 PM	12	LONG BKG	0.135	0.5990	1000.0
LBKG 11	11/2/2010 10:05:50 PM	11	LONG BKG	0.132	0.4560	1000.0

Handwritten signature and date: 11/11/10

Background Measurement
 C:\UMS\UTL0001\LB110210.BDT

Background Measurement Parameters:

Comment: LB11_10

User: AREH

Instrument Name: LB770PC

Preset Time: 1000:00

Cycles: 1

Alpha Preset Error: 0.0%

Beta Preset Error: 0.0%

Voltage : 1650

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 11/02/2010 19:21:05

Elapsed Time: 1000:00

Guard: 848.1 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0450 (±14.9%)	1	0.8200 (±3.49%)	1
2	0.0530 (±13.7%)	1	0.5840 (±4.14%)	1
3	0.0530 (±13.7%)	1	0.6430 (±3.94%)	1
4	0.1940 (±7.18%)	1	0.7630 (±3.62%)	1
5	0.0760 (±11.5%)	1	2.6280 (±1.95%)	3
6	0.0610 (±12.8%)	1	1.2390 (±2.84%)	2
7	0.0940 (±10.3%)	1	0.6000 (±4.08%)	1
8	0.0480 (±14.4%)	1	0.5920 (±4.11%)	1
9	0.0850 (±10.8%)	1	0.6110 (±4.05%)	1
10	0.0460 (±14.7%)	1	0.9200 (±3.30%)	1

*AREH
11/4/10*

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 37	11/30/2010 8:44:51 PM	37	LONG BKG	0.342	0.4220	1000.0
LONG BKG 29	11/30/2010 8:44:47 PM	29	LONG BKG	0.046	0.3670	1000.0
LBKG 16	11/30/2010 8:39:56 PM	16	LONG BKG	0.047	0.4440	1000.0
LONG BKG 38	11/30/2010 7:07:37 PM	38	LONG BKG	0.097	0.4820	1000.0
LONG BKG 36	11/30/2010 7:07:29 PM	36	LONG BKG	0.344	0.4870	1000.0
LONG BKG 35	11/30/2010 7:07:24 PM	35	LONG BKG	0.168	0.6980	1000.0
LONG BKG 34	11/30/2010 7:07:20 PM	34	LONG BKG	0.050	0.4560	1000.0
LONG BKG 33	11/30/2010 7:07:15 PM	33	LONG BKG	0.129	0.4320	1000.0
LONG BKG 32	11/30/2010 7:07:11 PM	32	LONG BKG	0.049	0.4760	1000.0
LONG BKG 31	11/30/2010 7:07:07 PM	31	LONG BKG	0.116	0.5000	1000.0
LONG BKG 30	11/30/2010 7:07:00 PM	30	LONG BKG	0.241	0.5250	1000.0
LONG BKG 28	11/30/2010 7:06:55 PM	28	LONG BKG	0.087	0.5260	1000.0
LONG BKG 27	11/30/2010 7:06:50 PM	27	LONG BKG	0.050	0.3820	1000.0
LONG BKG 26	11/30/2010 7:06:41 PM	26	LONG BKG	0.113	0.5080	1000.0
LONG BKG 25	11/30/2010 7:06:37 PM	25	LONG BKG	0.155	0.6120	1000.0
LONG BKG 24	11/30/2010 7:06:30 PM	24	LONG BKG	0.096	0.4810	1000.0

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SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 23	11/30/2010 7:06:26 PM	23	LONG BKG	0.084	0.5890	1000.0
LBKG 22	11/30/2010 7:06:21 PM	22	LONG BKG	0.089	0.5280	1000.0
LBKG 21	11/30/2010 7:06:17 PM	21	LONG BKG	0.089	0.5410	1000.0
LBKG 20	11/30/2010 7:06:13 PM	20	LONG BKG	0.074	0.4650	1000.0
LBKG 19	11/30/2010 7:06:08 PM	19	LONG BKG	0.026	0.6400	1000.0
LBKG 18	11/30/2010 7:06:01 PM	18	LONG BKG	0.050	0.5730	1000.0
LBKG 17	11/30/2010 7:06:01 PM	17	LONG BKG	0.060	0.4160	1000.0
LBKG 15	11/30/2010 7:05:46 PM	15	LONG BKG	0.094	0.7400	1000.0
LBKG 14	11/30/2010 7:05:42 PM	14	LONG BKG	0.046	0.4870	1000.0
LBKG 13	11/30/2010 7:05:38 PM	13	LONG BKG	0.042	0.3310	1000.0
LBKG 12	11/30/2010 7:05:36 PM	12	LONG BKG	0.129	0.6040	1000.0
LBKG 11	11/30/2010 7:05:33 PM	11	LONG BKG	0.097	0.4770	1000.0

JEH 12/2/10

Background Measurement
 C:\UMS\UTL0001\DB120110.BDT

Background Measurement Parameters:

Comment: DB12_10

User: JMC

Instrument Name: LB770PC

Preset Time: 1000:00

Cycles: 1

Alpha Preset Error: 0.0%

Beta Preset Error: 0.0%

Voltage : 1650

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 12/01/2010 7:44:21

Elapsed Time: 1000:00

Guard: 870.2 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0410 (±15.6%)	1	0.8180 (±3.50%)	1
2	0.0410 (±15.6%)	1	0.8460 (±3.44%)	1
3	0.0470 (±14.6%)	1	0.5880 (±4.12%)	1
4	0.1030 (±9.85%)	1	1.1540 (±2.94%)	2
5	0.0590 (±13.0%)	1	4.2180 (±1.54%)	3
6	0.0420 (±15.4%)	1		3
7	0.0960 (±10.2%)	1	0.6870 (±3.82%)	1
8	0.0520 (±13.9%)	1	0.5740 (±4.17%)	1
9	0.0330 (±17.4%)	1	0.6000 (±4.08%)	1
10	0.0420 (±15.4%)	1	0.8110 (±3.51%)	1

*JMC
12/2/10*

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	12/27/2010 09:45:44	38	LONG BKG	0.083	0.4490	1000.0
LONG BKG 37	12/27/2010 09:45:39	37	LONG BKG	0.216	0.4070	1000.0
LONG BKG 36	12/27/2010 09:45:33	36	LONG BKG	0.367	0.5300	1000.0
LONG BKG 35	12/27/2010 09:45:29	35	LONG BKG	0.159	0.6720	1000.0
LONG BKG 34	12/27/2010 09:45:23	34	LONG BKG	0.069	0.4050	1000.0
LONG BKG 33	12/27/2010 09:45:17	33	LONG BKG	0.104	0.4050	1000.0
LONG BKG 32	12/27/2010 09:45:08	32	LONG BKG	0.062	0.3650	1000.0
LONG BKG 31	12/27/2010 09:45:03	31	LONG BKG	0.102	0.3890	1000.0
LONG BKG 30	12/27/2010 09:44:56	30	LONG BKG	0.237	0.5210	1000.0
LONG BKG 29	12/27/2010 09:44:50	29	LONG BKG	0.056	0.3850	1000.0
LONG BKG 28	12/27/2010 09:44:43	28	LONG BKG	0.089	0.4430	1000.0
LONG BKG 27	12/27/2010 09:44:37	27	LONG BKG	0.057	0.2830	1000.0
LONG BKG 26	12/27/2010 09:44:31	26	LONG BKG	0.083	0.5330	1000.0
LONG BKG 25	12/27/2010 09:44:12	25	LONG BKG	0.160	0.6170	1000.0
LONG BKG 24	12/27/2010 09:44:06	24	LONG BKG	0.097	0.4740	1000.0
LBKG 22	12/27/2010 09:44:04	22	LONG BKG	0.081	0.4910	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 23	12/27/2010 09:44:04	23	LONG BKG	0.086	0.5210	1000.0
LBKG 21	12/27/2010 09:43:52	21	LONG BKG	0.068	0.4790	1000.0
LBKG 20	12/27/2010 09:43:48	20	LONG BKG	0.079	0.4690	1000.0
LBKG 17	12/27/2010 09:43:33	17	LONG BKG	0.053	0.4040	1000.0
LBKG 19	12/27/2010 09:43:26	19	LONG BKG	0.036	0.5830	1000.0
LBKG 18	12/27/2010 09:43:26	18	LONG BKG	0.059	0.4700	1000.0
LBKG 16	12/27/2010 09:43:10	16	LONG BKG	0.067	0.4330	1000.0
LBKG 15	12/27/2010 09:43:07	15	LONG BKG	0.094	0.6290	1000.0
LBKG 14	12/27/2010 09:42:58	14	LONG BKG	0.029	0.4950	1000.0
LBKG 13	12/27/2010 09:42:53	13	LONG BKG	0.043	0.3350	1000.0
LBKG 12	12/27/2010 09:42:50	12	LONG BKG	0.101	0.5530	1000.0
LBKG 11	12/27/2010 09:42:45	11	LONG BKG	0.079	0.5040	1000.0

Background Measurement
 C:\UMS\UTL0001\LB122710.BDT

Background Measurement Parameters:

Comment: DB12_10
 User: DJL
 Preset Time: 1000:00
 Alpha Preset Error: 0.0%
 Voltage : 1650

Instrument Name: LB770PC
 Cycles: 1
 Beta Preset Error: 0.0%

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 12/27/2010 9:23:24
 Elapsed Time: 1000:00
 Guard: 873.4 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0610 (±12.8%)	1	0.8100 (±3.51%)	1
2	0.0290 (±18.6%)	1	0.5810 (±4.15%)	1
3	0.0460 (±14.7%)	1	0.5190 (±4.39%)	1
4	0.0600 (±12.9%)	1	0.7130 (±3.75%)	1
5	0.0580 (±13.1%)	1	2.3510 (±2.06%)	3
6	0.0420 (±15.4%)	1	1.0280 (±3.12%)	2
7	0.1070 (±9.67%)	1	0.5850 (±4.13%)	1
8	0.0440 (±15.1%)	1	0.5500 (±4.26%)	1
9	0.0380 (±16.2%)	1	0.5350 (±4.32%)	1
10	0.0400 (±15.8%)	1	0.7910 (±3.56%)	1

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 35	1/27/2011 5:39:21 PM	35	LONG BKG	0.044	0.3850	1000.0
LONG BKG 38	1/27/2011 5:35:21 PM	38	LONG BKG	0.110	0.4190	1000.0
LONG BKG 37	1/27/2011 5:35:16 PM	37	LONG BKG	0.035	0.3180	1000.0
LONG BKG 36	1/27/2011 5:35:11 PM	36	LONG BKG	0.043	0.3680	1000.0
LONG BKG 34	1/27/2011 5:35:04 PM	34	LONG BKG	0.052	0.4800	1000.0
LONG BKG 33	1/27/2011 5:34:57 PM	33	LONG BKG	0.052	0.3710	1000.0
LONG BKG 32	1/27/2011 5:34:52 PM	32	LONG BKG	0.056	0.4000	1000.0
LONG BKG 31	1/27/2011 5:34:47 PM	31	LONG BKG	0.089	0.3970	1000.0
LONG BKG 30	1/27/2011 5:34:42 PM	30	LONG BKG	0.117	0.3730	1000.0
LONG BKG 29	1/27/2011 5:34:37 PM	29	LONG BKG	0.054	0.4060	1000.0
LONG BKG 28	1/27/2011 5:34:32 PM	28	LONG BKG	0.073	0.4450	1000.0
LONG BKG 27	1/27/2011 5:34:27 PM	27	LONG BKG	0.040	0.3500	1000.0
LONG BKG 26	1/27/2011 5:34:19 PM	26	LONG BKG	0.098	0.6670	1000.0
LONG BKG 25	1/27/2011 5:34:15 PM	25	LONG BKG	0.165	0.5980	1000.0
LONG BKG 24	1/27/2011 5:34:11 PM	24	LONG BKG	0.104	0.4620	1000.0
LONG BKG 23	1/27/2011 5:34:06 PM	23	LONG BKG	0.084	0.5850	1000.0

01/28/11

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	1/27/2011 5:34:03 PM	22	LONG BKG	0.064	0.4930	1000.0
LBKG 21	1/27/2011 5:33:58 PM	21	LONG BKG	0.096	0.4920	1000.0
LBKG 20	1/27/2011 5:33:53 PM	20	LONG BKG	0.101	0.4870	1000.0
LBKG 19	1/27/2011 5:33:49 PM	19	LONG BKG	0.040	0.6040	1000.0
LBKG 18	1/27/2011 5:33:43 PM	18	LONG BKG	0.054	0.4630	1000.0
LBKG 17	1/27/2011 5:33:38 PM	17	LONG BKG	0.137	0.4460	1000.0
LBKG 16	1/27/2011 5:33:34 PM	16	LONG BKG	0.071	0.4430	1000.0
LBKG 15	1/27/2011 5:33:31 PM	15	LONG BKG	0.147	0.6560	1000.0
LBKG 14	1/27/2011 5:33:27 PM	14	LONG BKG	0.091	0.4070	1000.0
LBKG 13	1/27/2011 5:33:25 PM	13	LONG BKG	0.027	0.3210	1000.0
LBKG 11	1/27/2011 5:33:24 PM	11	LONG BKG	0.097	0.5720	1000.0
LBKG 12	1/27/2011 5:33:24 PM	12	LONG BKG	0.114	0.5980	1000.0

C1/28/11

Background Measurement
 C:\UMS\UTL0001\LB012711.BDT

Background Measurement Parameters:

Comment: 01_2011

User: CMC

Preset Time: 1000:00

Alpha Preset Error: 0.0%

Voltage : 1650

Instrument Name: LB770PC

Cycles: 1

Beta Preset Error: 0.0%

Category List (cps)

	Alpha		Beta	
	Lower	Upper	Lower	Upper
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 01/27/2011 12:26:02

Elapsed Time: 1000:00

Guard: 884.7 cpm

	Alpha (cpm)	Cat	Beta (cpm)	Cat
1	0.0310 (±18.0%)	1	0.765 (±3.62%)	1
2	0.0360 (±16.7%)	1	0.691 (±3.80%)	1
3	0.0410 (±15.6%)	1	0.531 (±4.34%)	1
4	0.0720 (±11.8%)	1	0.633 (±3.97%)	1
5	0.0570 (±13.2%)	1	2.670 (±1.94%)	3
6	0.0440 (±15.1%)	1	10.385 (±0.981%)	3
7	0.1070 (±9.67%)	1	0.641 (±3.95%)	1
8	0.0760 (±11.5%)	1	0.629 (±3.99%)	1
9	0.0320 (±17.7%)	1	0.559 (±4.23%)	1
10	0.0470 (±14.6%)	1	0.837 (±3.46%)	1

01/28/11

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	3/4/2011 2:08:24 PM	38	LONG BKG	0.096	0.4180	1000.0
LONG BKG 37	3/4/2011 2:08:11 PM	37	LONG BKG	0.053	0.3220	1000.0
LONG BKG 36	3/4/2011 2:08:06 PM	36	LONG BKG	0.037	0.3790	1000.0
LONG BKG 35	3/4/2011 2:08:01 PM	35	LONG BKG	0.049	0.3520	1000.0
LONG BKG 34	3/4/2011 2:07:54 PM	34	LONG BKG	0.045	0.3800	1000.0
LONG BKG 31	3/4/2011 2:07:49 PM	31	LONG BKG	0.064	0.4390	1000.0
LONG BKG 33	3/4/2011 2:07:44 PM	33	LONG BKG	0.057	0.3350	1000.0
LONG BKG 32	3/4/2011 2:07:40 PM	32	LONG BKG	0.044	0.3510	1000.0
LONG BKG 30	3/4/2011 2:07:28 PM	30	LONG BKG	0.143	0.3650	1000.0
LONG BKG 29	3/4/2011 2:07:24 PM	29	LONG BKG	0.049	0.3820	1000.0
LONG BKG 28	3/4/2011 2:07:18 PM	28	LONG BKG	0.069	0.4480	1000.0
LONG BKG 27	3/4/2011 2:07:13 PM	27	LONG BKG	0.037	0.2750	1000.0
LONG BKG 26	3/4/2011 2:07:06 PM	26	LONG BKG	0.092	0.5830	1000.0
LONG BKG 25	3/4/2011 2:07:02 PM	25	LONG BKG	0.166	0.6490	1000.0
LONG BKG 24	3/4/2011 2:06:56 PM	24	LONG BKG	0.071	0.4500	1000.0
LONG BKG 23	3/4/2011 2:06:51 PM	23	LONG BKG	0.071	0.5960	1000.0

3/24/11

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	3/4/2011 2:06:48 PM	22	LONG BKG	0.076	0.4730	1000.0
LBKG 21	3/4/2011 2:06:44 PM	21	LONG BKG	0.080	0.4380	1000.0
LBKG 20	3/4/2011 2:06:40 PM	20	LONG BKG	0.083	0.4360	1000.0
LBKG 19	3/4/2011 2:06:36 PM	19	LONG BKG	0.041	0.5670	1000.0
LBKG 18	3/4/2011 2:06:30 PM	18	LONG BKG	0.047	0.5260	1000.0
LBKG 17	3/4/2011 2:06:26 PM	17	LONG BKG	0.101	0.3690	1000.0
LBKG 16	3/4/2011 2:06:24 PM	16	LONG BKG	0.103	0.3980	1000.0
LBKG 15	3/4/2011 2:06:19 PM	15	LONG BKG	0.141	0.6110	1000.0
LBKG 14	3/4/2011 2:06:16 PM	14	LONG BKG	0.067	0.4740	1000.0
LBKG 13	3/4/2011 2:06:12 PM	13	LONG BKG	0.030	0.2990	1000.0
LBKG 12	3/4/2011 2:06:09 PM	12	LONG BKG	0.119	0.6040	1000.0
LBKG 11	3/4/2011 2:06:05 PM	11	LONG BKG	0.093	0.4540	1000.0

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Background Measurement
 C:\UMS\UTL0001\LB030811.BDT

Background Measurement Parameters:

User: CMC	Instrument Name: LB770PC
Preset Time: 1000:00	Cycles: 1
Alpha Preset Error: 0.0%	Beta Preset Error: 0.0%
Voltage : 1650	

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 03/08/2011 11:10:39	Elapsed Time: 1000:00
	Guard: 852.1 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0290 (±18.6%)	1	0.7450 (±3.66%)	1
2	0.0330 (±17.4%)	1	0.5540 (±4.25%)	1
3	0.0310 (±18.0%)	1	0.5530 (±4.25%)	1
4	0.0660 (±12.3%)	1	0.5660 (±4.20%)	1
5	0.0630 (±12.6%)	1	2.8520 (±1.87%)	3
6	0.0300 (±18.3%)	1	0.8620 (±3.41%)	1
7	0.0910 (±10.5%)	1	0.5430 (±4.29%)	1
8	0.0250 (±20.0%)	1	0.4680 (±4.62%)	1
9	0.0460 (±14.7%)	1	0.5750 (±4.17%)	1
10	0.0370 (±16.4%)	1	0.7840 (±3.57%)	1

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	4/8/2011 8:48:53 AM	38	LONG BKG	0.100	0.4430	1000.0
LONG BKG 37	4/8/2011 8:48:49 AM	37	LONG BKG	0.048	0.3290	1000.0
LONG BKG 36	4/8/2011 8:48:45 AM	36	LONG BKG	0.059	0.3080	1000.0
LONG BKG 35	4/8/2011 8:48:38 AM	35	LONG BKG	0.118	0.4370	1000.0
LONG BKG 34	4/8/2011 8:48:34 AM	34	LONG BKG	0.060	0.3860	1000.0
LONG BKG 33	4/8/2011 8:48:30 AM	33	LONG BKG	0.059	0.4090	1000.0
LONG BKG 32	4/8/2011 8:48:27 AM	32	LONG BKG	0.041	0.5380	1000.0
LONG BKG 31	4/8/2011 8:48:23 AM	31	LONG BKG	0.070	0.4160	1000.0
LONG BKG 30	4/8/2011 8:48:14 AM	30	LONG BKG	0.148	0.3820	1000.0
LONG BKG 29	4/8/2011 8:48:10 AM	29	LONG BKG	0.052	0.3480	1000.0
LONG BKG 28	4/8/2011 8:48:06 AM	28	LONG BKG	0.057	0.4270	1000.0
LONG BKG 27	4/8/2011 8:48:00 AM	27	LONG BKG	0.043	0.3840	1000.0
LONG BKG 26	4/8/2011 8:47:54 AM	26	LONG BKG	0.088	0.5070	1000.0
LONG BKG 25	4/8/2011 8:47:50 AM	25	LONG BKG	0.141	0.5930	1000.0
LONG BKG 24	4/8/2011 8:47:45 AM	24	LONG BKG	0.107	0.4990	1000.0
LONG BKG 23	4/8/2011 8:47:42 AM	23	LONG BKG	0.078	0.5290	1000.0

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SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	4/8/2011 8:47:39 AM	22	LONG BKG	0.073	0.4850	1000.0
LBKG 21	4/8/2011 8:47:35 AM	21	LONG BKG	0.117	0.4930	1000.0
LBKG 20	4/8/2011 8:47:29 AM	20	LONG BKG	0.096	0.4390	1000.0
LBKG 19	4/8/2011 8:47:26 AM	19	LONG BKG	0.032	0.5860	1000.0
LBKG 18	4/8/2011 8:47:20 AM	18	LONG BKG	0.053	0.4570	1000.0
LBKG 17	4/8/2011 8:47:18 AM	17	LONG BKG	0.104	0.3950	1000.0
LBKG 16	4/8/2011 8:47:15 AM	16	LONG BKG	0.093	0.4750	1000.0
LBKG 15	4/8/2011 8:47:12 AM	15	LONG BKG	0.118	0.6690	1000.0
LBKG 14	4/8/2011 8:47:10 AM	14	LONG BKG	0.085	0.4380	1000.0
LBKG 13	4/8/2011 8:47:09 AM	13	LONG BKG	0.027	0.3140	1000.0
LBKG 12	4/8/2011 8:47:06 AM	12	LONG BKG	0.132	0.5150	1000.0
LBKG 11	4/8/2011 8:47:04 AM	11	LONG BKG	0.091	0.3990	1000.0

REP 4/11/11

Background Measurement
 C:\UMS\UTL0001\DB40811.BDT

Background Measurement Parameters:

Comment: LNGBKG

User: JMC

Instrument Name: LB770PC

Preset Time: 1000:00

Cycles: 1

Alpha Preset Error: 0.0%

Beta Preset Error: 0.0%

Voltage : 1650

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 04/08/2011 12:46:13

Elapsed Time: 1000:00

Guard: 843.1 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0270 (±19.2%)	1	0.7144 (±3.94%)	1
2	0.0340 (±17.1%)	1	0.6355 (±4.18%)	1
3	0.0810 (±11.1%)	1	0.5655 (±4.43%)	1
4	0.0660 (±12.3%)	1	0.5300 (±4.58%)	1
5	0.0310 (±18.0%)	1	4.4280 (±1.50%)	3
6	0.0630 (±12.6%)	1		3
7	0.0880 (±10.7%)	1	0.5530 (±4.25%)	1
8	0.0310 (±18.0%)	1	0.5840 (±4.14%)	1
9	0.0400 (±15.8%)	1	0.5570 (±4.24%)	1
10	0.0290 (±18.6%)	1	0.7710 (±3.60%)	1

4/24/11

Pace Analytical Protean GFPC System Count Data

SAMPLE_ID	Count Start:	DET#	BATCH_ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	5/8/2011 8:25:09 AM	38	LONG BKG	0.060	0.4190	1000.0
LONG BKG 37	5/8/2011 8:25:05 AM	37	LONG BKG	0.044	0.3540	1000.0
LONG BKG 36	5/8/2011 8:25:02 AM	36	LONG BKG	0.082	0.3520	1000.0
LONG BKG 35	5/8/2011 8:24:58 AM	35	LONG BKG	0.097	0.4710	1000.0
LONG BKG 34	5/8/2011 8:24:53 AM	34	LONG BKG	0.057	0.3790	1000.0
LONG BKG 33	5/8/2011 8:24:50 AM	33	LONG BKG	0.083	0.3870	1000.0
LONG BKG 32	5/8/2011 8:24:45 AM	32	LONG BKG	0.052	0.4810	1000.0
LONG BKG 31	5/8/2011 8:24:41 AM	31	LONG BKG	0.087	0.4550	1000.0
LONG BKG 30	5/8/2011 8:24:38 AM	30	LONG BKG	0.134	0.4080	1000.0
LONG BKG 29	5/8/2011 8:24:34 AM	29	LONG BKG	0.075	0.3350	1000.0
LONG BKG 28	5/8/2011 8:24:31 AM	28	LONG BKG	0.046	0.4700	1000.0
LONG BKG 27	5/8/2011 8:24:29 AM	27	LONG BKG	0.049	0.3780	1000.0
LONG BKG 26	5/8/2011 8:24:29 AM	26	LONG BKG	0.092	0.5920	1000.0
LONG BKG 25	5/8/2011 8:24:17 AM	25	LONG BKG	0.158	0.6550	1000.0
LONG BKG 24	5/8/2011 8:24:11 AM	24	LONG BKG	0.115	0.5030	1000.0
LONG BKG 23	5/8/2011 8:24:07 AM	23	LONG BKG	0.105	0.6480	1000.0

Monday, May 09, 2011

Om 5/9/11

Page 1 of 2

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	5/8/2011 8:24:02 AM	22	LONG BKG	0.072	0.5120	1000.0
LBKG 21	5/8/2011 8:23:57 AM	21	LONG BKG	0.105	0.4710	1000.0
LBKG 20	5/8/2011 8:23:53 AM	20	LONG BKG	0.104	0.4690	1000.0
LBKG 19	5/8/2011 8:23:48 AM	19	LONG BKG	0.102	0.5720	1000.0
LBKG 18	5/8/2011 8:23:42 AM	18	LONG BKG	0.088	0.5010	1000.0
LBKG 17	5/8/2011 8:23:38 AM	17	LONG BKG	0.112	0.4260	1000.0
LBKG 14	5/8/2011 8:23:34 AM	14	LONG BKG	0.082	0.4710	1000.0
LBKG 16	5/8/2011 8:23:28 AM	16	LONG BKG	0.098	0.5140	1000.0
LBKG 15	5/8/2011 8:23:07 AM	15	LONG BKG	0.119	0.6140	1000.0
LBKG 13	5/8/2011 8:22:53 AM	13	LONG BKG	0.038	0.2950	1000.0
LBKG 12	5/8/2011 8:22:52 AM	12	LONG BKG	0.131	0.5430	1000.0
LBKG 11	5/8/2011 8:22:48 AM	11	LONG BKG	0.095	0.4060	1000.0

Om 5/9/11
5/9/11

Background Measurement
 C:\UMS\UTL0001\LB050811.BDT

Background Measurement Parameters:

User: MBT Instrument Name: LB770PC
 Preset Time: 1000:00 Cycles: 1
 Alpha Preset Error: 0.0% Beta Preset Error: 0.0%
 Voltage : 1650

Category List (cps)

	Alpha		Beta	
	Lower	Upper	Lower	Upper
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 05/08/2011 8:26:39 Elapsed Time: 1000:00
 Guard: 855.1 cpm

	Alpha (cpm)	Cat	Beta (cpm)	Cat
1	0.0380 (±16.2%)	1	0.8410 (±3.45%)	1
2	0.0450 (±14.9%)	1	0.5770 (±4.16%)	1
3	0.0560 (±13.4%)	1	0.5970 (±4.09%)	1
4	0.0980 (±10.1%)	1	0.6630 (±3.88%)	1
5	0.0340 (±17.1%)	1	5.0570 (±1.41%)	3
6	0.0790 (±11.3%)	1		3
7	0.0870 (±10.7%)	1	0.6300 (±3.98%)	1
8	0.0410 (±15.6%)	1	0.5410 (±4.30%)	1
9	0.0830 (±11.0%)	1	0.5750 (±4.17%)	1
10	0.0320 (±17.7%)	1		3

CM-19/11

MBT 5/9/11

Pace Analytical Protean GFPC System Count Data

SAMPLE_ID	Count Start:	DET#	BATCH_ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 32	6/7/2011 1:24:42 PM	32	LONG BKG	0.067	0.3820	1000.0
LONG BKG 38	6/6/2011 5:32:12 PM	38	LONG BKG	0.102	0.4460	1000.0
LONG BKG 35	6/6/2011 5:32:06 PM	35	LONG BKG	0.098	0.4580	1000.0
LONG BKG 31	6/6/2011 5:12:21 PM	31	LONG BKG	0.096	0.4520	1000.0
LONG BKG 34	6/6/2011 4:56:42 PM	34	LONG BKG	0.079	0.4500	1000.0
LONG BKG 37	6/6/2011 4:55:11 PM	37	LONG BKG	0.048	0.3230	1000.0
LONG BKG 36	6/6/2011 4:55:03 PM	36	LONG BKG	0.067	0.3650	1000.0
LONG BKG 33	6/6/2011 4:23:20 PM	33	LONG BKG	0.112	0.3840	1000.0
LONG BKG 30	6/4/2011 3:02:57 PM	30	LONG BKG	0.129	0.3820	1000.0
LONG BKG 28	6/4/2011 3:02:53 PM	28	LONG BKG	0.051	0.4000	1000.0
LONG BKG 27	6/4/2011 3:02:48 PM	27	LONG BKG	0.046	0.3500	1000.0
LONG BKG 29	6/4/2011 2:16:22 PM	29	LONG BKG	0.063	0.3380	1000.0
LONG BKG 26	6/4/2011 2:16:17 PM	26	LONG BKG	0.104	0.6000	1000.0
LONG BKG 25	6/4/2011 2:16:13 PM	25	LONG BKG	0.175	0.6510	1000.0
LONG BKG 24	6/4/2011 2:16:09 PM	24	LONG BKG	0.090	0.4690	1000.0
LONG BKG 23	6/4/2011 2:16:05 PM	23	LONG BKG	0.098	0.5760	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	6/4/2011 2:16:00 PM	22	LONG BKG	0.094	0.5200	1000.0
LBKG 21	6/4/2011 2:15:57 PM	21	LONG BKG	0.101	0.4710	1000.0
LBKG 20	6/4/2011 2:15:53 PM	20	LONG BKG	0.115	0.4580	1000.0
LBKG 19	6/4/2011 2:15:50 PM	19	LONG BKG	0.034	0.6200	1000.0
LBKG 18	6/4/2011 2:15:44 PM	18	LONG BKG	0.071	0.5260	1000.0
LBKG 17	6/4/2011 2:15:41 PM	17	LONG BKG	0.094	0.3990	1000.0
LBKG 16	6/4/2011 2:15:37 PM	16	LONG BKG	0.112	0.5220	1000.0
LBKG 15	6/4/2011 2:15:34 PM	15	LONG BKG	0.112	0.6320	1000.0
LBKG 14	6/4/2011 2:15:31 PM	14	LONG BKG	0.093	0.4500	1000.0
LBKG 13	6/4/2011 2:15:28 PM	13	LONG BKG	0.044	0.2740	1000.0
LBKG 12	6/4/2011 2:15:26 PM	12	LONG BKG	0.117	0.5820	1000.0
LBKG 11	6/4/2011 2:15:23 PM	11	LONG BKG	0.063	0.4340	1000.0

Background Measurement
C:\UMS\UTL0001\LB60411.BDT

Background Measurement Parameters:

User: JLK Instrument Name: LB770PC
Preset Time: 1000:00 Cycles: 1
Alpha Preset Error: 0.0% Beta Preset Error: 0.0%
Voltage : 1650

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 06/04/2011 15:04:42 Elapsed Time: 1000:00
Guard: 831.8 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0460 (±14.7%)	1	0.8040 (±3.53%)	1
2	0.0330 (±17.4%)	1	0.7120 (±3.75%)	1
3	0.0440 (±15.1%)	1	0.5870 (±4.13%)	1
4	0.0750 (±11.5%)	1	0.5960 (±4.10%)	1
5	0.0410 (±15.6%)	1	4.0090 (±1.58%)	3
6	0.0650 (±12.4%)	1		3
7	0.0900 (±10.5%)	1	0.6220 (±4.01%)	1
8	0.0390 (±16.0%)	1		3
9	0.0790 (±11.3%)	1	0.6060 (±4.06%)	1
10	0.0340 (±17.1%)	1	0.8290 (±3.47%)	1

JLK 6/7/11

Background Measurement Parameters:

User: JLK	Instrument Name: LB770PC
Preset Time: 1000:00	Cycles: 1
Alpha Preset Error: 0.0%	Beta Preset Error: 0.0%
Voltage : 1650	

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 07/09/2011 13:21:37	Elapsed Time: 1000:00
	Guard: 828.2 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0420 (±15.4%)	1	0.7840 (±3.57%)	1
2	0.0770 (±11.4%)	1	0.6300 (±3.98%)	1
3	0.0390 (±16.0%)	1	0.5710 (±4.18%)	1
4	0.0860 (±10.8%)	1	0.6310 (±3.98%)	1
5	0.0390 (±16.0%)	1	5.0160 (±1.41%)	3
6	0.0370 (±16.4%)	1		3
7	0.1120 (±9.45%)	1	0.6180 (±4.02%)	1
8	0.0480 (±14.4%)	1	0.6230 (±4.01%)	1
9	0.0430 (±15.2%)	1	0.5790 (±4.16%)	1
10	0.0300 (±18.3%)	1	0.7180 (±3.73%)	1

Sept 7/11/11

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 21	7/9/2011 5:00:45 PM	21	LONG BKG	0.097	0.5310	1000.0
LBKG 22	7/9/2011 5:00:40 PM	22	LONG BKG	0.102	0.4930	1000.0
LBKG 20	7/9/2011 5:00:35 PM	20	LONG BKG	0.085	0.4660	1000.0
LBKG 19	7/9/2011 5:00:32 PM	19	LONG BKG	0.072	0.5600	1000.0
LBKG 18	7/9/2011 5:00:28 PM	18	LONG BKG	0.084	0.4380	1000.0
LBKG 17	7/9/2011 5:00:26 PM	17	LONG BKG	0.116	0.4140	1000.0
LBKG 16	7/9/2011 5:00:26 PM	16	LONG BKG	0.107	0.4590	1000.0
LBKG 15	7/9/2011 5:00:26 PM	15	LONG BKG	0.098	0.6800	1000.0
LONG BKG 34	7/9/2011 4:57:14 PM	34	LONG BKG	0.052	0.3910	1000.0
LONG BKG 28	7/9/2011 4:57:09 PM	28	LONG BKG	0.065	0.4020	1000.0
LONG BKG 33	7/9/2011 4:56:40 PM	33	LONG BKG	0.275	0.4520	1000.0
LONG BKG 32	7/9/2011 4:56:35 PM	32	LONG BKG	0.061	0.3830	1000.0
LONG BKG 31	7/9/2011 4:56:30 PM	31	LONG BKG	0.100	0.4250	1000.0
LONG BKG 30	7/9/2011 4:56:25 PM	30	LONG BKG	0.175	0.3990	1000.0
LONG BKG 29	7/9/2011 4:56:21 PM	29	LONG BKG	0.065	0.3630	1000.0
LONG BKG 28	7/9/2011 4:56:14 PM	110	LONG BKG	0.000	0.0000	0.0

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LRH 7/11/11

... working has an effect...

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 27	7/9/2011 4:56:10 PM	27	LONG BKG	0.061	0.3470	1000.0
LONG BKG 26	7/9/2011 4:56:05 PM	26	LONG BKG	0.099	0.5970	1000.0
LONG BKG 25	7/9/2011 4:56:01 PM	25	LONG BKG	0.181	0.6430	1000.0
LONG BKG 24	7/9/2011 4:55:56 PM	24	LONG BKG	0.101	0.4700	1000.0
LONG BKG 23	7/9/2011 4:55:52 PM	23	LONG BKG	0.073	0.5870	1000.0
LBKG 13	7/9/2011 3:55:24 PM	13	LONG BKG	0.059	0.2860	1000.0
LBKG 14	7/9/2011 3:41:32 PM	14	LONG BKG	0.068	0.4650	1000.0
LBKG 12	7/9/2011 3:41:28 PM	12	LONG BKG	0.126	0.5860	1000.0
LBKG 11	7/9/2011 3:41:25 PM	11	LONG BKG	0.090	0.4370	1000.0
LONG BKG 38	7/9/2011 3:41:18 PM	38	LONG BKG	0.081	0.4620	1000.0
LONG BKG 37	7/9/2011 3:41:14 PM	37	LONG BKG	0.067	0.2880	1000.0
LONG BKG 36	7/9/2011 3:41:09 PM	36	LONG BKG	0.079	0.3430	1000.0
LONG BKG 35	7/9/2011 3:41:04 PM	35	LONG BKG	0.104	0.5030	1000.0

LONG BKG 27
LONG BKG 26
LONG BKG 25
LONG BKG 24
LONG BKG 23
LBKG 13
LBKG 14
LBKG 12
LBKG 11
LONG BKG 38
LONG BKG 37
LONG BKG 36
LONG BKG 35

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Background Measurement
 C:\UMS\UTL0001\LB80911.BDT

Background Measurement Parameters:

User: JLK Instrument Name: LB770PC
 Preset Time: 1000:00 Cycles: 1
 Alpha Preset Error: 0.0% Beta Preset Error: 0.0%
 Voltage : 1650

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 08/09/2011 15:18:41 Elapsed Time: 1000:00
 Guard: 847.1 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0450 (±14.9%)	1	0.7630 (±3.62%)	1
2	0.0550 (±13.5%)	1	0.6160 (±4.03%)	1
3	0.0390 (±16.0%)	1	0.5140 (±4.41%)	1
4	0.0690 (±12.0%)	1	1.0600 (±3.07%)	2
5	0.0450 (±14.9%)	1	2.0330 (±2.22%)	3
6	0.0300 (±18.3%)	1		3
7	0.0680 (±12.1%)	1	0.6480 (±3.93%)	1
8	0.0260 (±19.6%)	1	0.5940 (±4.10%)	1
9	0.0500 (±14.1%)	1	0.6310 (±3.98%)	1
10	0.0410 (±15.6%)	1	0.7930 (±3.55%)	1

Handwritten signature

Handwritten: JLK 8/10/11

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 16	8/9/2011 5:00:24 PM	16	LONG BKG	0.037	0.4080	1000.0
LBKG 14	8/9/2011 5:00:22 PM	14	LONG BKG	0.071	0.4980	1000.0
LBKG 12	8/9/2011 5:00:18 PM	12	LONG BKG	0.092	0.3930	1000.0
LBKG 11	8/9/2011 5:00:14 PM	11	LONG BKG	0.084	0.4900	1000.0
LONG BKG 29	8/9/2011 4:03:07 PM	29	LONG BKG	0.064	0.3820	1000.0
LBKG 21	8/9/2011 3:18:31 PM	21	LONG BKG	0.053	0.3740	1000.0
LBKG 19	8/9/2011 3:18:27 PM	19	LONG BKG	0.059	0.4200	1000.0
LBKG 15	8/9/2011 3:18:22 PM	15	LONG BKG	0.110	0.6280	1000.0
LONG BKG 26	8/9/2011 3:18:15 PM	26	LONG BKG	0.103	0.5430	1000.0
LONG BKG 25	8/9/2011 3:18:11 PM	25	LONG BKG	0.052	0.3850	1000.0
LONG BKG 23	8/9/2011 3:18:06 PM	23	LONG BKG	0.063	0.5700	1000.0
LONG BKG 35	8/9/2011 3:17:58 PM	35	LONG BKG	0.054	0.8920	1000.0

OK/10/11

*11/10/11
JH*

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 37	8/9/2011 6:18:54 PM	37	LONG BKG	0.047	0.3720	1000.0
LBKG 13	8/9/2011 6:18:21 PM	13	LONG BKG	0.031	0.3330	1000.0
LONG BKG 38	8/9/2011 5:01:53 PM	38	LONG BKG	0.082	0.4080	1000.0
LONG BKG 36	8/9/2011 5:01:48 PM	36	LONG BKG	0.079	0.3920	1000.0
LONG BKG 34	8/9/2011 5:01:42 PM	34	LONG BKG	0.048	0.4100	1000.0
LONG BKG 33	8/9/2011 5:01:37 PM	33	LONG BKG	0.284	0.4830	1000.0
LONG BKG 32	8/9/2011 5:01:33 PM	32	LONG BKG	0.062	0.3410	1000.0
LONG BKG 31	8/9/2011 5:01:28 PM	31	LONG BKG	0.040	0.4080	1000.0
LONG BKG 30	8/9/2011 5:01:22 PM	30	LONG BKG	0.144	0.4240	1000.0
LONG BKG 28	8/9/2011 5:01:17 PM	28	LONG BKG	0.062	0.4340	1000.0
LONG BKG 27	8/9/2011 5:01:13 PM	27	LONG BKG	0.052	0.3700	1000.0
LONG BKG 24	8/9/2011 5:01:05 PM	24	LONG BKG	0.054	0.3570	1000.0
LBKG 22	8/9/2011 5:01:00 PM	22	LONG BKG	0.061	0.3970	1000.0
LBKG 20	8/9/2011 5:00:40 PM	20	LONG BKG	0.112	0.4630	1000.0
LBKG 18	8/9/2011 5:00:31 PM	18	LONG BKG	0.087	0.4980	1000.0
LBKG 17	8/9/2011 5:00:28 PM	17	LONG BKG	0.046	0.3900	1000.0

OS/10/11

*11/01/11
Jef*

Pace Analytical Protean GFPC System Count Data

SAMPLE_ID	Count Start:	DET#	BATCH_ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 29	9/3/2011 6:33:43 PM	29	LONG BKG	0.073	0.3260	1000.0
LBKG 15	9/3/2011 6:19:59 PM	15	LONG BKG	0.332	1.1840	1000.0
LONG BKG 38	9/3/2011 6:13:45 PM	38	LONG BKG	0.060	0.3490	1000.0
LONG BKG 37	9/3/2011 6:13:39 PM	37	LONG BKG	0.063	0.2890	1000.0
LONG BKG 36	9/3/2011 6:13:34 PM	36	LONG BKG	0.060	0.3580	1000.0
LONG BKG 35	9/3/2011 6:13:29 PM	35	LONG BKG	0.052	0.5910	1000.0
LONG BKG 34	9/3/2011 6:13:21 PM	34	LONG BKG	0.056	0.3930	1000.0
LONG BKG 33	9/3/2011 6:13:17 PM	33	LONG BKG	0.089	0.4040	1000.0
LONG BKG 32	9/3/2011 6:13:12 PM	32	LONG BKG	0.069	2.7440	1000.0
LONG BKG 31	9/3/2011 6:13:08 PM	31	LONG BKG	0.059	0.4200	1000.0
LONG BKG 30	9/3/2011 6:13:04 PM	30	LONG BKG	0.061	0.3480	1000.0
LONG BKG 28	9/3/2011 6:12:59 PM	28	LONG BKG	0.070	0.3320	1000.0
LONG BKG 27	9/3/2011 6:12:54 PM	27	LONG BKG	0.054	0.3000	1000.0
LBKG 19	9/3/2011 6:12:46 PM	19	LONG BKG	0.058	0.4580	1000.0
LONG BKG 26	9/3/2011 6:11:58 PM	26	LONG BKG	0.062	0.4160	1000.0
LONG BKG 25	9/3/2011 6:11:54 PM	25	LONG BKG	0.073	0.3860	1000.0

Handwritten signature
9/6/11

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 24	9/3/2011 6:11:50 PM	24	LONG BKG	0.096	0.3870	1000.0
LONG BKG 23	9/3/2011 6:11:46 PM	23	LONG BKG	0.089	0.4550	1000.0
LBKG 22	9/3/2011 6:11:41 PM	22	LONG BKG	0.080	0.4200	1000.0
LBKG 21	9/3/2011 6:11:37 PM	21	LONG BKG	0.050	0.3950	1000.0
LBKG 20	9/3/2011 6:11:34 PM	20	LONG BKG	0.065	0.3560	1000.0
LBKG 18	9/3/2011 6:11:26 PM	18	LONG BKG	0.054	0.4240	1000.0
LBKG 17	9/3/2011 6:11:22 PM	17	LONG BKG	0.069	0.3670	1000.0
LBKG 16	9/3/2011 6:11:19 PM	16	LONG BKG	0.602	1.8340	1000.0
LBKG 14	9/3/2011 6:11:16 PM	14	LONG BKG	0.057	0.4220	1000.0
LBKG 13	9/3/2011 6:11:13 PM	13	LONG BKG	0.037	0.2590	1000.0
LBKG 12	9/3/2011 6:11:11 PM	12	LONG BKG	0.095	0.3950	1000.0
LBKG 11	9/3/2011 6:11:08 PM	11	LONG BKG	0.066	0.3830	1000.0

HH
9/6/11

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 32	9/6/2011 3:27:52 PM	32	LONG BKG	0.042	0.3150	1000.0
LBKG 16	9/6/2011 3:14:25 PM	16	LONG BKG	0.038	0.3650	1000.0
LBKG 15	9/6/2011 3:14:21 PM	15	LONG BKG	0.051	0.4740	1000.0

Handwritten signature

Background Measurement
C:\UMS\UTL0001\LB100111.BDT

Background Measurement Parameters:

User: CMC Instrument Name: LB770PC
Preset Time: 1000:00 Cycles: 1
Alpha Preset Error: 0.0% Beta Preset Error: 0.0%
Voltage : 1650

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 10/01/2011 11:26:23

Elapsed Time: 1000:00
Guard: 850.6 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0430 (±15.2%)	1	0.8110 (±3.51%)	1
2	0.0480 (±14.4%)	1	0.6310 (±3.98%)	1
3	0.0410 (±15.6%)	1	0.5920 (±4.11%)	1
4	0.0650 (±12.4%)	1	0.6160 (±4.03%)	1
5	0.0530 (±13.7%)	1	5.0720 (±1.40%)	3
6	0.0540 (±13.6%)	1		3
7	0.1030 (±9.85%)	1	0.7050 (±3.77%)	1
8	0.0480 (±14.4%)	1	0.6140 (±4.04%)	1
9	0.0560 (±13.4%)	1	0.7080 (±3.76%)	1
10	0.0440 (±15.1%)	1	0.7910 (±3.56%)	1

Handwritten: RCH 10/13/11

Sample Measurement
 C:\UMS\UTL0001\GAB9584.SDT

Sample Measurement Parameters:

User: JLK
 Preset Time: 1000:00
 Alpha Preset Error: 1.0%
 User Protocol: GAB

Instrument Name: LB770PC
 Cycles: 1
 Beta Preset Error: 1.0%

Cycle 1 of 1

Start Time: 10/02/2011 18:45:19

Elapsed Time: 1000:00
 Guard: 847.3 cpm

	<u>Spl #</u>	<u>Sample Name</u>	<u>Alpha (raw cpm)</u>	<u>MDA</u>	<u>MRA</u>	<u>Beta (raw cpm)</u>	<u>MDA</u>	<u>MRA</u>
1	9510	3054188001	0.23 (±6.59%)	0.0006	0.0003	1.425 (±2.65%)	0.0023	0.0011
2	9513	E	0.061 (±12.8%)	0.0005	0.0003	0.608 (±4.06%)	0.0019	0.0009
3	9511	3054189001	0.18 (±7.45%)	0.0007	0.0003	1.169 (±2.92%)	0.0020	0.0010
4	9511	3054230001	0.098 (±10.1%)	0.0009	0.0004	15.43 (±0.805%)	0.0021	0.0010
5	9668	E	0.071 (±11.9%)	0.0006	0.0003	5.028 (±1.41%)	0.0076	0.0038
6	9668	E	0.097 (±10.2%)	undef.	undef.	Outliers!	undef.	undef.
7	9511	E	0.12 (±9.21%)	0.0009	0.0004	0.812 (±3.51%)	0.0022	0.0011
8	9511	LBKG	0.051 (±14.0%)	0.0009	0.0004	0.601 (±4.08%)	0.0022	0.0011
9	9513	3054230002	0.089 (±10.6%)	0.0007	0.0003	3.276 (±1.75%)	0.0022	0.0011
10	9668	E	0.081 (±11.1%)	0.0006	0.0003	0.911 (±3.31%)	0.0024	0.0012

JRH
10/3/11

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 24	10/1/2011 11:31:50 AM	24	LONG BKG	0.070	0.3750	1000.0
LONG BKG 23	10/1/2011 11:31:46 AM	23	LONG BKG	0.067	0.4070	1000.0
LBKG 22	10/1/2011 11:31:42 AM	22	LONG BKG	0.080	0.4230	1000.0
LBKG 21	10/1/2011 11:31:39 AM	21	LONG BKG	0.057	0.3940	1000.0
LBKG 20	10/1/2011 11:31:36 AM	20	LONG BKG	0.064	0.3590	1000.0
LBKG 19	10/1/2011 11:31:30 AM	19	LONG BKG	0.045	0.4400	1000.0
LBKG 18	10/1/2011 11:31:24 AM	18	LONG BKG	0.054	0.4000	1000.0
LBKG 17	10/1/2011 11:31:21 AM	17	LONG BKG	0.055	0.3790	1000.0
LBKG 16	10/1/2011 11:31:17 AM	16	LONG BKG	0.046	0.3910	1000.0
LBKG 15	10/1/2011 11:31:14 AM	15	LONG BKG	0.056	0.5570	1000.0
LBKG 14	10/1/2011 11:31:12 AM	14	LONG BKG	0.027	0.4490	1000.0
LBKG 13	10/1/2011 11:31:09 AM	13	LONG BKG	0.039	0.3440	1000.0
LBKG 12	10/1/2011 11:31:08 AM	12	LONG BKG	0.088	0.4150	1000.0
LBKG 11	10/1/2011 11:31:05 AM	11	LONG BKG	0.046	0.3820	1000.0

Handwritten signature and date: 10/12/11

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 25	10/2/2011 6:09:39 PM	25	LONG BKG	0.072	0.4390	1000.0
LBKG 13	10/2/2011 6:09:20 PM	13	LONG BKG	0.034	0.3510	1000.0
LONG BKG 38	10/1/2011 11:32:49 AM	38	LONG BKG	0.055	0.3790	1000.0
LONG BKG 37	10/1/2011 11:32:44 AM	37	LONG BKG	0.064	0.3270	1000.0
LONG BKG 36	10/1/2011 11:32:40 AM	36	LONG BKG	0.070	0.3860	1000.0
LONG BKG 35	10/1/2011 11:32:36 AM	35	LONG BKG	0.049	0.3720	1000.0
LONG BKG 34	10/1/2011 11:32:31 AM	34	LONG BKG	0.053	0.4220	1000.0
LONG BKG 33	10/1/2011 11:32:28 AM	33	LONG BKG	0.093	0.3680	1000.0
LONG BKG 32	10/1/2011 11:32:24 AM	32	LONG BKG	0.060	0.3330	1000.0
LONG BKG 31	10/1/2011 11:32:20 AM	31	LONG BKG	0.059	0.4170	1000.0
LONG BKG 30	10/1/2011 11:32:16 AM	30	LONG BKG	0.054	0.3770	1000.0
LONG BKG 29	10/1/2011 11:32:12 AM	29	LONG BKG	0.060	0.2820	1000.0
LONG BKG 28	10/1/2011 11:32:08 AM	28	LONG BKG	0.051	0.3160	1000.0
LONG BKG 27	10/1/2011 11:32:04 AM	27	LONG BKG	0.036	0.3260	1000.0
LONG BKG 26	10/1/2011 11:31:57 AM	26	LONG BKG	0.080	0.4370	1000.0
LONG BKG 25	10/1/2011 11:31:53 AM	25	LONG BKG	0.077	0.3430	1000.0

Handwritten signature and date: 10/11/11

Background Measurement
 C:\UMS\UTL0001\LB110611.BDT

Background Measurement Parameters:

User: JLK Instrument Name: LB770PC
 Preset Time: 1000:00 Cycles: 1
 Alpha Preset Error: 0.0% Beta Preset Error: 0.0%
 Voltage : 1650

Category List (cps)

	Alpha		Beta	
	Lower	Upper	Lower	Upper
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 11/06/2011 18:42:25 Elapsed Time: 1000:00
 Guard: 828.2 cpm

	Alpha (cpm)	Cat	Beta (cpm)	Cat
1	0.0550 (±13.5%)	1	0.7970 (±3.54%)	1
2	0.0490 (±14.3%)	1	0.5990 (±4.09%)	1
3	0.0640 (±12.5%)	1	0.5880 (±4.12%)	1
4	0.0910 (±10.5%)	1	0.6620 (±3.89%)	1
5	0.0750 (±11.5%)	1	3.1460 (±1.78%)	3
6	0.0630 (±12.6%)	1	1.0700 (±3.06%)	2
7	0.1290 (±8.80%)	1	0.6130 (±4.04%)	1
8	0.0530 (±13.7%)	1	0.5690 (±4.19%)	1
9	0.0770 (±11.4%)	1	0.6210 (±4.01%)	1
10	0.0680 (±12.1%)	1	0.9600 (±3.23%)	1

JLK 11/7/11

Pace Analytical Protean GFPC System Count Data

SAMPLE_ID	Count Start:	DET#	BATCH_ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 29	11/6/2011 6:47:55 PM	29	LONG BKG	0.077	0.2820	1000.0
LBKG 15	11/6/2011 5:55:41 PM	15	LONG BKG	0.063	0.5120	1000.0
LONG BKG 38	11/6/2011 5:37:52 PM	38	LONG BKG	0.063	0.3640	1000.0
LONG BKG 37	11/6/2011 5:37:48 PM	37	LONG BKG	0.076	0.3220	1000.0
LONG BKG 36	11/6/2011 5:37:44 PM	36	LONG BKG	0.062	0.3460	1000.0
LONG BKG 35	11/6/2011 5:37:40 PM	35	LONG BKG	0.066	0.3530	1000.0
LONG BKG 34	11/6/2011 5:37:36 PM	34	LONG BKG	0.060	0.4430	1000.0
LONG BKG 33	11/6/2011 5:37:33 PM	33	LONG BKG	0.120	0.3780	1000.0
LONG BKG 32	11/6/2011 5:37:29 PM	32	LONG BKG	0.060	0.3790	1000.0
LONG BKG 31	11/6/2011 5:37:25 PM	31	LONG BKG	0.070	0.4420	1000.0
LONG BKG 30	11/6/2011 5:37:20 PM	30	LONG BKG	0.070	0.3890	1000.0
LONG BKG 28	11/6/2011 5:37:16 PM	28	LONG BKG	0.072	0.3560	1000.0
LONG BKG 27	11/6/2011 5:37:12 PM	27	LONG BKG	0.058	0.3520	1000.0
LONG BKG 26	11/6/2011 5:37:08 PM	26	LONG BKG	0.076	0.3870	1000.0
LONG BKG 25	11/6/2011 5:37:04 PM	25	LONG BKG	0.208	0.4270	1000.0
LONG BKG 24	11/6/2011 5:37:01 PM	24	LONG BKG	0.079	0.3260	1000.0

get 11/7/11

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 23	11/6/2011 5:36:58 PM	23	LONG BKG	0.094	0.4190	1000.0
LBKG 22	11/6/2011 5:36:55 PM	22	LONG BKG	0.102	0.3790	1000.0
LBKG 21	11/6/2011 5:36:51 PM	21	LONG BKG	0.081	0.3430	1000.0
LBKG 20	11/6/2011 5:36:48 PM	20	LONG BKG	0.071	0.3590	1000.0
LBKG 19	11/6/2011 5:36:44 PM	19	LONG BKG	0.087	0.4580	1000.0
LBKG 18	11/6/2011 5:36:37 PM	18	LONG BKG	0.069	0.3930	1000.0
LBKG 17	11/6/2011 5:36:34 PM	17	LONG BKG	0.089	0.4020	1000.0
LBKG 16	11/6/2011 5:36:32 PM	16	LONG BKG	0.056	0.3340	1000.0
LBKG 14	11/6/2011 5:34:19 PM	14	LONG BKG	0.042	0.4090	1000.0
LBKG 13	11/6/2011 5:34:16 PM	13	LONG BKG	0.073	0.2960	1000.0
LBKG 12	11/6/2011 5:34:14 PM	12	LONG BKG	0.110	0.3530	1000.0
LBKG 11	11/6/2011 5:34:12 PM	11	LONG BKG	0.132	0.4480	1000.0

*11/11/11
H20*

Pace Analytical Protean GFPC System Count Data

SAMPLE_ID	Count Start:	DET#	BATCH_ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	12/23/2011 7:47:51 PM	38	LONG BKG	0.088	0.3680	1000.0
LONG BKG 33	12/23/2011 7:47:33 PM	33	LONG BKG	0.103	0.3770	1000.0
LONG BKG 31	12/23/2011 7:47:24 PM	31	LONG BKG	0.049	0.3780	1000.0
LONG BKG 30	12/23/2011 7:47:16 PM	30	LONG BKG	0.048	0.4080	1000.0
LONG BKG 28	12/23/2011 7:47:07 PM	28	LONG BKG	0.055	0.3060	1000.0
LONG BKG 27	12/23/2011 7:46:47 PM	27	LONG BKG	0.045	0.3290	1000.0
LONG BKG 26	12/23/2011 7:46:40 PM	26	LONG BKG	0.078	0.3470	1000.0
LONG BKG 25	12/23/2011 7:46:40 PM	25	LONG BKG	0.109	0.4100	1000.0
LONG BKG 24	12/23/2011 7:46:05 PM	24	LONG BKG	0.117	0.3030	1000.0
LONG BKG 23	12/23/2011 7:45:57 PM	23	LONG BKG	0.061	0.3560	1000.0
LBKG 22	12/23/2011 7:45:49 PM	22	LONG BKG	0.064	0.3570	1000.0
LBKG 21	12/23/2011 7:45:44 PM	21	LONG BKG	0.058	0.3580	1000.0
LBKG 20	12/23/2011 7:45:38 PM	20	LONG BKG	0.081	0.3780	1000.0
LBKG 19	12/23/2011 7:45:32 PM	19	LONG BKG	0.054	0.4350	1000.0
LBKG 18	12/23/2011 7:45:25 PM	18	LONG BKG	0.066	0.3880	1000.0
LBKG 17	12/23/2011 7:45:18 PM	17	LONG BKG	0.059	0.3810	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 16	12/23/2011 7:45:13 PM	16	LONG BKG	0.064	0.3730	1000.0
LBKG 14	12/23/2011 7:45:07 PM	14	LONG BKG	0.045	0.3750	1000.0
LBKG 13	12/23/2011 7:45:04 PM	13	LONG BKG	0.051	0.3090	1000.0
LBKG 11	12/23/2011 7:45:04 PM	11	LONG BKG	0.094	0.4530	1000.0
LONG BKG 37	12/23/2011 3:09:59 PM	37	LONG BKG	0.066	0.3130	1000.0
LONG BKG 36	12/23/2011 3:09:59 PM	36	LONG BKG	0.084	0.3480	1000.0
LONG BKG 35	12/23/2011 3:09:44 PM	35	LONG BKG	0.055	0.3900	1000.0
LONG BKG 34	12/23/2011 3:09:39 PM	34	LONG BKG	0.102	0.4420	1000.0
LONG BKG 32	12/23/2011 3:09:32 PM	32	LONG BKG	0.056	0.3440	1000.0
LONG BKG 29	12/23/2011 3:09:26 PM	29	LONG BKG	0.067	0.3000	1000.0
LBKG 15	12/23/2011 3:09:17 PM	15	LONG BKG	0.052	0.4730	1000.0
LBKG 12	12/23/2011 3:09:13 PM	12	LONG BKG	0.099	0.3440	1000.0

Background Measurement
 C:\UMS\UTL0001\LB020312.BDT

Background Measurement Parameters:

User: JLK	Instrument Name: LB770PC
Preset Time: 1000:00	Cycles: 1
Alpha Preset Error: 0.0%	Beta Preset Error: 0.0%
Voltage : 1650	

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 02/03/2012 14:05:37

Elapsed Time: 1000:00

Guard: 836.5 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0430 (±15.2%)	1	0.8620 (±3.41%)	1
2	0.0680 (±12.1%)	1	0.6720 (±3.86%)	1
3	0.0570 (±13.2%)	1	0.6150 (±4.03%)	1
4	0.0730 (±11.7%)	1	0.5940 (±4.10%)	1
5	0.0440 (±15.1%)	1	2.3680 (±2.05%)	3
6	0.0770 (±11.4%)	1		3
7	0.0880 (±10.7%)	1	0.6190 (±4.02%)	1
8	0.0400 (±15.8%)	1	0.5620 (±4.22%)	1
9	0.0360 (±16.7%)	1	0.5980 (±4.09%)	1
10	0.0490 (±14.3%)	1	0.8110 (±3.51%)	1

*JLH
2/6/12*

Pace Analytical Protean GFPC System Count Data

SAMPLE_ID	Count Start:	DET#	BATCH_ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 28	2/3/2012 4:42:02 PM	28	LONG BKG	0.058	0.2820	1000.0
LONG BKG 24	2/3/2012 4:41:56 PM	24	LONG BKG	0.090	0.3290	1000.0
LBKG 18	2/3/2012 2:46:17 PM	18	LONG BKG	0.063	0.3810	1000.0
LONG BKG 37	2/3/2012 2:16:42 PM	37	LONG BKG	0.069	0.3250	1000.0
LBKG 17	2/3/2012 2:15:18 PM	17	LONG BKG	0.072	0.3510	1000.0
LONG BKG 38	2/3/2012 2:03:03 PM	38	LONG BKG	0.080	0.3960	1000.0
LONG BKG 36	2/3/2012 2:02:57 PM	36	LONG BKG	0.047	0.3920	1000.0
LONG BKG 35	2/3/2012 2:02:51 PM	35	LONG BKG	0.045	0.3700	1000.0
LONG BKG 34	2/3/2012 2:02:45 PM	34	LONG BKG	0.069	0.4110	1000.0
LONG BKG 33	2/3/2012 2:02:41 PM	33	LONG BKG	0.095	0.3970	1000.0
LONG BKG 32	2/3/2012 2:02:36 PM	32	LONG BKG	0.057	0.4640	1000.0
LONG BKG 31	2/3/2012 2:02:32 PM	31	LONG BKG	0.058	0.3940	1000.0
LONG BKG 30	2/3/2012 2:02:27 PM	30	LONG BKG	0.058	0.3340	1000.0
LONG BKG 29	2/3/2012 2:02:21 PM	29	LONG BKG	0.057	0.2630	1000.0
LONG BKG 27	2/3/2012 2:02:17 PM	27	LONG BKG	0.043	0.3510	1000.0
LONG BKG 26	2/3/2012 2:02:08 PM	26	LONG BKG	0.097	0.3900	1000.0

LEH 2/6/12

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 25	2/3/2012 2:02:04 PM	25	LONG BKG	0.079	0.3730	1000.0
LONG BKG 23	2/3/2012 2:01:59 PM	23	LONG BKG	0.061	0.3890	1000.0
LBKG 22	2/3/2012 2:01:55 PM	22	LONG BKG	0.061	0.3900	1000.0
LBKG 21	2/3/2012 2:01:51 PM	21	LONG BKG	0.050	0.3320	1000.0
LBKG 20	2/3/2012 2:01:47 PM	20	LONG BKG	0.046	0.3430	1000.0
LBKG 19	2/3/2012 2:01:43 PM	19	LONG BKG	0.073	0.4300	1000.0
LBKG 16	2/3/2012 2:01:34 PM	16	LONG BKG	0.062	0.3710	1000.0
LBKG 15	2/3/2012 2:01:31 PM	15	LONG BKG	0.069	0.5790	1000.0
LBKG 14	2/3/2012 2:01:28 PM	14	LONG BKG	0.042	0.4010	1000.0
LBKG 13	2/3/2012 2:01:24 PM	13	LONG BKG	0.049	0.2940	1000.0
LBKG 12	2/3/2012 2:01:21 PM	12	LONG BKG	0.109	0.4090	1000.0
LBKG 11	2/3/2012 2:01:16 PM	11	LONG BKG	0.099	0.4270	1000.0

Handwritten signature

Background Measurement
 C:\UMS\UTL0001\LB031112.BDT

Background Measurement Parameters:

User: JLK	Instrument Name: LB770PC
Preset Time: 1000:00	Cycles: 1
Alpha Preset Error: 0.0%	Beta Preset Error: 0.0%
Voltage : 1650	

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 03/11/2012 17:00:37	Elapsed Time: 1000:00
	Guard: 816.9 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0470 (±14.6%)	1	0.755 (±3.64%)	1
2	0.0460 (±14.7%)	1	0.539 (±4.31%)	1
3	0.0640 (±12.5%)	1	0.556 (±4.24%)	1
4	0.0870 (±10.7%)	1	0.576 (±4.17%)	1
5	0.0550 (±13.5%)	1	2.144 (±2.16%)	3
6	0.0680 (±12.1%)	1	10.427 (±1.03%)	3
7	0.1200 (±9.13%)	1	0.615 (±4.03%)	1
8	0.0610 (±12.8%)	1	0.507 (±4.44%)	1
9	0.0480 (±14.4%)	1	0.589 (±4.12%)	1
10	0.0550 (±13.5%)	1	0.805 (±3.52%)	1

JLK 03/12/12

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 27	3/12/2012 2:31:06 PM	27	LONG BKG	0.055	0.3080	1000.0
LBKG 18	3/11/2012 6:33:47 PM	18	LONG BKG	0.077	0.4630	1000.0
LBKG 12	3/11/2012 6:33:22 PM	12	LONG BKG	0.120	0.4400	1000.0
LONG BKG 26	3/11/2012 6:28:55 PM	26	LONG BKG	0.097	0.4010	1000.0
LBKG 22	3/11/2012 6:28:31 PM	22	LONG BKG	0.084	0.3570	1000.0
LONG BKG 32	3/11/2012 6:22:50 PM	32	LONG BKG	0.065	0.4150	1000.0
LONG BKG 38	3/11/2012 6:14:37 PM	38	LONG BKG	0.083	0.3730	1000.0
LONG BKG 37	3/11/2012 6:14:32 PM	37	LONG BKG	0.047	0.3090	1000.0
LONG BKG 36	3/11/2012 6:14:27 PM	36	LONG BKG	0.069	0.3940	1000.0
LONG BKG 35	3/11/2012 6:14:22 PM	35	LONG BKG	0.062	0.3560	1000.0
LONG BKG 34	3/11/2012 6:14:16 PM	34	LONG BKG	0.149	0.6050	1000.0
LONG BKG 33	3/11/2012 6:14:11 PM	33	LONG BKG	0.104	0.3770	1000.0
LONG BKG 31	3/11/2012 6:14:07 PM	31	LONG BKG	0.072	0.3820	1000.0
LONG BKG 30	3/11/2012 6:14:03 PM	30	LONG BKG	0.074	0.3510	1000.0
LONG BKG 29	3/11/2012 6:13:59 PM	29	LONG BKG	0.077	0.2920	1000.0
LONG BKG 28	3/11/2012 6:13:55 PM	28	LONG BKG	0.061	0.3410	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 23	3/11/2012 6:13:45 PM	23	LONG BKG	0.055	0.4060	1000.0
LONG BKG 24	3/11/2012 6:13:42 PM	24	LONG BKG	0.078	0.3110	1000.0
LONG BKG 25	3/11/2012 6:13:37 PM	25	LONG BKG	0.110	0.4020	1000.0
LBKG 21	3/11/2012 6:13:17 PM	21	LONG BKG	0.078	0.3820	1000.0
LBKG 20	3/11/2012 6:13:14 PM	20	LONG BKG	0.070	0.3490	1000.0
LBKG 19	3/11/2012 6:13:11 PM	19	LONG BKG	0.048	0.4330	1000.0
LBKG 17	3/11/2012 6:13:05 PM	17	LONG BKG	0.054	0.3530	1000.0
LBKG 16	3/11/2012 6:13:01 PM	16	LONG BKG	0.057	0.4060	1000.0
LBKG 15	3/11/2012 6:12:59 PM	15	LONG BKG	0.060	0.4550	1000.0
LBKG 14	3/11/2012 6:12:56 PM	14	LONG BKG	0.056	0.3880	1000.0
LBKG 13	3/11/2012 6:12:53 PM	13	LONG BKG	0.055	0.3060	1000.0
LBKG 11	3/11/2012 6:12:51 PM	11	LONG BKG	0.144	0.3960	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	4/22/2012 10:12:22 AM	22	LONG BKG	0.061	0.3760	1000.0
LBKG 21	4/22/2012 10:12:19 AM	21	LONG BKG	0.065	0.3980	1000.0
LBKG 20	4/22/2012 10:12:17 AM	20	LONG BKG	0.077	0.3880	1000.0
LBKG 19	4/22/2012 10:12:13 AM	19	LONG BKG	0.078	0.4470	1000.0
LBKG 18	4/22/2012 10:12:09 AM	18	LONG BKG	0.058	0.4310	1000.0
LBKG 17	4/22/2012 10:12:06 AM	17	LONG BKG	0.073	0.3530	1000.0
LBKG 16	4/22/2012 10:12:04 AM	16	LONG BKG	0.053	0.3910	1000.0
LBKG 15	4/22/2012 10:12:00 AM	15	LONG BKG	0.072	0.5200	1000.0
LBKG 14	4/22/2012 10:11:58 AM	14	LONG BKG	0.063	0.4800	1000.0
LBKG 13	4/22/2012 10:11:55 AM	13	LONG BKG	0.025	0.3110	1000.0
LBKG 12	4/22/2012 10:11:53 AM	12	LONG BKG	0.107	0.4200	1000.0
LBKG 11	4/22/2012 10:11:51 AM	11	LONG BKG	0.200	0.4420	1000.0
LONG BKG-27	3/12/2012 2:31:06 PM	27	LONG BKG	0.055	0.3080	1000.0
LBKG 18	3/11/2012 6:33:47 PM	18	LONG BKG	0.077	0.4630	1000.0
LBKG 12	3/11/2012 6:33:22 PM	12	LONG BKG	0.120	0.4400	1000.0
LONG BKG 26	3/11/2012 6:28:55 PM	26	LONG BKG	0.097	0.4010	1000.0
LBKG 22	3/11/2012 6:28:31 PM	22	LONG BKG	0.084	0.3570	1000.0
LONG BKG-32	3/11/2012 6:22:50 PM	32	LONG BKG	0.065	0.4150	1000.0

On 4/23/12

Pace Analytical Protean GFPC System Count Data

SAMPLE_ID	Count Start:	DET#	BATCH_ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	4/22/2012 10:13:22 AM	38	LONG BKG	0.103	0.4150	1000.0
LONG BKG 37	4/22/2012 10:13:17 AM	37	LONG BKG	0.064	0.3630	1000.0
LONG BKG 36	4/22/2012 10:13:14 AM	36	LONG BKG	0.078	0.4050	1000.0
LONG BKG 35	4/22/2012 10:13:09 AM	35	LONG BKG	0.062	0.4050	1000.0
LONG BKG 34	4/22/2012 10:13:05 AM	34	LONG BKG	0.057	0.4560	1000.0
LONG BKG 33	4/22/2012 10:13:02 AM	33	LONG BKG	0.075	0.3450	1000.0
LONG BKG 32	4/22/2012 10:12:59 AM	32	LONG BKG	0.050	0.8710	1000.0
LONG BKG 31	4/22/2012 10:12:55 AM	31	LONG BKG	0.067	0.4220	1000.0
LONG BKG 30	4/22/2012 10:12:51 AM	30	LONG BKG	0.055	0.3760	1000.0
LONG BKG 29	4/22/2012 10:12:47 AM	29	LONG BKG	0.048	0.3230	1000.0
LONG BKG 28	4/22/2012 10:12:44 AM	28	LONG BKG	0.050	0.3160	1000.0
LONG BKG 27	4/22/2012 10:12:40 AM	27	LONG BKG	0.056	0.3660	1000.0
LONG BKG 26	4/22/2012 10:12:35 AM	26	LONG BKG	0.111	0.4070	1000.0
LONG BKG 25	4/22/2012 10:12:32 AM	25	LONG BKG	0.146	0.4200	1000.0
LONG BKG 24	4/22/2012 10:12:28 AM	24	LONG BKG	0.102	0.3510	1000.0
LONG BKG 23	4/22/2012 10:12:25 AM	23	LONG BKG	0.071	0.4680	1000.0

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 32	6/3/2012 4:51:54 PM	32	LONG BKG	0.054	0.4120	1000.0
LONG BKG 31	6/3/2012 4:46:05 PM	31	LONG BKG	0.089	0.3670	1000.0
LBKG 11	6/3/2012 4:45:05 PM	11	LONG BKG	0.162	0.4690	1000.0
LBKG 18	6/3/2012 4:40:48 PM	18	LONG BKG	0.063	0.3820	1000.0
LONG BKG 38	6/3/2012 4:35:36 PM	38	LONG BKG	0.110	0.3990	1000.0
LONG BKG 37	6/3/2012 4:35:31 PM	37	LONG BKG	0.042	0.3190	1000.0
LONG BKG 36	6/3/2012 4:35:27 PM	36	LONG BKG	0.093	0.4070	1000.0
LONG BKG 35	6/3/2012 4:35:23 PM	35	LONG BKG	0.197	0.3930	1000.0
LONG BKG 34	6/3/2012 4:35:18 PM	34	LONG BKG	0.076	0.4040	1000.0
LONG BKG 33	6/3/2012 4:35:14 PM	33	LONG BKG	0.090	0.3870	1000.0
LBKG 17	6/3/2012 4:35:04 PM	17	LONG BKG	0.137	0.3860	1000.0
LONG BKG 30	6/3/2012 4:32:46 PM	30	LONG BKG	0.072	0.4090	1000.0
LONG BKG 29	6/3/2012 4:32:42 PM	29	LONG BKG	0.084	0.3220	1000.0
LONG BKG 28	6/3/2012 4:32:38 PM	28	LONG BKG	0.081	0.3330	1000.0
LONG BKG 27	6/3/2012 4:32:33 PM	27	LONG BKG	0.074	0.2880	1000.0
LONG BKG 26	6/3/2012 4:32:19 PM	26	LONG BKG	0.149	0.4370	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 25	6/3/2012 4:32:19 PM	25	LONG BKG	0.127	0.4110	1000.0
LONG BKG 23	6/3/2012 4:29:58 PM	23	LONG BKG	0.075	0.4570	1000.0
LBKG 22	6/3/2012 4:29:41 PM	22	LONG BKG	0.057	0.4180	1000.0
LBKG 21	6/3/2012 4:29:37 PM	21	LONG BKG	0.078	0.3780	1000.0
LBKG 20	6/3/2012 4:29:34 PM	20	LONG BKG	0.097	0.3820	1000.0
LBKG 19	6/3/2012 4:29:31 PM	19	LONG BKG	0.077	0.4570	1000.0
LBKG 16	6/3/2012 4:28:56 PM	16	LONG BKG	0.061	0.3910	1000.0
LBKG 15	6/3/2012 4:28:53 PM	15	LONG BKG	0.082	0.4950	1000.0
LBKG 14	6/3/2012 4:28:50 PM	14	LONG BKG	0.069	0.3800	1000.0
LBKG 13	6/3/2012 4:28:47 PM	13	LONG BKG	0.050	0.3330	1000.0
LBKG 12	6/3/2012 4:28:44 PM	12	LONG BKG	0.089	0.3780	1000.0
LONG BKG 27	3/12/2012 2:31:06 PM	27	LONG BKG	0.055	0.3080	1000.0
LBKG 18	3/11/2012 6:33:47 PM	18	LONG BKG	0.077	0.4630	1000.0
LBKG 12	3/11/2012 6:33:22 PM	12	LONG BKG	0.120	0.4400	1000.0
LONG BKG 26	3/11/2012 6:28:55 PM	26	LONG BKG	0.097	0.4010	1000.0
LBKG 22	3/11/2012 6:28:31 PM	22	LONG BKG	0.084	0.3570	1000.0
LONG BKG 32	3/11/2012 6:22:50 PM	32	LONG BKG	0.065	0.4150	1000.0
LONG BKG 38	3/11/2012 6:14:37 PM	38	LONG BKG	0.083	0.3730	1000.0

0.6412

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG	7/13/2012 6:35:14 PM	33	LONG BKG	0.120	0.4100	1000.0
LONG BKG	7/13/2012 6:35:08 PM	31	LONG BKG	0.090	0.3660	1000.0
LONG BKG	7/13/2012 6:35:00 PM	28	LONG BKG	0.150	0.3480	1000.0
LONG BKG	7/13/2012 6:34:51 PM	26	LONG BKG	0.097	0.4050	1000.0
LBKG	7/13/2012 6:34:44 PM	21	LONG BKG	0.058	0.3810	1000.0
LBKG	7/13/2012 6:34:34 PM	17	LONG BKG	0.084	0.3710	1000.0
LBKG	7/13/2012 6:34:29 PM	15	LONG BKG	0.120	0.4700	1000.0
LONG BKG	7/13/2012 6:32:42 PM	30	LONG BKG	0.233	0.4240	1000.0
LONG BKG	7/13/2012 6:32:37 PM	29	LONG BKG	0.063	0.2740	1000.0
LONG BKG	7/13/2012 6:32:22 PM	27	LONG BKG	0.069	0.3930	1000.0
LONG BKG	7/13/2012 6:32:03 PM	25	LONG BKG	0.158	0.4010	1000.0
LONG BKG	7/13/2012 6:31:57 PM	23	LONG BKG	0.072	0.4150	1000.0
LBKG	7/13/2012 6:31:48 PM	20	LONG BKG	0.070	0.3890	1000.0
LBKG	7/13/2012 6:31:40 PM	22	LONG BKG	0.114	0.4060	1000.0
LBKG	7/13/2012 6:31:25 PM	19	LONG BKG	0.090	0.4330	1000.0
LBKG	7/13/2012 6:30:45 PM	18	LONG BKG	0.073	0.3840	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG	7/13/2012 6:30:40 PM	16	LONG BKG	0.087	0.3430	1000.0
LONG BKG	7/13/2012 6:25:39 PM	34	LONG BKG	0.125	0.4480	1000.0
LONG BKG	7/13/2012 6:25:32 PM	36	LONG BKG	0.067	0.3320	1000.0
LONG BKG	7/13/2012 6:25:25 PM	37	LONG BKG	0.218	0.4600	1000.0
LBKG	7/13/2012 5:07:49 PM	14	LONG BKG	0.082	0.4390	1000.0
LBKG	7/13/2012 5:07:41 PM	13	LONG BKG	0.123	0.3450	1000.0
LBKG	7/13/2012 5:07:37 PM	12	LONG BKG	0.155	0.4240	1000.0
LBKG	7/13/2012 5:07:30 PM	11	LONG BKG	0.177	0.4410	1000.0
LONG BKG	7/13/2012 5:07:22 PM	32	LONG BKG	0.053	0.3380	1000.0
LONG BKG	7/13/2012 5:07:13 PM	35	LONG BKG	0.207	3.6640	1000.0
LONG BKG	7/13/2012 5:07:03 PM	38	LONG BKG	0.104	0.3900	1000.0
LONG BKG 32	6/3/2012 4:51:54 PM	32	LONG BKG	0.054	0.4120	1000.0
LONG BKG 31	6/3/2012 4:46:05 PM	31	LONG BKG	0.089	0.3670	1000.0
LBKG 11	6/3/2012 4:45:05 PM	11	LONG BKG	0.162	0.4690	1000.0
LBKG 18	6/3/2012 4:40:48 PM	18	LONG BKG	0.063	0.3820	1000.0
LONG BKG 38	6/3/2012 4:35:36 PM	38	LONG BKG	0.110	0.3990	1000.0
LONG BKG 37	6/3/2012 4:35:31 PM	37	LONG BKG	0.042	0.3190	1000.0
LONG BKG 36	6/3/2012 4:35:27 PM	36	LONG BKG	0.093	0.4070	1000.0

On 7/16/12