



RTI Laboratories, Inc.

Client Ref.: Fort Monmouth 1207073

Pace-Pittsburgh Project No. 3072085

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

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Case Narrative for Pace Analytical Job Number 3072085

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 (100) of the samples received were logged for radiochemical analyses under Pace Analytical Project number 3072085 with corresponding samples IDs of 3072085001 through 3072085100. 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 3072085

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 LCSs associated with samples 3072085001 through 3072085079 were high and outside of Pace's default acceptance criteria for LCS control. All samples excluding samples 3072085019 and 3072085032 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 concentrations greater than 1 dpm/filter, the maximum result was calculated to be 1.42 dpm/filter. Results for samples 3072085019 and 3072085032 have been reported with the narrative notation that the reported results may be biased high as evidenced by the elevated LCSs.

The LCSD associated with sample 3072085100 was high and outside of Pace's default acceptance criteria for LCS control. The gross alpha concentration for this sample was determined to be less than the required MDC of 1 dpm/filter. The result for this sample has been reported with the notation that the gross alpha result may be biased high.

Lastly, the gross alpha MB associated with samples 3072085080 through 3072085099 indicated a positive detect. The MB as well as all affected samples indicated gross alpha activity less than the required MDC of 1 dpm/filter.

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 1207073
Pace Project No.: 3072085

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 1207073

Pace Project No.: 3072085

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601

ACLASS 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

SAMPLE SUMMARY

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3072085001	2540-SU7-25	Wipe	06/19/12 00:01	06/25/12 10:15
3072085002	2540-SU7-26	Wipe	06/19/12 00:01	06/25/12 10:15
3072085003	2540-SU7-27	Wipe	06/19/12 00:01	06/25/12 10:15
3072085004	2540-SU7-34	Wipe	06/19/12 00:01	06/25/12 10:15
3072085005	2540-SU7-37	Wipe	06/19/12 00:01	06/25/12 10:15
3072085006	2540-SU7-38	Wipe	06/19/12 00:01	06/25/12 10:15
3072085007	2540-SU7-39	Wipe	06/19/12 00:01	06/25/12 10:15
3072085008	2540-SU7-43	Wipe	06/19/12 00:01	06/25/12 10:15
3072085009	2540-SU7-46	Wipe	06/19/12 00:01	06/25/12 10:15
3072085010	2540-SU8-2	Wipe	06/19/12 00:01	06/25/12 10:15
3072085011	2540-SU8-22	Wipe	06/19/12 00:01	06/25/12 10:15
3072085012	2540-SU8-29	Wipe	06/19/12 00:01	06/25/12 10:15
3072085013	2540-SU8-SINK	Wipe	06/19/12 00:01	06/25/12 10:15
3072085014	2540-SU9-2	Wipe	06/19/12 00:01	06/25/12 10:15
3072085015	2540-SU9-3	Wipe	06/19/12 00:01	06/25/12 10:15
3072085016	2540-SU9-5	Wipe	06/19/12 00:01	06/25/12 10:15
3072085017	2540-SU9-6	Wipe	06/19/12 00:01	06/25/12 10:15
3072085018	2540-SU9-7	Wipe	06/19/12 00:01	06/25/12 10:15
3072085019	2540-SU9-8	Wipe	06/19/12 00:01	06/25/12 10:15
3072085020	2540-SU9-9	Wipe	06/19/12 00:01	06/25/12 10:15
3072085021	2540-SU9-10	Wipe	06/19/12 00:01	06/25/12 10:15
3072085022	2540-SU9-11	Wipe	06/19/12 00:01	06/25/12 10:15
3072085023	2540-SU9-12	Wipe	06/19/12 00:01	06/25/12 10:15
3072085024	2540-SU9-13	Wipe	06/19/12 00:01	06/25/12 10:15
3072085025	2540-SU9-15	Wipe	06/19/12 00:01	06/25/12 10:15
3072085026	2540-SU9-16	Wipe	06/19/12 00:01	06/25/12 10:15
3072085027	2540-SU9-17	Wipe	06/19/12 00:01	06/25/12 10:15
3072085028	2540-SU9-18	Wipe	06/19/12 00:01	06/25/12 10:15
3072085029	2540-SU9-19	Wipe	06/19/12 00:01	06/25/12 10:15
3072085030	2540-SU9-20	Wipe	06/19/12 00:01	06/25/12 10:15
3072085031	2540-SU9-21	Wipe	06/19/12 00:01	06/25/12 10:15
3072085032	2540-SU9-22	Wipe	06/19/12 00:01	06/25/12 10:15
3072085033	2540-SU9-23	Wipe	06/19/12 00:01	06/25/12 10:15
3072085034	2540-SU9-24	Wipe	06/19/12 00:01	06/25/12 10:15
3072085035	2540-SU9-24D	Wipe	06/19/12 00:01	06/25/12 10:15
3072085036	2540-SU9-25	Wipe	06/19/12 00:01	06/25/12 10:15
3072085037	2540-SU9-26	Wipe	06/19/12 00:01	06/25/12 10:15

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SAMPLE SUMMARY

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3072085038	2540-SU9-27	Wipe	06/19/12 00:01	06/25/12 10:15
3072085039	2540-SU9-28	Wipe	06/19/12 00:01	06/25/12 10:15
3072085040	2540-SU9-29	Wipe	06/19/12 00:01	06/25/12 10:15
3072085041	2540-SU9-30	Wipe	06/19/12 00:01	06/25/12 10:15
3072085042	2540-SU9-31	Wipe	06/19/12 00:01	06/25/12 10:15
3072085043	2540-SU9-32	Wipe	06/19/12 00:01	06/25/12 10:15
3072085044	2540-SU9-34	Wipe	06/19/12 00:01	06/25/12 10:15
3072085045	2540-SU9-36	Wipe	06/19/12 00:01	06/25/12 10:15
3072085046	2540-SU9-37	Wipe	06/19/12 00:01	06/25/12 10:15
3072085047	2540-SU9-38	Wipe	06/19/12 00:01	06/25/12 10:15
3072085048	2540-SU9-39	Wipe	06/19/12 00:01	06/25/12 10:15
3072085049	2540-SU9-40	Wipe	06/19/12 00:01	06/25/12 10:15
3072085050	2540-SU9-41	Wipe	06/19/12 00:01	06/25/12 10:15
3072085051	2540-SU9-42	Wipe	06/19/12 00:01	06/25/12 10:15
3072085052	2540-SU9-43	Wipe	06/19/12 00:01	06/25/12 10:15
3072085053	2540-SU9-44	Wipe	06/19/12 00:01	06/25/12 10:15
3072085054	2540-SU9-46	Wipe	06/19/12 00:01	06/25/12 10:15
3072085055	2540-SU9-49	Wipe	06/19/12 00:01	06/25/12 10:15
3072085056	2540-SU9-50	Wipe	06/19/12 00:01	06/25/12 10:15
3072085057	2540-SU9-51	Wipe	06/19/12 00:01	06/25/12 10:15
3072085058	2540-SU9-52	Wipe	06/19/12 00:01	06/25/12 10:15
3072085059	2540-SU9-52D	Wipe	06/19/12 00:01	06/25/12 10:15
3072085060	2540-SU9-53	Wipe	06/19/12 00:01	06/25/12 10:15
3072085061	2540-SU9-54	Wipe	06/19/12 00:01	06/25/12 10:15
3072085062	2540-SU9-55	Wipe	06/19/12 00:01	06/25/12 10:15
3072085063	2540-SU9-56	Wipe	06/19/12 00:01	06/25/12 10:15
3072085064	2540-SU9-57	Wipe	06/19/12 00:01	06/25/12 10:15
3072085065	2540-SU9-58	Wipe	06/19/12 00:01	06/25/12 10:15
3072085066	2540-SU9-59	Wipe	06/19/12 00:01	06/25/12 10:15
3072085067	2540-SU9-60	Wipe	06/19/12 00:01	06/25/12 10:15
3072085068	2540-SU9-61	Wipe	06/19/12 00:01	06/25/12 10:15
3072085069	2540-SU9-62	Wipe	06/19/12 00:01	06/25/12 10:15
3072085070	2540-SU9-63	Wipe	06/19/12 00:01	06/25/12 10:15
3072085071	2540-SU9-64	Wipe	06/19/12 00:01	06/25/12 10:15
3072085072	2540-SU9-65	Wipe	06/19/12 00:01	06/25/12 10:15
3072085073	2540-SU9-66	Wipe	06/19/12 00:01	06/25/12 10:15
3072085074	2540-SU9-67	Wipe	06/19/12 00:01	06/25/12 10:15

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SAMPLE SUMMARY

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3072085075	2540-SU9-68	Wipe	06/19/12 00:01	06/25/12 10:15
3072085076	2540-SU9-69	Wipe	06/19/12 00:01	06/25/12 10:15
3072085077	2540-SU9-70	Wipe	06/19/12 00:01	06/25/12 10:15
3072085078	2540-SU9-71	Wipe	06/19/12 00:01	06/25/12 10:15
3072085079	2540-SU9-72	Wipe	06/19/12 00:01	06/25/12 10:15
3072085080	2540-SU9-73	Wipe	06/19/12 00:01	06/25/12 10:15
3072085081	2540-SU9-73D	Wipe	06/19/12 00:01	06/25/12 10:15
3072085082	2540-SU9-74	Wipe	06/19/12 00:01	06/25/12 10:15
3072085083	2540-SU9-75	Wipe	06/19/12 00:01	06/25/12 10:15
3072085084	2540-SU9-76	Wipe	06/19/12 00:01	06/25/12 10:15
3072085085	2540-SU9-77	Wipe	06/19/12 00:01	06/25/12 10:15
3072085086	2540-SU9-78	Wipe	06/19/12 00:01	06/25/12 10:15
3072085087	2540-SU9-79	Wipe	06/19/12 00:01	06/25/12 10:15
3072085088	2540-SU9-80	Wipe	06/19/12 00:01	06/25/12 10:15
3072085089	2540-SU9-81-HOODVENT	Wipe	06/19/12 00:01	06/25/12 10:15
3072085090	2540-SU9-82-HOODBASE	Wipe	06/19/12 00:01	06/25/12 10:15
3072085091	2540-SU12-20	Wipe	06/14/12 00:01	06/25/12 10:15
3072085092	2540-SU14-1	Wipe	06/14/12 00:01	06/25/12 10:15
3072085093	2540-SU14-2	Wipe	06/14/12 00:01	06/25/12 10:15
3072085094	2540-SU14-3	Wipe	06/14/12 00:01	06/25/12 10:15
3072085095	2540-SU14-4	Wipe	06/14/12 00:01	06/25/12 10:15
3072085096	2540-SU14-5	Wipe	06/14/12 00:01	06/25/12 10:15
3072085097	2540-SU14-6	Wipe	06/14/12 00:01	06/25/12 10:15
3072085098	2540-SU14-7	Wipe	06/14/12 00:01	06/25/12 10:15
3072085099	2540-SU14-8	Wipe	06/14/12 00:01	06/25/12 10:15
3072085100	2540-SU14-15	Wipe	06/14/12 00:01	06/25/12 10:15

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SAMPLE ANALYTE COUNT

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3072085001	2540-SU7-25	EPA 900.0m	MBT	2	PASI-PA
3072085002	2540-SU7-26	EPA 900.0m	MBT	2	PASI-PA
3072085003	2540-SU7-27	EPA 900.0m	MBT	2	PASI-PA
3072085004	2540-SU7-34	EPA 900.0m	MBT	2	PASI-PA
3072085005	2540-SU7-37	EPA 900.0m	MBT	2	PASI-PA
3072085006	2540-SU7-38	EPA 900.0m	MBT	2	PASI-PA
3072085007	2540-SU7-39	EPA 900.0m	MBT	2	PASI-PA
3072085008	2540-SU7-43	EPA 900.0m	MBT	2	PASI-PA
3072085009	2540-SU7-46	EPA 900.0m	MBT	2	PASI-PA
3072085010	2540-SU8-2	EPA 900.0m	MBT	2	PASI-PA
3072085011	2540-SU8-22	EPA 900.0m	MBT	2	PASI-PA
3072085012	2540-SU8-29	EPA 900.0m	MBT	2	PASI-PA
3072085013	2540-SU8-SINK	EPA 900.0m	MBT	2	PASI-PA
3072085014	2540-SU9-2	EPA 900.0m	MBT	2	PASI-PA
3072085015	2540-SU9-3	EPA 900.0m	MBT	2	PASI-PA
3072085016	2540-SU9-5	EPA 900.0m	MBT	2	PASI-PA
3072085017	2540-SU9-6	EPA 900.0m	MBT	2	PASI-PA
3072085018	2540-SU9-7	EPA 900.0m	MBT	2	PASI-PA
3072085019	2540-SU9-8	EPA 900.0m	MBT	2	PASI-PA
3072085020	2540-SU9-9	EPA 900.0m	MBT	2	PASI-PA
3072085021	2540-SU9-10	EPA 900.0m	MBT	2	PASI-PA
3072085022	2540-SU9-11	EPA 900.0m	MBT	2	PASI-PA
3072085023	2540-SU9-12	EPA 900.0m	MBT	2	PASI-PA
3072085024	2540-SU9-13	EPA 900.0m	MBT	2	PASI-PA
3072085025	2540-SU9-15	EPA 900.0m	MBT	2	PASI-PA
3072085026	2540-SU9-16	EPA 900.0m	MBT	2	PASI-PA
3072085027	2540-SU9-17	EPA 900.0m	MBT	2	PASI-PA
3072085028	2540-SU9-18	EPA 900.0m	MBT	2	PASI-PA
3072085029	2540-SU9-19	EPA 900.0m	MBT	2	PASI-PA
3072085030	2540-SU9-20	EPA 900.0m	MBT	2	PASI-PA
3072085031	2540-SU9-21	EPA 900.0m	MBT	2	PASI-PA
3072085032	2540-SU9-22	EPA 900.0m	MBT	2	PASI-PA
3072085033	2540-SU9-23	EPA 900.0m	MBT	2	PASI-PA
3072085034	2540-SU9-24	EPA 900.0m	MBT	2	PASI-PA
3072085035	2540-SU9-24D	EPA 900.0m	MBT	2	PASI-PA
3072085036	2540-SU9-25	EPA 900.0m	MBT	2	PASI-PA
3072085037	2540-SU9-26	EPA 900.0m	MBT	2	PASI-PA

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SAMPLE ANALYTE COUNT

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3072085038	2540-SU9-27	EPA 900.0m	MBT	2	PASI-PA
3072085039	2540-SU9-28	EPA 900.0m	MBT	2	PASI-PA
3072085040	2540-SU9-29	EPA 900.0m	MBT	2	PASI-PA
3072085041	2540-SU9-30	EPA 900.0m	MBT	2	PASI-PA
3072085042	2540-SU9-31	EPA 900.0m	MBT	2	PASI-PA
3072085043	2540-SU9-32	EPA 900.0m	MBT	2	PASI-PA
3072085044	2540-SU9-34	EPA 900.0m	MBT	2	PASI-PA
3072085045	2540-SU9-36	EPA 900.0m	MBT	2	PASI-PA
3072085046	2540-SU9-37	EPA 900.0m	MBT	2	PASI-PA
3072085047	2540-SU9-38	EPA 900.0m	MBT	2	PASI-PA
3072085048	2540-SU9-39	EPA 900.0m	MBT	2	PASI-PA
3072085049	2540-SU9-40	EPA 900.0m	MBT	2	PASI-PA
3072085050	2540-SU9-41	EPA 900.0m	MBT	2	PASI-PA
3072085051	2540-SU9-42	EPA 900.0m	MBT	2	PASI-PA
3072085052	2540-SU9-43	EPA 900.0m	MBT	2	PASI-PA
3072085053	2540-SU9-44	EPA 900.0m	MBT	2	PASI-PA
3072085054	2540-SU9-46	EPA 900.0m	MBT	2	PASI-PA
3072085055	2540-SU9-49	EPA 900.0m	MBT	2	PASI-PA
3072085056	2540-SU9-50	EPA 900.0m	MBT	2	PASI-PA
3072085057	2540-SU9-51	EPA 900.0m	MBT	2	PASI-PA
3072085058	2540-SU9-52	EPA 900.0m	MBT	2	PASI-PA
3072085059	2540-SU9-52D	EPA 900.0m	MBT	2	PASI-PA
3072085060	2540-SU9-53	EPA 900.0m	MBT	2	PASI-PA
3072085061	2540-SU9-54	EPA 900.0m	MBT	2	PASI-PA
3072085062	2540-SU9-55	EPA 900.0m	MBT	2	PASI-PA
3072085063	2540-SU9-56	EPA 900.0m	MBT	2	PASI-PA
3072085064	2540-SU9-57	EPA 900.0m	MBT	2	PASI-PA
3072085065	2540-SU9-58	EPA 900.0m	MBT	2	PASI-PA
3072085066	2540-SU9-59	EPA 900.0m	MBT	2	PASI-PA
3072085067	2540-SU9-60	EPA 900.0m	MBT	2	PASI-PA
3072085068	2540-SU9-61	EPA 900.0m	MBT	2	PASI-PA
3072085069	2540-SU9-62	EPA 900.0m	MBT	2	PASI-PA
3072085070	2540-SU9-63	EPA 900.0m	MBT	2	PASI-PA
3072085071	2540-SU9-64	EPA 900.0m	MBT	2	PASI-PA
3072085072	2540-SU9-65	EPA 900.0m	MBT	2	PASI-PA
3072085073	2540-SU9-66	EPA 900.0m	MBT	2	PASI-PA
3072085074	2540-SU9-67	EPA 900.0m	MBT	2	PASI-PA

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3072085075	2540-SU9-68	EPA 900.0m	MBT	2	PASI-PA
3072085076	2540-SU9-69	EPA 900.0m	MBT	2	PASI-PA
3072085077	2540-SU9-70	EPA 900.0m	MBT	2	PASI-PA
3072085078	2540-SU9-71	EPA 900.0m	MBT	2	PASI-PA
3072085079	2540-SU9-72	EPA 900.0m	MBT	2	PASI-PA
3072085080	2540-SU9-73	EPA 900.0m	MBT	2	PASI-PA
3072085081	2540-SU9-73D	EPA 900.0m	MBT	2	PASI-PA
3072085082	2540-SU9-74	EPA 900.0m	MBT	2	PASI-PA
3072085083	2540-SU9-75	EPA 900.0m	MBT	2	PASI-PA
3072085084	2540-SU9-76	EPA 900.0m	MBT	2	PASI-PA
3072085085	2540-SU9-77	EPA 900.0m	MBT	2	PASI-PA
3072085086	2540-SU9-78	EPA 900.0m	MBT	2	PASI-PA
3072085087	2540-SU9-79	EPA 900.0m	MBT	2	PASI-PA
3072085088	2540-SU9-80	EPA 900.0m	MBT	2	PASI-PA
3072085089	2540-SU9-81-HOODVENT	EPA 900.0m	MBT	2	PASI-PA
3072085090	2540-SU9-82-HOODBASE	EPA 900.0m	MBT	2	PASI-PA
3072085091	2540-SU12-20	EPA 900.0m	MBT	2	PASI-PA
3072085092	2540-SU14-1	EPA 900.0m	MBT	2	PASI-PA
3072085093	2540-SU14-2	EPA 900.0m	MBT	2	PASI-PA
3072085094	2540-SU14-3	EPA 900.0m	MBT	2	PASI-PA
3072085095	2540-SU14-4	EPA 900.0m	MBT	2	PASI-PA
3072085096	2540-SU14-5	EPA 900.0m	MBT	2	PASI-PA
3072085097	2540-SU14-6	EPA 900.0m	MBT	2	PASI-PA
3072085098	2540-SU14-7	EPA 900.0m	MBT	2	PASI-PA
3072085099	2540-SU14-8	EPA 900.0m	MBT	2	PASI-PA
3072085100	2540-SU14-15	EPA 900.0m	MBT	2	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Fort Monmouth 1207073
Pace Project No.: 3072085

Sample: 2540-SU7-25		Lab ID: 3072085001	Collected: 06/19/12 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	0.303J ± 0.406 (0.853)	dpm/sample	07/12/12 22:08	12587-46-1	N2
Gross Beta	EPA 900.0m	0.455J ± 0.332 (0.637)	dpm/sample	07/12/12 22:08	12587-47-2	N2

Sample: 2540-SU7-26		Lab ID: 3072085002	Collected: 06/19/12 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	0.062U ± 0.365 (0.924)	dpm/sample	07/12/12 22:08	12587-46-1	N2
Gross Beta	EPA 900.0m	0.153U ± 0.318 (0.719)	dpm/sample	07/12/12 22:08	12587-47-2	N2

Sample: 2540-SU7-27		Lab ID: 3072085003	Collected: 06/19/12 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	0.145U ± 0.352 (0.829)	dpm/sample	07/12/12 22:08	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.073U ± 0.262 (0.656)	dpm/sample	07/12/12 22:08	12587-47-2	N2

Sample: 2540-SU7-34		Lab ID: 3072085004	Collected: 06/19/12 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	0.788J ± 0.531 (0.845)	dpm/sample	07/12/12 22:08	12587-46-1	N2
Gross Beta	EPA 900.0m	0.112U ± 0.291 (0.641)	dpm/sample	07/12/12 22:08	12587-47-2	N2

Sample: 2540-SU7-37		Lab ID: 3072085005	Collected: 06/19/12 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	-0.284U ± 0.245 (0.912)	dpm/sample	07/12/12 22:08	12587-46-1	N2
Gross Beta	EPA 900.0m	0.130U ± 0.292 (0.676)	dpm/sample	07/12/12 22:08	12587-47-2	N2

Sample: 2540-SU7-38		Lab ID: 3072085006	Collected: 06/19/12 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	07/12/12 22:08	12587-46-1	N2
Gross Beta	EPA 900.0m	0.397J ± 0.320 (0.643)	dpm/sample	07/12/12 22:08	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

Sample: 2540-SU7-39		Lab ID: 3072085007	Collected: 06/19/12 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	-0.075U ± 0.326 (0.933)	dpm/sample	07/12/12 22:08	12587-46-1	N2
Gross Beta	EPA 900.0m	0.003U ± 0.255 (0.623)	dpm/sample	07/12/12 22:08	12587-47-2	N2

Sample: 2540-SU7-43		Lab ID: 3072085008	Collected: 06/19/12 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	0.605J ± 0.474 (0.807)	dpm/sample	07/12/12 22:08	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.030U ± 0.288 (0.682)	dpm/sample	07/12/12 22:08	12587-47-2	N2

Sample: 2540-SU7-46		Lab ID: 3072085009	Collected: 06/19/12 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 ± 0.379 (0.888)	dpm/sample	07/12/12 22:08	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.018U ± 0.287 (0.694)	dpm/sample	07/12/12 22:08	12587-47-2	N2

Sample: 2540-SU8-2		Lab ID: 3072085010	Collected: 06/19/12 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	-0.205U ± 0.257 (0.874)	dpm/sample	07/12/12 22:08	12587-46-1	N2
Gross Beta	EPA 900.0m	0.088U ± 0.237 (0.558)	dpm/sample	07/12/12 22:08	12587-47-2	N2

Sample: 2540-SU8-22		Lab ID: 3072085011	Collected: 06/19/12 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	0.122U ± 0.382 (0.923)	dpm/sample	07/12/12 22:08	12587-46-1	N2
Gross Beta	EPA 900.0m	0.176U ± 0.278 (0.612)	dpm/sample	07/12/12 22:08	12587-47-2	N2

Sample: 2540-SU8-29		Lab ID: 3072085012	Collected: 06/19/12 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	07/12/12 22:08	12587-46-1	N2
Gross Beta	EPA 900.0m	0.297J ± 0.288 (0.596)	dpm/sample	07/12/12 22:08	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

Sample: 2540-SU8-SINK		Lab ID: 3072085013	Collected: 06/19/12 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	0.611J ± 0.496 (0.881)	dpm/sample	07/12/12 22:08	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.150U ± 0.262 (0.657)	dpm/sample	07/12/12 22:08	12587-47-2	N2

Sample: 2540-SU9-2		Lab ID: 3072085014	Collected: 06/19/12 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	0.372J ± 0.449 (0.929)	dpm/sample	07/12/12 22:09	12587-46-1	N2
Gross Beta	EPA 900.0m	0.256J ± 0.299 (0.626)	dpm/sample	07/12/12 22:09	12587-47-2	N2

Sample: 2540-SU9-3		Lab ID: 3072085015	Collected: 06/19/12 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	0.046U ± 0.338 (0.866)	dpm/sample	07/12/12 22:09	12587-46-1	N2
Gross Beta	EPA 900.0m	0.172U ± 0.294 (0.654)	dpm/sample	07/12/12 22:09	12587-47-2	N2

Sample: 2540-SU9-5		Lab ID: 3072085016	Collected: 06/19/12 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	0.884 ± 0.511 (0.686)	dpm/sample	07/12/12 22:09	12587-46-1	N2
Gross Beta	EPA 900.0m	0.379J ± 0.310 (0.587)	dpm/sample	07/12/12 22:09	12587-47-2	N2

Sample: 2540-SU9-6		Lab ID: 3072085017	Collected: 06/19/12 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	0.101U ± 0.387 (0.972)	dpm/sample	07/13/12 09:35	12587-46-1	N2
Gross Beta	EPA 900.0m	0.460J ± 0.328 (0.616)	dpm/sample	07/13/12 09:35	12587-47-2	N2

Sample: 2540-SU9-7		Lab ID: 3072085018	Collected: 06/19/12 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	0.222U ± 0.436 (0.997)	dpm/sample	07/13/12 09:35	12587-46-1	N2
Gross Beta	EPA 900.0m	0.026U ± 0.261 (0.625)	dpm/sample	07/13/12 09:35	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

Sample: 2540-SU9-8		Lab ID: 3072085019	Collected: 06/19/12 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	1.21 ± 0.689 (0.980)	dpm/sample	07/13/12 09:35	12587-46-1	N2
Gross Beta	EPA 900.0m	0.302J ± 0.358 (0.725)	dpm/sample	07/13/12 09:35	12587-47-2	N2

Sample: 2540-SU9-9		Lab ID: 3072085020	Collected: 06/19/12 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	0.375J ± 0.304 (0.563)	dpm/sample	07/13/12 07:59	12587-46-1	N2
Gross Beta	EPA 900.0m	0.489J ± 0.322 (0.611)	dpm/sample	07/13/12 07:59	12587-47-2	N2

Sample: 2540-SU9-10		Lab ID: 3072085021	Collected: 06/19/12 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	0.349J ± 0.336 (0.650)	dpm/sample	07/13/12 07:59	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.838U ± 0.390 (0.835)	dpm/sample	07/13/12 07:59	12587-47-2	N2

Sample: 2540-SU9-11		Lab ID: 3072085022	Collected: 06/19/12 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	0.875 ± 0.487 (0.844)	dpm/sample	07/13/12 07:59	12587-46-1	N2
Gross Beta	EPA 900.0m	0.083U ± 0.295 (0.615)	dpm/sample	07/13/12 07:59	12587-47-2	N2

Sample: 2540-SU9-12		Lab ID: 3072085023	Collected: 06/19/12 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	0.229J ± 0.268 (0.531)	dpm/sample	07/13/12 07:59	12587-46-1	N2
Gross Beta	EPA 900.0m	0.584J ± 0.347 (0.652)	dpm/sample	07/13/12 07:59	12587-47-2	N2

Sample: 2540-SU9-13		Lab ID: 3072085024	Collected: 06/19/12 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	0.282J ± 0.323 (0.645)	dpm/sample	07/13/12 07:59	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.937U ± 0.401 (0.845)	dpm/sample	07/13/12 07:59	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

Sample: 2540-SU9-15		Lab ID: 3072085025	Collected: 06/19/12 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	-0.626U ± 0.397 (0.965)	dpm/sample	07/13/12 07:59	12587-46-1	N2
Gross Beta	EPA 900.0m	0.353J ± 0.356 (0.725)	dpm/sample	07/13/12 07:59	12587-47-2	N2

Sample: 2540-SU9-16		Lab ID: 3072085026	Collected: 06/19/12 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	-0.070U ± 0.344 (0.787)	dpm/sample	07/13/12 07:59	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.279U ± 0.335 (0.734)	dpm/sample	07/13/12 07:59	12587-47-2	N2

Sample: 2540-SU9-17		Lab ID: 3072085027	Collected: 06/19/12 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	0.093U ± 0.292 (0.632)	dpm/sample	07/13/12 07:59	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.460U ± 0.323 (0.710)	dpm/sample	07/13/12 07:59	12587-47-2	N2

Sample: 2540-SU9-18		Lab ID: 3072085028	Collected: 06/19/12 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 ± 0.290 (0.539)	dpm/sample	07/13/12 07:59	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.138U ± 0.299 (0.650)	dpm/sample	07/13/12 07:59	12587-47-2	N2

Sample: 2540-SU9-19		Lab ID: 3072085029	Collected: 06/19/12 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	0.373J ± 0.296 (0.545)	dpm/sample	07/13/12 07:59	12587-46-1	N2
Gross Beta	EPA 900.0m	0.053U ± 0.328 (0.693)	dpm/sample	07/13/12 07:59	12587-47-2	N2

Sample: 2540-SU9-20		Lab ID: 3072085030	Collected: 06/19/12 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	0.032U ± 0.250 (0.563)	dpm/sample	07/13/12 13:24	12587-46-1	N2
Gross Beta	EPA 900.0m	0.100U ± 0.290 (0.611)	dpm/sample	07/13/12 13:24	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

Sample: 2540-SU9-21		Lab ID: 3072085031	Collected: 06/19/12 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	0.645J ± 0.380 (0.650)	dpm/sample	07/13/12 13:24	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.715U ± 0.388 (0.835)	dpm/sample	07/13/12 13:24	12587-47-2	N2

Sample: 2540-SU9-22		Lab ID: 3072085032	Collected: 06/19/12 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	1.42 ± 0.566 (0.844)	dpm/sample	07/13/12 13:24	12587-46-1	N2
Gross Beta	EPA 900.0m	0.091U ± 0.298 (0.615)	dpm/sample	07/13/12 13:24	12587-47-2	N2

Sample: 2540-SU9-23		Lab ID: 3072085033	Collected: 06/19/12 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	0.074U ± 0.242 (0.531)	dpm/sample	07/13/12 13:24	12587-46-1	N2
Gross Beta	EPA 900.0m	0.180U ± 0.314 (0.652)	dpm/sample	07/13/12 13:24	12587-47-2	N2

Sample: 2540-SU9-24		Lab ID: 3072085034	Collected: 06/19/12 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	07/13/12 13:24	12587-46-1	N2
Gross Beta	EPA 900.0m	-1.11U ± 0.408 (0.845)	dpm/sample	07/13/12 13:24	12587-47-2	N2

Sample: 2540-SU9-24D		Lab ID: 3072085035	Collected: 06/19/12 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	-1.08U ± 0.385 (0.965)	dpm/sample	07/13/12 13:24	12587-46-1	N2
Gross Beta	EPA 900.0m	0.072U ± 0.337 (0.725)	dpm/sample	07/13/12 13:24	12587-47-2	N2

Sample: 2540-SU9-25		Lab ID: 3072085036	Collected: 06/19/12 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	-0.372U ± 0.316 (0.787)	dpm/sample	07/13/12 13:24	12587-46-1	N2
Gross Beta	EPA 900.0m	0.023U ± 0.343 (0.734)	dpm/sample	07/13/12 13:24	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

Sample: 2540-SU9-26		Lab ID: 3072085037	Collected: 06/19/12 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	-0.168U ± 0.259 (0.632)	dpm/sample	07/13/12 13:24	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.277U ± 0.323 (0.710)	dpm/sample	07/13/12 13:24	12587-47-2	N2

Sample: 2540-SU9-27		Lab ID: 3072085038	Collected: 06/19/12 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	0.425J ± 0.302 (0.539)	dpm/sample	07/13/12 13:24	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.073U ± 0.302 (0.650)	dpm/sample	07/13/12 13:24	12587-47-2	N2

Sample: 2540-SU9-28		Lab ID: 3072085039	Collected: 06/19/12 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	0.017U ± 0.240 (0.545)	dpm/sample	07/13/12 13:24	12587-46-1	N2
Gross Beta	EPA 900.0m	0.090U ± 0.328 (0.693)	dpm/sample	07/13/12 13:24	12587-47-2	N2

Sample: 2540-SU9-29		Lab ID: 3072085040	Collected: 06/19/12 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 ± 0.439 (0.984)	dpm/sample	07/13/12 09:34	12587-46-1	N2
Gross Beta	EPA 900.0m	0.166U ± 0.338 (0.766)	dpm/sample	07/13/12 09:34	12587-47-2	N2

Sample: 2540-SU9-30		Lab ID: 3072085041	Collected: 06/19/12 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	0.327J ± 0.451 (0.959)	dpm/sample	07/13/12 09:34	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.008U ± 0.295 (0.708)	dpm/sample	07/13/12 09:34	12587-47-2	N2

Sample: 2540-SU9-31		Lab ID: 3072085042	Collected: 06/19/12 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	07/13/12 09:34	12587-46-1	N2
Gross Beta	EPA 900.0m	0.454J ± 0.328 (0.643)	dpm/sample	07/13/12 09:34	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207073
Pace Project No.: 3072085

Sample: 2540-SU9-32		Lab ID: 3072085043	Collected: 06/19/12 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	0.446J ± 0.491 (0.981)	dpm/sample	07/13/12 09:34	12587-46-1	N2
Gross Beta	EPA 900.0m	0.547J ± 0.356 (0.653)	dpm/sample	07/13/12 09:34	12587-47-2	N2

Sample: 2540-SU9-34		Lab ID: 3072085044	Collected: 06/19/12 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	0.544J ± 0.522 (0.988)	dpm/sample	07/13/12 09:34	12587-46-1	N2
Gross Beta	EPA 900.0m	0.295J ± 0.362 (0.765)	dpm/sample	07/13/12 09:34	12587-47-2	N2

Sample: 2540-SU9-36		Lab ID: 3072085045	Collected: 06/19/12 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	-0.382U ± 0.323 (0.945)	dpm/sample	07/13/12 09:35	12587-46-1	N2
Gross Beta	EPA 900.0m	0.195J ± 0.248 (0.537)	dpm/sample	07/13/12 09:35	12587-47-2	N2

Sample: 2540-SU9-37		Lab ID: 3072085046	Collected: 06/19/12 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	-0.056U ± 0.358 (0.971)	dpm/sample	07/13/12 09:35	12587-46-1	N2
Gross Beta	EPA 900.0m	0.178U ± 0.281 (0.622)	dpm/sample	07/13/12 09:35	12587-47-2	N2

Sample: 2540-SU9-38		Lab ID: 3072085047	Collected: 06/19/12 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	0.284U ± 0.435 (0.944)	dpm/sample	07/13/12 09:35	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.182U ± 0.229 (0.582)	dpm/sample	07/13/12 09:35	12587-47-2	N2

Sample: 2540-SU9-39		Lab ID: 3072085048	Collected: 06/19/12 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	0.318U ± 0.455 (0.966)	dpm/sample	07/13/12 09:33	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.007U ± 0.233 (0.527)	dpm/sample	07/13/12 09:33	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207073
Pace Project No.: 3072085

Sample: 2540-SU9-40		Lab ID: 3072085049	Collected: 06/19/12 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	0.501J ± 0.442 (0.785)	dpm/sample	07/13/12 09:34	12587-46-1	N2
Gross Beta	EPA 900.0m	0.243J ± 0.326 (0.685)	dpm/sample	07/13/12 09:34	12587-47-2	N2

Sample: 2540-SU9-41		Lab ID: 3072085050	Collected: 06/19/12 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	0.197U ± 0.409 (0.949)	dpm/sample	07/13/12 09:33	12587-46-1	N2
Gross Beta	EPA 900.0m	0.468J ± 0.361 (0.703)	dpm/sample	07/13/12 09:33	12587-47-2	N2

Sample: 2540-SU9-42		Lab ID: 3072085051	Collected: 06/19/12 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	-0.344U ± 0.195 (0.870)	dpm/sample	07/13/12 09:55	12587-46-1	N2
Gross Beta	EPA 900.0m	0.263U ± 0.382 (0.847)	dpm/sample	07/13/12 09:55	12587-47-2	N2

Sample: 2540-SU9-43		Lab ID: 3072085052	Collected: 06/19/12 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 ± 0.301 (0.801)	dpm/sample	07/13/12 09:55	12587-46-1	N2
Gross Beta	EPA 900.0m	0.039U ± 0.339 (0.795)	dpm/sample	07/13/12 09:55	12587-47-2	N2

Sample: 2540-SU9-44		Lab ID: 3072085053	Collected: 06/19/12 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	0.083U ± 0.401 (0.982)	dpm/sample	07/13/12 09:55	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.138U ± 0.330 (0.810)	dpm/sample	07/13/12 09:55	12587-47-2	N2

Sample: 2540-SU9-46		Lab ID: 3072085054	Collected: 06/19/12 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	-0.238U ± 0.226 (0.866)	dpm/sample	07/13/12 09:55	12587-46-1	N2
Gross Beta	EPA 900.0m	0.322J ± 0.362 (0.779)	dpm/sample	07/13/12 09:55	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

Sample: 2540-SU9-49 **Lab ID: 3072085055** Collected: 06/19/12 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 ± 0.343 (0.926)	dpm/sample	07/13/12 10:10	12587-46-1	N2
Gross Beta	EPA 900.0m	0.129U ± 0.233 (0.516)	dpm/sample	07/13/12 10:10	12587-47-2	N2

Sample: 2540-SU9-50 **Lab ID: 3072085056** Collected: 06/19/12 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	0.250U ± 0.436 (0.965)	dpm/sample	07/13/12 10:10	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.085U ± 0.237 (0.576)	dpm/sample	07/13/12 10:10	12587-47-2	N2

Sample: 2540-SU9-51 **Lab ID: 3072085057** Collected: 06/19/12 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	0.230U ± 0.411 (0.923)	dpm/sample	07/13/12 10:27	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.008U ± 0.253 (0.612)	dpm/sample	07/13/12 10:27	12587-47-2	N2

Sample: 2540-SU9-52 **Lab ID: 3072085058** Collected: 06/19/12 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	0.375J ± 0.461 (0.965)	dpm/sample	07/13/12 12:44	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.071U ± 0.240 (0.576)	dpm/sample	07/13/12 12:44	12587-47-2	N2

Sample: 2540-SU9-52D **Lab ID: 3072085059** Collected: 06/19/12 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	-0.311U ± 0.357 (0.966)	dpm/sample	07/13/12 13:20	12587-46-1	N2
Gross Beta	EPA 900.0m	0.033U ± 0.229 (0.527)	dpm/sample	07/13/12 13:20	12587-47-2	N2

Sample: 2540-SU9-53 **Lab ID: 3072085060** Collected: 06/19/12 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	0.388J ± 0.415 (0.807)	dpm/sample	07/13/12 13:20	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.038U ± 0.283 (0.682)	dpm/sample	07/13/12 13:20	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

Sample: 2540-SU9-54		Lab ID: 3072085061	Collected: 06/19/12 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	0.242U ± 0.421 (0.942)	dpm/sample	07/13/12 14:06	12587-46-1	N2
Gross Beta	EPA 900.0m	0.686J ± 0.398 (0.708)	dpm/sample	07/13/12 14:06	12587-47-2	N2

Sample: 2540-SU9-55		Lab ID: 3072085062	Collected: 06/19/12 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	0.239U ± 0.431 (0.971)	dpm/sample	07/13/12 14:06	12587-46-1	N2
Gross Beta	EPA 900.0m	0.020U ± 0.267 (0.641)	dpm/sample	07/13/12 14:06	12587-47-2	N2

Sample: 2540-SU9-56		Lab ID: 3072085063	Collected: 06/19/12 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	0.850 ± 0.571 (0.817)	dpm/sample	07/13/12 14:06	12587-46-1	N2
Gross Beta	EPA 900.0m	0.631J ± 0.396 (0.687)	dpm/sample	07/13/12 14:06	12587-47-2	N2

Sample: 2540-SU9-57		Lab ID: 3072085064	Collected: 06/19/12 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	-0.240U ± 0.317 (0.944)	dpm/sample	07/13/12 14:06	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.120U ± 0.228 (0.582)	dpm/sample	07/13/12 14:06	12587-47-2	N2

Sample: 2540-SU9-58		Lab ID: 3072085065	Collected: 06/19/12 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	0.289U ± 0.446 (0.974)	dpm/sample	07/13/12 14:44	12587-46-1	N2
Gross Beta	EPA 900.0m	0.557J ± 0.340 (0.619)	dpm/sample	07/13/12 14:44	12587-47-2	N2

Sample: 2540-SU9-59		Lab ID: 3072085066	Collected: 06/19/12 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 ± 0.334 (0.876)	dpm/sample	07/13/12 15:24	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.018U ± 0.303 (0.757)	dpm/sample	07/13/12 15:24	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

Sample: 2540-SU9-60		Lab ID: 3072085067	Collected: 06/19/12 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	0.261U ± 0.429 (0.949)	dpm/sample	07/13/12 15:24	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.055U ± 0.281 (0.703)	dpm/sample	07/13/12 15:24	12587-47-2	N2

Sample: 2540-SU9-61		Lab ID: 3072085068	Collected: 06/19/12 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	07/13/12 15:31	12587-46-1	N2
Gross Beta	EPA 900.0m	0.035U ± 0.275 (0.656)	dpm/sample	07/13/12 15:31	12587-47-2	N2

Sample: 2540-SU9-62		Lab ID: 3072085069	Collected: 06/19/12 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	-0.311U ± 0.323 (0.926)	dpm/sample	07/13/12 15:32	12587-46-1	N2
Gross Beta	EPA 900.0m	0.117U ± 0.230 (0.516)	dpm/sample	07/13/12 15:32	12587-47-2	N2

Sample: 2540-SU9-63		Lab ID: 3072085070	Collected: 06/19/12 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	0.149U ± 0.385 (0.912)	dpm/sample	07/13/12 15:32	12587-46-1	N2
Gross Beta	EPA 900.0m	0.002U ± 0.282 (0.676)	dpm/sample	07/13/12 15:32	12587-47-2	N2

Sample: 2540-SU9-64		Lab ID: 3072085071	Collected: 06/19/12 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 ± 0.383 (0.992)	dpm/sample	07/13/12 15:32	12587-46-1	N2
Gross Beta	EPA 900.0m	0.113U ± 0.280 (0.643)	dpm/sample	07/13/12 15:32	12587-47-2	N2

Sample: 2540-SU9-65		Lab ID: 3072085072	Collected: 06/19/12 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	0.822 ± 0.529 (0.807)	dpm/sample	07/13/12 15:32	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.098U ± 0.284 (0.682)	dpm/sample	07/13/12 15:32	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

Sample: 2540-SU9-66		Lab ID: 3072085073	Collected: 06/19/12 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	0.266U ± 0.408 (0.888)	dpm/sample	07/13/12 15:32	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.069U ± 0.283 (0.694)	dpm/sample	07/13/12 15:32	12587-47-2	N2

Sample: 2540-SU9-67		Lab ID: 3072085074	Collected: 06/19/12 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	0.291U ± 0.445 (0.965)	dpm/sample	07/13/12 15:32	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.031U ± 0.243 (0.576)	dpm/sample	07/13/12 15:32	12587-47-2	N2

Sample: 2540-SU9-68		Lab ID: 3072085075	Collected: 06/19/12 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	-0.205U ± 0.257 (0.874)	dpm/sample	07/13/12 15:32	12587-46-1	N2
Gross Beta	EPA 900.0m	0.534J ± 0.311 (0.558)	dpm/sample	07/13/12 15:32	12587-47-2	N2

Sample: 2540-SU9-69		Lab ID: 3072085076	Collected: 06/19/12 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	-0.221U ± 0.288 (0.948)	dpm/sample	07/13/12 15:32	12587-46-1	N2
Gross Beta	EPA 900.0m	0.071U ± 0.250 (0.596)	dpm/sample	07/13/12 15:32	12587-47-2	N2

Sample: 2540-SU9-70		Lab ID: 3072085077	Collected: 06/19/12 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	07/13/12 15:32	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.152U ± 0.267 (0.657)	dpm/sample	07/13/12 15:32	12587-47-2	N2

Sample: 2540-SU9-71		Lab ID: 3072085078	Collected: 06/19/12 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	0.149U ± 0.368 (0.866)	dpm/sample	07/13/12 15:32	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.046U ± 0.266 (0.654)	dpm/sample	07/13/12 15:32	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

Sample: 2540-SU9-72		Lab ID: 3072085079	Collected: 06/19/12 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	-0.108U ± 0.344 (0.971)	dpm/sample	07/13/12 15:33	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.037U ± 0.252 (0.622)	dpm/sample	07/13/12 15:33	12587-47-2	N2

Sample: 2540-SU9-73		Lab ID: 3072085080	Collected: 06/19/12 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	0.242UB ± 0.387 (0.845)	dpm/sample	07/13/12 16:03	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.158U ± 0.247 (0.641)	dpm/sample	07/13/12 16:03	12587-47-2	N2

Sample: 2540-SU9-73D		Lab ID: 3072085081	Collected: 06/19/12 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	0.222UB ± 0.410 (0.924)	dpm/sample	07/13/12 16:32	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.128U ± 0.287 (0.719)	dpm/sample	07/13/12 16:32	12587-47-2	N2

Sample: 2540-SU9-74		Lab ID: 3072085082	Collected: 06/19/12 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	-0.020UB ± 0.343 (0.933)	dpm/sample	07/13/12 16:32	12587-46-1	N2
Gross Beta	EPA 900.0m	0.326J ± 0.302 (0.623)	dpm/sample	07/13/12 16:32	12587-47-2	N2

Sample: 2540-SU9-75		Lab ID: 3072085083	Collected: 06/19/12 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	0.097UB ± 0.348 (0.869)	dpm/sample	07/17/12 09:27	12587-46-1	N2
Gross Beta	EPA 900.0m	0.228J ± 0.302 (0.655)	dpm/sample	07/17/12 09:27	12587-47-2	N2

Sample: 2540-SU9-76		Lab ID: 3072085084	Collected: 06/19/12 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	0.390JB ± 0.454 (0.923)	dpm/sample	07/13/12 16:33	12587-46-1	N2
Gross Beta	EPA 900.0m	-0.028U ± 0.253 (0.612)	dpm/sample	07/13/12 16:33	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207073
Pace Project No.: 3072085

Sample: 2540-SU9-77		Lab ID: 3072085085	Collected: 06/19/12 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	0.506JB ± 0.499 (0.972)	dpm/sample	07/13/12 16:33	12587-46-1	N2
Gross Beta	EPA 900.0m	0.755 ± 0.377 (0.623)	dpm/sample	07/13/12 16:33	12587-47-2	N2

Sample: 2540-SU9-78		Lab ID: 3072085086	Collected: 06/19/12 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	0.733JB ± 0.535 (0.929)	dpm/sample	07/13/12 16:33	12587-46-1	N2
Gross Beta	EPA 900.0m	0.103U ± 0.283 (0.626)	dpm/sample	07/13/12 16:33	12587-47-2	N2

Sample: 2540-SU9-79		Lab ID: 3072085087	Collected: 06/19/12 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	0.410JB ± 0.472 (0.962)	dpm/sample	07/19/12 17:31	12587-46-1	N2
Gross Beta	EPA 900.0m	0.155U ± 0.282 (0.617)	dpm/sample	07/19/12 17:31	12587-47-2	N2

Sample: 2540-SU9-80		Lab ID: 3072085088	Collected: 06/19/12 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	0.133UB ± 0.387 (0.944)	dpm/sample	07/19/12 17:32	12587-46-1	N2
Gross Beta	EPA 900.0m	0.089U ± 0.303 (0.710)	dpm/sample	07/19/12 17:32	12587-47-2	N2

Sample: 2540-SU9-81-HOODVENT		Lab ID: 3072085089	Collected: 06/19/12 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	0.672JB ± 0.522 (0.963)	dpm/sample	07/19/12 17:35	12587-46-1	N2
Gross Beta	EPA 900.0m	0.520J ± 0.325 (0.591)	dpm/sample	07/19/12 17:35	12587-47-2	N2

Sample: 2540-SU9-82-HOODBASE		Lab ID: 3072085090	Collected: 06/19/12 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	0.061UB ± 0.363 (0.917)	dpm/sample	07/14/12 21:40	12587-46-1	N2
Gross Beta	EPA 900.0m	0.185U ± 0.306 (0.681)	dpm/sample	07/14/12 21:40	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

Sample: 2540-SU12-20		Lab ID: 3072085091	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	0.087UB ± 0.386 (0.986)	dpm/sample	07/19/12 17:36	12587-46-1	N2
Gross Beta	EPA 900.0m	0.162U ± 0.290 (0.653)	dpm/sample	07/19/12 17:36	12587-47-2	N2

Sample: 2540-SU14-1		Lab ID: 3072085092	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	0.573JB ± 0.512 (0.962)	dpm/sample	07/14/12 21:40	12587-46-1	N2
Gross Beta	EPA 900.0m	0.438J ± 0.327 (0.617)	dpm/sample	07/14/12 21:40	12587-47-2	N2

Sample: 2540-SU14-2		Lab ID: 3072085093	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	0.655JB ± 0.516 (0.885)	dpm/sample	07/17/12 09:27	12587-46-1	N2
Gross Beta	EPA 900.0m	0.453J ± 0.321 (0.581)	dpm/sample	07/17/12 09:27	12587-47-2	N2

Sample: 2540-SU14-3		Lab ID: 3072085094	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	0.941B ± 0.581 (0.899)	dpm/sample	07/14/12 21:40	12587-46-1	N2
Gross Beta	EPA 900.0m	0.876 ± 0.407 (0.643)	dpm/sample	07/14/12 21:40	12587-47-2	N2

Sample: 2540-SU14-4		Lab ID: 3072085095	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	0.173UB ± 0.416 (0.974)	dpm/sample	07/14/12 21:40	12587-46-1	N2
Gross Beta	EPA 900.0m	0.342J ± 0.321 (0.659)	dpm/sample	07/14/12 21:40	12587-47-2	N2

Sample: 2540-SU14-5		Lab ID: 3072085096	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	0.673JB ± 0.505 (0.864)	dpm/sample	07/14/12 21:40	12587-46-1	N2
Gross Beta	EPA 900.0m	0.370J ± 0.329 (0.648)	dpm/sample	07/14/12 21:40	12587-47-2	N2

ANALYTICAL RESULTS

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

Sample: 2540-SU14-6		Lab ID: 3072085097	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	0.663JB ± 0.495 (0.825)	dpm/sample	07/14/12 21:40	12587-46-1	N2
Gross Beta	EPA 900.0m	0.319J ± 0.313 (0.625)	dpm/sample	07/14/12 21:40	12587-47-2	N2

Sample: 2540-SU14-7		Lab ID: 3072085098	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	0.528JB ± 0.510 (0.999)	dpm/sample	07/19/12 17:36	12587-46-1	N2
Gross Beta	EPA 900.0m	0.133U ± 0.283 (0.622)	dpm/sample	07/19/12 17:36	12587-47-2	N2

Sample: 2540-SU14-8		Lab ID: 3072085099	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	0.232UB ± 0.393 (0.873)	dpm/sample	07/14/12 21:40	12587-46-1	N2
Gross Beta	EPA 900.0m	0.235J ± 0.309 (0.664)	dpm/sample	07/14/12 21:40	12587-47-2	N2

Sample: 2540-SU14-15		Lab ID: 3072085100	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	0.404J ± 0.473 (0.964)	dpm/sample	07/18/12 14:20	12587-46-1	N2
Gross Beta	EPA 900.0m	0.187U ± 0.324 (0.713)	dpm/sample	07/18/12 14:20	12587-47-2	N2

QUALITY CONTROL DATA

Project: Fort Monmouth 1207073
Pace Project No.: 3072085

QC Batch:	RADC/12464	Analysis Method:	EPA 900.0m
QC Batch Method:	EPA 900.0m	Analysis Description:	900.0 Gross Alpha/Beta
Associated Lab Samples:	3072085001, 3072085002, 3072085003, 3072085004, 3072085005, 3072085006, 3072085007, 3072085008, 3072085009, 3072085010, 3072085011, 3072085012, 3072085013, 3072085014, 3072085015, 3072085016, 3072085017, 3072085018, 3072085019		

METHOD BLANK:	458978	Matrix:	Impact Plate
Associated Lab Samples:	3072085001, 3072085002, 3072085003, 3072085004, 3072085005, 3072085006, 3072085007, 3072085008, 3072085009, 3072085010, 3072085011, 3072085012, 3072085013, 3072085014, 3072085015, 3072085016, 3072085017, 3072085018, 3072085019		

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Gross Alpha	0.289U ± 0.446 (0.974)	dpm/sample	07/12/12 22:07	N2
Gross Beta	-0.061U ± 0.251 (0.619)	dpm/sample	07/12/12 22:07	N2

QUALITY CONTROL DATA

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

QC Batch: RADC/12465

Analysis Method: EPA 900.0m

QC Batch Method: EPA 900.0m

Analysis Description: 900.0 Gross Alpha/Beta

Associated Lab Samples: 3072085020, 3072085021, 3072085022, 3072085023, 3072085024, 3072085025, 3072085026, 3072085027, 3072085028, 3072085029, 3072085030, 3072085031, 3072085032, 3072085033, 3072085034, 3072085035, 3072085036, 3072085037, 3072085038, 3072085039

METHOD BLANK: 458979

Matrix: Impact Plate

Associated Lab Samples: 3072085020, 3072085021, 3072085022, 3072085023, 3072085024, 3072085025, 3072085026, 3072085027, 3072085028, 3072085029, 3072085030, 3072085031, 3072085032, 3072085033, 3072085034, 3072085035, 3072085036, 3072085037, 3072085038, 3072085039

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Gross Alpha	-0.242U ± 0.271 (0.674)	dpm/sample	07/13/12 07:59	N2
Gross Beta	0.111U ± 0.316 (0.670)	dpm/sample	07/13/12 07:59	N2

QUALITY CONTROL DATA

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

QC Batch:	RADC/12466	Analysis Method:	EPA 900.0m
QC Batch Method:	EPA 900.0m	Analysis Description:	900.0 Gross Alpha/Beta
Associated Lab Samples:	3072085040, 3072085041, 3072085042, 3072085043, 3072085044, 3072085045, 3072085046, 3072085047, 3072085048, 3072085049, 3072085050, 3072085051, 3072085052, 3072085053, 3072085054, 3072085055, 3072085056, 3072085057, 3072085058, 3072085059		

METHOD BLANK:	458980	Matrix:	Impact Plate
Associated Lab Samples:	3072085040, 3072085041, 3072085042, 3072085043, 3072085044, 3072085045, 3072085046, 3072085047, 3072085048, 3072085049, 3072085050, 3072085051, 3072085052, 3072085053, 3072085054, 3072085055, 3072085056, 3072085057, 3072085058, 3072085059		

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Gross Alpha	0.581J ± 0.521 (0.971)	dpm/sample	07/13/12 09:34	N2
Gross Beta	-0.161U ± 0.300 (0.754)	dpm/sample	07/13/12 09:34	N2

QUALITY CONTROL DATA

Project: Fort Monmouth 1207073
Pace Project No.: 3072085

QC Batch: RADC/12468 Analysis Method: EPA 900.0m
QC Batch Method: EPA 900.0m Analysis Description: 900.0 Gross Alpha/Beta
Associated Lab Samples: 3072085080, 3072085081, 3072085082, 3072085083, 3072085084, 3072085085, 3072085086, 3072085087, 3072085088, 3072085089, 3072085090, 3072085091, 3072085092, 3072085093, 3072085094, 3072085095, 3072085096, 3072085097, 3072085098, 3072085099

METHOD BLANK: 458982 Matrix: Impact Plate
Associated Lab Samples: 3072085080, 3072085081, 3072085082, 3072085083, 3072085084, 3072085085, 3072085086, 3072085087, 3072085088, 3072085089, 3072085090, 3072085091, 3072085092, 3072085093, 3072085094, 3072085095, 3072085096, 3072085097, 3072085098, 3072085099

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Gross Alpha	0.884B ± 0.511 (0.686)	dpm/sample	07/13/12 15:39	N2
Gross Beta	0.509J ± 0.331 (0.587)	dpm/sample	07/13/12 15:39	N2

QUALITY CONTROL DATA

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

QC Batch: RADC/12469

Analysis Method: EPA 900.0m

QC Batch Method: EPA 900.0m

Analysis Description: 900.0 Gross Alpha/Beta

Associated Lab Samples: 3072085100

METHOD BLANK: 458983

Matrix: Impact Plate

Associated Lab Samples: 3072085100

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Gross Alpha	0.354J ± 0.418 (0.848)	dpm/sample	07/14/12 21:41	N2
Gross Beta	-0.027U ± 0.267 (0.643)	dpm/sample	07/14/12 21:41	N2

QUALIFIERS

Project: Fort Monmouth 1207073

Pace Project No.: 3072085

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: 3072085

**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: **10** of **20**

Section A Required Client Information:

Company: **US Army Corps of Engineers**
 Address: **10 South Howard Street
 Baltimore, MD**
 Email To: **david.j.walters@usace.army.mil**
 Phone: **443-253-0918** Fax: **none**
 Requested Due Date/TAT: **ASAP**

Section B Required Project Information:

Report To: **David Walters**
 Copy To: **Alan Warminski**
 Purchase Order No.:
 Project Name: **Fort Monmouth Rad Survey**
 Project Number:

Section C Invoice Information:

Attention:
 Address:
 Pace Quote Reference:
 Pace Project Manager: **Carin Ferris**
 Pace Profile #:

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER NRC

Site Location: **NJ**
 STATE:

Requested Analysis Filtered (Y/N)

Section D
 Required Client Information
SAMPLE ID
 (A-Z, 0-9 / -)
 Sample IDs MUST BE UNIQUE

ITEM #	Valid Matrix Codes MATRIX	MATRIX CODE	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.							
				COMPOSITE START	COMPOSITE END/ORAB													
	DRINKING WATER	DW	G	DATE	TIME	DATE	TIME	Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₈	Methanol	Other	Y/N	N	
188			WP G	NA	NA	06/19/12	NA	X									X	
189			WP G	NA	NA	06/19/12	NA	X									X	
200			WP G	NA	NA	06/19/12	NA	X									X	
201			WP G	NA	NA	06/19/12	NA	X									X	
202			WP G	NA	NA	06/19/12	NA	X									X	
203			WP G	NA	NA	06/19/12	NA	X									X	
204			WP G	NA	NA	06/19/12	NA	X									X	
205			WP G	NA	NA	06/19/12	NA	X									X	
206			WP G	NA	NA	06/19/12	NA	X									X	
207			WP G	NA	NA	06/19/12	NA	X									X	
208			WP G	NA	NA	06/19/12	NA	X									X	
209			WP G	NA	NA	06/19/12	NA	X									X	
210			WP G	NA	NA	06/19/12	NA	X									X	
211			WP G	NA	NA	06/19/12	NA	X									X	
212			WP G	NA	NA	06/19/12	NA	X									X	
213			WP G	NA	NA	06/19/12	NA	X									X	
214			WP G	NA	NA	06/19/12	NA	X									X	
215			WP G	NA	NA	06/19/12	NA	X									X	
216			WP G	NA	NA	06/19/12	NA	X									X	
217			WP G	NA	NA	06/19/12	NA	X									X	
218			WP G	NA	NA	06/19/12	NA	X									X	
219			WP G	NA	NA	06/19/12	NA	X									X	

Handwritten signature 6/25/12 10:15



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: Company: US Army Corps of Engineers Address: 10 South Howard Street Baltimore, MD Mail To: david.j.walters@usace.army.mil Phone: 443-253-0916 Fax: none Requested Due Date/TAT: ASAP		Section B Required Project Information: Report To: David Walters Copy To: Alan Warminski Purchase Order No.: Project Name: Fort Monmouth Rad Survey Project Number:		Section C Invoice Information: Attention: Address: Pace Quote Reference: Pace Project Manager: Carin Ferris Pace Profile #	
Section D Required Client Information SAMPLE ID (A-Z, 0-9 / . -) Sample IDs MUST BE UNIQUE		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 NRC Site Location: NJ STATE: NJ			

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WW PRODUCT P SOIL/SOLID SL OIL OL WIPE WP AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	# OF CONTAINERS	Preservatives							Analysis Test Y/N	Gross Alpha/Beta	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	
			COMPOSITE START	COMPOSITE END/GRAB			DATE	TIME	DATE	TIME	H ₂ SO ₄	HNO ₃	HCl					NaOH
220		WP	G	NA	06/19/12	NA	1	X										0101
221	2540-SU9-8	WP	G	NA	06/19/12	NA	1	X										020
222	2540-SU9-9	WP	G	NA	06/19/12	NA	1	X										021
223	2540-SU9-10	WP	G	NA	06/19/12	NA	1	X										022
224	2540-SU9-11	WP	G	NA	06/19/12	NA	1	X										023
225	2540-SU9-12	WP	G	NA	06/19/12	NA	1	X										024
226	2540-SU9-13	WP	G	NA	06/19/12	NA	1	X										025
227	2540-SU9-14	WP	G	NA	06/19/12	NA	1	X										026
228	2540-SU9-15	WP	G	NA	06/19/12	NA	1	X										027
229	2540-SU9-16	WP	G	NA	06/19/12	NA	1	X										028
230	2540-SU9-17	WP	G	NA	06/19/12	NA	1	X										029
231	2540-SU9-18	WP	G	NA	06/19/12	NA	1	X										030
232	2540-SU9-19	WP	G	NA	06/19/12	NA	1	X										031
233	2540-SU9-20	WP	G	NA	06/19/12	NA	1	X										032
234	2540-SU9-21	WP	G	NA	06/19/12	NA	1	X										033
235	2540-SU9-22	WP	G	NA	06/19/12	NA	1	X										034
236	2540-SU9-23	WP	G	NA	06/19/12	NA	1	X										035
237	2540-SU9-24	WP	G	NA	06/19/12	NA	1	X										036
238	2540-SU9-25	WP	G	NA	06/19/12	NA	1	X										037
239	2540-SU9-26	WP	G	NA	06/19/12	NA	1	X										038
240	2540-SU9-27	WP	G	NA	06/19/12	NA	1	X										039
241	2540-SU9-28	WP	G	NA	06/19/12	NA	1	X										040
241	2540-SU9-29	WP	G	NA	06/19/12	NA	1	X										040

APD 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

Client Information:

Company: US Army Corps of Engineers
 Address: 10 South Howard Street
 Baltimore, MD
 Mail To: david.j.walters@usace.army.mil
 Phone: 443-253-0916 Fax: none
 Requested Due Date: ASAP

Section B

Required Project Information:

Report To: David Walters
 Copy To: Alan Warminski
 Purchase Order No.:
 Project Name: Fort Monmouth Rad Survey
 Project Number:

Section C

Invoice Information:

Attention:
 Address:
 Pace Quote Reference:
 Pace Project Manager: Carin Ferris
 Pace Profile #:

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER NRC
 UST RCRA OTHER

Site Location: NJ

STATE: NJ

Page: 13 of 20

ITEM #	Section D Required Client Information		Valid Matrix Codes		MATRIX CODE		COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	Preservatives										Analysis Test†	Residual Chlorine (Y/N)	Pace Project No./ Lab ID.								
	Required Client Information		DW	WT	WT	WT	WT	WT				WT	WT	WT	WT	WT	WT	WT	WT	WT	WT				WT	WT	WT	WT	WT	WT	WT	WT
	DRINKING WATER	WASTE WATER	PRODUCT	SOLID	SOIL/SOLID	WIFE	AIR	OTHER				TISSUE	COMPOSITE START	COMPOSITE END/GRAB	DATE	TIME	DATE	TIME	H ₂ SO ₄	HNO ₃	HCl				NaOH	Na ₂ S ₂ O ₃	Methanol	Other	Y/N	Y/N		
264									WP	G	NA	NA	06/19/12		X								X			263						
265									WP	G	NA	NA	06/19/12		X								X			264						
266									WP	G	NA	NA	06/19/12		X								X			265						
267									WP	G	NA	NA	06/19/12		X								X			266						
268									WP	G	NA	NA	06/19/12		X								X			267						
269									WP	G	NA	NA	06/19/12		X								X			268						
270									WP	G	NA	NA	06/19/12		X								X			269						
271									WP	G	NA	NA	06/19/12		X								X			270						
272									WP	G	NA	NA	06/19/12		X								X			271						
273									WP	G	NA	NA	06/19/12		X								X			272						
274									WP	G	NA	NA	06/19/12		X								X			273						
275									WP	G	NA	NA	06/19/12		X								X			274						
276									WP	G	NA	NA	06/19/12		X								X			275						
277									WP	G	NA	NA	06/19/12		X								X			276						
278									WP	G	NA	NA	06/19/12		X								X			277						
279									WP	G	NA	NA	06/19/12		X								X			278						
280									WP	G	NA	NA	06/19/12		X								X			279						
281									WP	G	NA	NA	06/19/12		X								X			280						
282									WP	G	NA	NA	06/19/12		X								X			281						
283									WP	G	NA	NA	06/19/12		X								X			282						
284									WP	G	NA	NA	06/19/12		X								X			283						
285									WP	G	NA	NA	06/19/12		X								X			284						

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CHAIN-OF-CUSTODY / Analytical Request Document

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



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Section A
 Required Client Information:
 Company: US Army Corps of Engineers
 Address: 10 South Howard Street
 Baltimore, MD

Section B
 Required Project Information:
 Report To: David Waiters
 Copy To: Alan Warminski
 Purchase Order No.:
 Project Name: Fort Monmouth Rad Survey
 Project Number:

Section C
 Invoice Information:
 Attention:
 Address:
 Pace Quote Reference:
 Pace Project Manager: Carin Ferris
 Pace Profile #:
 Regulatory Agency:
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER NRC
 Site Location: NJ
 STATE: NJ

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WW PRODUCT P SOLID/SOLID SL OIL OL WIPE WIP AIR AR OTHER OT TISSUE TS	Required Client Information	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Analysis Test ↑	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
				COMPOSITE START	COMPOSITE END/GRAB			DATE	TIME	H ₂ SO ₄	HCl	NaOH	Na ₂ S ₂ O ₃			
286	2540-SU9-77		WP G	NA	NA	06/19/12	NA	1	X							0853
287	2540-SU9-78		WP G	NA	NA	06/19/12	NA	1	X							0856
288	2540-SU9-79		WP G	NA	NA	06/19/12	NA	1	X							0857
289	2540-SU9-80		WP G	NA	NA	06/19/12	NA	1	X							0858
290	2540-SU9-81-HOODVENT		WP G	NA	NA	06/19/12	NA	1	X							0859
291	2540-SU9-82-HOODBASE		WP G	NA	NA	06/19/12	NA	1	X							0860
292	2540-SU12-20		WP G	NA	NA	06/14/12	NA	1	X							0861
293	2540-SU14-1		WP G	NA	NA	06/14/12	NA	1	X							0862
294	2540-SU14-2		WP G	NA	NA	06/14/12	NA	1	X							0863
295	2540-SU14-3		WP G	NA	NA	06/14/12	NA	1	X							0864
296	2540-SU14-4		WP G	NA	NA	06/14/12	NA	1	X							0865
297	2540-SU14-5		WP G	NA	NA	06/14/12	NA	1	X							0866
298	2540-SU14-6		WP G	NA	NA	06/14/12	NA	1	X							0867
299	2540-SU14-7		WP G	NA	NA	06/14/12	NA	1	X							0868
300	2540-SU14-8		WP G	NA	NA	06/14/12	NA	1	X							0869
301	2540-SU14-15		WP G	NA	NA	06/14/12	NA	1	X							0870
302	2540-SU14-25		WP G	NA	NA	06/14/12	NA	1	X							0871
303	2540-SU15-1		WP G	NA	NA	06/20/12	NA	1	X							0872
304	2540-SU15-3		WP G	NA	NA	06/20/12	NA	1	X							0873
305	2540-SU15-4		WP G	NA	NA	06/20/12	NA	1	X							0874
306	2540-SU15-5		WP G	NA	NA	06/20/12	NA	1	X							0875
307	2540-SU15-6		WP G	NA	NA	06/20/12	NA	1	X							0876

Handwritten signature and date: 6/20/12



Sample Condition Upon Receipt

Client Name: RTI

Project # 3072085

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: VEV 6/25/12

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input 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 checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>WW</u>		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" 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 checked="" type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WL-DRD (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	initial when completed <u>VEV</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" 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: Carina Ferris Date: 6/25/12



Project Number: 3572085

Client Name: RTI

Item No.	Matrix Code	Class Jar (120 / 250 / 500 / 1L)	Soil Kit (2 SB, 1M, soil jar)	Chemistry (250 / 500 / 1L)	Organics (1L)	Nutrient (250 / 500)	Phenolics (250 ml)	TOC (40 ml / 250 ml)	TOX (250 ml)	Total Metals	Dissolved Metals preserved Y	O & G (1L)	TPH (1L)	VOA (40 ml 30 ml)	Cyanide (250 ml)	Sulfide (500 ml)	Bacteria (120 ml)	Wipes / swipe/ smear/ filter	Radchem Nalgene (125 / 250 / 500 / 1L)	Radchem Nalgene (1/2 gal. / 1 galL)	Cubtainer (500 ml / 4L)	Ziploc	Other	Other
100	MP																							
101	MP																							

Gross Alpha and Beta Sample Analysis Data

Quality Control Review



Batch RADC/12464 HBN 91034
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

1 458978-BLANK for HBN 91034 [RADC/1246

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

Prep Information

Procedure 9000 I Batch RADC/12464 Prep Date 7/12/2012 22:07 Dilution
 Method EPA 900.0m HBN 91034 Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795661 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 22:07 Dilution
 Method EPA 900.0m Col ID Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795661 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL
Rad Chemistry	OK				
Gross Alpha	OK	0.289U ± 0.446 (0.974)	pCi/sa 0.289U ± 0.446 (0.974)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					
Gross Beta	OK	-0.061U ± 0.251 (0.619)	pCi/sa -0.061U ± 0.251 (0.619)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					

2 3072060100-2540-SU7-24

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072060 Work ID Fort Monmouth 1207072 Location

Prep Information

Procedure 9000 I Batch RADC/12464 Prep Date 7/12/2012 22:07 Dilution
 Method EPA 900.0m HBN 91034 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2784398 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 22:07 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2784398 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.279J ± 0.377 (0.785)	pCi/sa 0.279J ± 0.377 (0.785)			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/12464 HBN 91034
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

2 3072060100-2540-SU7-24

Analyte	CC	Posted Result		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Gross Beta	OK	0.043U ± 0.292 (0.685)	pCi/sa 0.043U ± 0.292 (0.685)			dpm/sa		

The lab does not hold TNI accreditation for this parameter.

3 3072085001-2540-SU7-25

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12464 Prep Date 7/12/2012 22:08 Dilution
 Method EPA 900.0m HBN 91034 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785109 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 22:08 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785109 File CC OK F

Analyte	CC	Posted Result		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Rad Chemistry	OK					dpm/sa		
Gross Alpha	OK	0.303J ± 0.406 (0.853)	pCi/sa 0.303J ± 0.406 (0.853)			dpm/sa		

The lab does not hold TNI accreditation for this parameter.

Gross Beta OK 0.455J ± pCi/sa 0.455J ±
 0.332 0.332
 (0.637) (0.637)

The lab does not hold TNI accreditation for this parameter.

4 3072085002-2540-SU7-26

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12464 Prep Date 7/12/2012 22:08 Dilution
 Method EPA 900.0m HBN 91034 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785112 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/12464 HBN 91034
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

4 3072085002-2540-SU7-26

Analytical Information

Procedure 9000 I	Instru NONE	Run Date 7/12/2012 22:08	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785112	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.062U ± 0.365 (0.924)	pCi/sa 0.062U ± 0.365 (0.924)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.153U ± 0.318 (0.719)	pCi/sa 0.153U ± 0.318 (0.719)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

5 3072085003-2540-SU7-27

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

Prep Information

Procedure 9000 I	Batch RADC/12464	Prep Date 7/12/2012 22:08	Dilution
Method EPA 900.0m	HBN 91034	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785114	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 22:08	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785114	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.145U ± 0.352 (0.829)	pCi/sa 0.145U ± 0.352 (0.829)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.073U ± 0.262 (0.656)	pCi/sa -0.073U ± 0.262 (0.656)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

6 3072085004-2540-SU7-34

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

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

Quality Control Review



Batch RADC/12464 HBN 91034
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

6 3072085004-2540-SU7-34

Prep Information

Procedure 9000 I Batch RADC/12464 Prep Date 7/12/2012 22:08 Dilution
 Method EPA 900.0m HBN 91034 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785116 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 22:08 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785116 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.788J ± 0.531 (0.845)	pCi/sa 0.788J ± 0.531 (0.845)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.112U ± 0.291 (0.641)	pCi/sa 0.112U ± 0.291 (0.641)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

7 3072085005-2540-SU7-37

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12464 Prep Date 7/12/2012 22:08 Dilution
 Method EPA 900.0m HBN 91034 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785118 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 22:08 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785118 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.284U ± 0.245 (0.912)	pCi/sa -0.284U ± 0.245 (0.912)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.130U ± 0.292 (0.676)	pCi/sa 0.130U ± 0.292 (0.676)			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/12464 HBN 91034
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

7 3072085005-2540-SU7-37

8 3072085006-2540-SU7-38

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12464 Prep Date 7/12/2012 22:08 Dilution
 Method EPA 900.0m HBN 91034 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785120 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 22:08 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785120 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.141U ± 0.338 (0.992)	pCi/sa -0.141U ± 0.338 (0.992)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.397J ± 0.320 (0.643)	pCi/sa 0.397J ± 0.320 (0.643)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

9 3072085007-2540-SU7-39

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12464 Prep Date 7/12/2012 22:08 Dilution
 Method EPA 900.0m HBN 91034 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785122 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 22:08 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785122 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/12464 HBN 91034
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

9 3072085007-2540-SU7-39

Analyte	CC	Posted		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Gross Alpha	OK	-0.075U ± 0.326 (0.933)	pCi/sa -0.075U ± 0.326 (0.933)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								
Gross Beta	OK	0.003U ± 0.255 (0.623)	pCi/sa 0.003U ± 0.255 (0.623)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								

10 3072085008-2540-SU7-43

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12464 Prep Date 7/12/2012 22:08 Dilution
 Method EPA 900.0m HBN 91034 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785124 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 22:08 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785124 File CC OK F

Analyte	CC	Posted		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Rad Chemistry	OK					dpm/sa		
Gross Alpha	OK	0.605J ± 0.474 (0.807)	pCi/sa 0.605J ± 0.474 (0.807)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								
Gross Beta	OK	-0.030U ± 0.288 (0.682)	pCi/sa -0.030U ± 0.288 (0.682)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								

11 3072085009-2540-SU7-46

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12464 Prep Date 7/12/2012 22:08 Dilution
 Method EPA 900.0m HBN 91034 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785126 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/12464 HBN 91034
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

11 3072085009-2540-SU7-46

Analytical Information

Procedure 9000 I	Instru NONE	Run Date 7/12/2012 22:08	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785126	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.160U ± 0.379 (0.888)	pCi/sa 0.160U ± 0.379 (0.888)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.018U ± 0.287 (0.694)	pCi/sa -0.018U ± 0.287 (0.694)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

12 3072085010-2540-SU8-2

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

Prep Information

Procedure 9000 I	Batch RADC/12464	Prep Date 7/12/2012 22:08	Dilution
Method EPA 900.0m	HBN 91034	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785128	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 22:08	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785128	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.205U ± 0.257 (0.874)	pCi/sa -0.205U ± 0.257 (0.874)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.088U ± 0.237 (0.558)	pCi/sa 0.088U ± 0.237 (0.558)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

13 3072085011-2540-SU8-22

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

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

Quality Control Review



Batch RADC/12464 HBN 91034
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

13 3072085011-2540-SU8-22

Prep Information

Procedure 9000 I Batch RADC/12464 Prep Date 7/12/2012 22:08 Dilution
 Method EPA 900.0m HBN 91034 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785130 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 22:08 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785130 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.122U ± 0.382 (0.923)	pCi/sa 0.122U ± 0.382 (0.923)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.176U ± 0.278 (0.612)	pCi/sa 0.176U ± 0.278 (0.612)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

14 3072085012-2540-SU8-29

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12464 Prep Date 7/12/2012 22:08 Dilution
 Method EPA 900.0m HBN 91034 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785132 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 22:08 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785132 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.059U ± 0.340 (0.948)	pCi/sa -0.059U ± 0.340 (0.948)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.297J ± 0.288 (0.596)	pCi/sa 0.297J ± 0.288 (0.596)			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/12464 HBN 91034
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

14 3072085012-2540-SU8-29

15 3072085013-2540-SU8-SINK

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12464 Prep Date 7/12/2012 22:08 Dilution
 Method EPA 900.0m HBN 91034 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785134 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 22:08 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785134 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.611J ± 0.496 (0.881)	pCi/sa 0.611J ± 0.496 (0.881)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.150U ± 0.262 (0.657)	pCi/sa -0.150U ± 0.262 (0.657)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

16 3072085014-2540-SU9-2

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12464 Prep Date 7/12/2012 22:09 Dilution
 Method EPA 900.0m HBN 91034 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785136 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 22:09 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785136 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/12464 HBN 91034
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

16 3072085014-2540-SU9-2

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Gross Alpha	OK	0.372J ± 0.449 (0.929)	pCi/sa 0.372J ± 0.449 (0.929)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.256J ± 0.299 (0.626)	pCi/sa 0.256J ± 0.299 (0.626)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

17 3072085015-2540-SU9-3

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmonth 1207073	Location

Prep Information

Procedure 9000 I	Batch RADC/12464	Prep Date 7/12/2012 22:09	Dilution
Method EPA 900.0m	HBN 91034	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785138	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 22:09	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785138	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.046U ± 0.338 (0.866)	pCi/sa 0.046U ± 0.338 (0.866)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.172U ± 0.294 (0.654)	pCi/sa 0.172U ± 0.294 (0.654)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

18 3072085016-2540-SU9-5

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmonth 1207073	Location

Prep Information

Procedure 9000 I	Batch RADC/12464	Prep Date 7/12/2012 22:09	Dilution
Method EPA 900.0m	HBN 91034	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785140	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/12464 HBN 91034
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

18 3072085016-2540-SU9-5

Analytical Information

Procedure 9000 I	Instru NONE	Run Date 7/12/2012 22:09	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785140	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.884 ± 0.511 (0.686)	pCi/sa 0.884 ± 0.511 (0.686)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.379J ± 0.310 (0.587)	pCi/sa 0.379J ± 0.310 (0.587)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

19 3072085017-2540-SU9-6

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

Procedure 9000 I	Batch RADC/12464	Prep Date 7/13/2012 09:35	Dilution
Method EPA 900.0m	HBN 91034	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785142	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 7/13/2012 09:35	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785142	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.101U ± 0.387 (0.972)	pCi/sa 0.101U ± 0.387 (0.972)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.460J ± 0.328 (0.616)	pCi/sa 0.460J ± 0.328 (0.616)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

20 3072085018-2540-SU9-7

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

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

Quality Control Review



Batch RADC/12464 HBN 91034
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

20 3072085018-2540-SU9-7

Prep Information

Procedure 9000 I **Batch** RADC/12464 **Prep Date** 7/13/2012 09:35 **Dilution**
Method EPA 900.0m **HBN** 91034 **Hold Date** 12/16/2012 23:59 **Analyst** MBT
Schedule 2785144 **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** 7/13/2012 09:35 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/16/2012 23:59 **Analyst** MBT
Schedule 2785144 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.222U ± 0.436 (0.997)	pCi/sa 0.222U ± 0.436 (0.997)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.026U ± 0.261 (0.625)	pCi/sa 0.026U ± 0.261 (0.625)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

21 3072085019-2540-SU9-8

Type PS **Matrix** Wipe **Collected** 6/19/2012 00:01 **% Moisture**
Client RTI **WO** 3072085 **Work ID** Fort Monmouth 1207073 **Location**

Prep Information

Procedure 9000 I **Batch** RADC/12464 **Prep Date** 7/13/2012 09:35 **Dilution**
Method EPA 900.0m **HBN** 91034 **Hold Date** 12/16/2012 23:59 **Analyst** MBT
Schedule 2785146 **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** 7/13/2012 09:35 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/16/2012 23:59 **Analyst** MBT
Schedule 2785146 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	1.21 ± 0.689 (0.980)	pCi/sa 1.21 ± 0.689 (0.980)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.302J ± 0.358 (0.725)	pCi/sa 0.302J ± 0.358 (0.725)			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/12464	HBN	91034
Rule	9000 I	Status	RE
Create Date	6/28/2012	Analyst	MBT



21 3072085019-2540-SU9-8

** 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 13:06
Batch ID 12464
Assigned Analyst MBT
Earliest Due Date 07/04/2012 07:12
A-code 9000 I 9000W or NJ HBN 91034
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
	458978	BLANK	IP		QCACCOUNT	0.288U	0.446	0.974	-0.061U	0.251	0.619	7/12/12 22:07		
3072060	3072060100	PS	WP	6/19/2012 0:01	RTI	0.278J	0.377	0.785	0.043U	0.292	0.685	7/12/12 22:07		
3072085	3072085001	PS	WP	6/19/2012 0:01	RTI	0.303J	0.406	0.853	0.455J	0.332	0.637	7/12/12 22:08		
3072085	3072085002	PS	WP	6/19/2012 0:01	RTI	0.062U	0.365	0.924	0.153U	0.318	0.719	7/12/12 22:08		
3072085	3072085003	PS	WP	6/19/2012 0:01	RTI	0.145U	0.352	0.829	-0.073U	0.262	0.656	7/12/12 22:08		
3072085	3072085004	PS	WP	6/19/2012 0:01	RTI	0.788J	0.531	0.845	0.112U	0.291	0.641	7/12/12 22:08		
3072085	3072085005	PS	WP	6/19/2012 0:01	RTI	-0.284U	0.245	0.912	0.130U	0.292	0.676	7/12/12 22:08		
3072085	3072085006	PS	WP	6/19/2012 0:01	RTI	-0.141U	0.338	0.992	0.397J	0.320	0.643	7/12/12 22:08		
3072085	3072085007	PS	WP	6/19/2012 0:01	RTI	-0.075U	0.326	0.933	0.003U	0.255	0.623	7/12/12 22:08		
3072085	3072085008	PS	WP	6/19/2012 0:01	RTI	0.605J	0.474	0.807	-0.030U	0.288	0.682	7/12/12 22:08		
3072085	3072085009	PS	WP	6/19/2012 0:01	RTI	0.160U	0.379	0.888	-0.018U	0.287	0.684	7/12/12 22:08		
3072085	3072085010	PS	WP	6/19/2012 0:01	RTI	-0.205U	0.257	0.874	0.088U	0.237	0.558	7/12/12 22:08		
3072085	3072085011	PS	WP	6/19/2012 0:01	RTI	0.122U	0.382	0.923	0.176U	0.278	0.612	7/12/12 22:08		
3072085	3072085012	PS	WP	6/19/2012 0:01	RTI	-0.059U	0.340	0.948	0.297J	0.288	0.596	7/12/12 22:08		
3072085	3072085013	PS	WP	6/19/2012 0:01	RTI	0.611J	0.496	0.881	-0.150U	0.262	0.657	7/12/12 22:08		
3072085	3072085014	PS	WP	6/19/2012 0:01	RTI	0.372J	0.449	0.929	0.256J	0.299	0.626	7/12/12 22:09		
3072085	3072085015	PS	WP	6/19/2012 0:01	RTI	0.046U	0.338	0.866	0.172U	0.294	0.654	7/12/12 22:09		
3072085	3072085016	PS	WP	6/19/2012 0:01	RTI	0.884	0.511	0.686	0.379J	0.310	0.587	7/12/12 22:09		
3072085	3072085017	PS	WP	6/19/2012 0:01	RTI	0.101U	0.387	0.972	0.460J	0.328	0.616	7/13/12 9:35		
3072085	3072085018	PS	WP	6/19/2012 0:01	RTI	0.222U	0.436	0.997	0.026U	0.261	0.625	7/13/12 9:35		
3072085	3072085019	PS	WP	6/19/2012 0:01	RTI	1.21	0.689	0.980	0.302J	0.358	0.725	7/13/12 9:35		

* 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.

Handwritten signature

Handwritten initials

Gross Alpha and Gross Beta Preparation Sheet



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: _____
 Analyst Initials: _____

Batch: 124404
 Transfer Analyst: MBT
 Prep Date/Time: 7-9-12 12:00
 Matrix: Filter
 Logbook ID: 3-R021-5

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	458978	NA	NA	1.0	NA	NA	NA	
	30720000100							
	3072085001							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							
	13							
	14							
	15							
	16							
	17							
	18							
	19							
	20							
	21							
	22							
	23							
	24							

Batch Comments: Ludox: _____ Date Removed: / / @ _____
 8N HNO₃: _____ Conc HNO₃: MBT 7-11-12
 Date Placed in oven: / / @ _____
 Peer Review: _____ Date: _____

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP 12464
Batch ID: 12464
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
458978	1.00000	S	9.0000	9.0000	0.00	12	7/12/2012 22:07	0.1333	0.3667	120	0.0890	0.3780	1000	dpm
3072060100	1.00000	S	9.0000	9.0000	0.00	13	7/12/2012 22:07	0.0917	0.3667	120	0.0500	0.3330	1000	dpm
3072085001	1.00000	S	9.0000	9.0000	0.00	14	7/12/2012 22:08	0.1167	0.6000	120	0.0690	0.3800	1000	dpm
3072085002	1.00000	S	9.0000	9.0000	0.00	15	7/12/2012 22:08	0.0917	0.5667	120	0.0820	0.4950	1000	dpm
3072085003	1.00000	S	9.0000	9.0000	0.00	16	7/12/2012 22:08	0.0833	0.3667	120	0.0610	0.3910	1000	dpm
3072085004	1.00000	S	9.0000	9.0000	0.00	18	7/12/2012 22:08	0.1833	0.4750	120	0.0630	0.3820	1000	dpm
3072085005	1.00000	S	9.0000	9.0000	0.00	19	7/12/2012 22:08	0.0333	0.5000	120	0.0770	0.4570	1000	dpm
3072085006	1.00000	S	9.0000	9.0000	0.00	20	7/12/2012 22:08	0.0750	0.5500	120	0.0970	0.3820	1000	dpm
3072085007	1.00000	S	9.0000	9.0000	0.00	21	7/12/2012 22:08	0.0667	0.3750	120	0.0780	0.3780	1000	dpm
3072085008	1.00000	S	9.0000	9.0000	0.00	22	7/12/2012 22:08	0.1500	0.4417	120	0.0570	0.4180	1000	dpm
3072085009	1.00000	S	9.0000	9.0000	0.00	23	7/12/2012 22:08	0.1000	0.4583	120	0.0750	0.4570	1000	dpm
3072085010	1.00000	S	9.0000	9.0000	0.00	27	7/12/2012 22:08	0.0417	0.3167	120	0.0740	0.2880	1000	dpm
3072085011	1.00000	S	9.0000	9.0000	0.00	28	7/12/2012 22:08	0.1000	0.4167	120	0.0810	0.3330	1000	dpm
3072085012	1.00000	S	9.0000	9.0000	0.00	29	7/12/2012 22:08	0.0750	0.4500	120	0.0840	0.3220	1000	dpm
3072085013	1.00000	S	9.0000	9.0000	0.00	30	7/12/2012 22:08	0.1667	0.3750	120	0.0720	0.4090	1000	dpm
3072085014	1.00000	S	9.0000	9.0000	0.00	33	7/12/2012 22:09	0.1500	0.5250	120	0.0900	0.3870	1000	dpm
3072085015	1.00000	S	9.0000	9.0000	0.00	34	7/12/2012 22:09	0.0833	0.4833	120	0.0760	0.4040	1000	dpm
3072085016	1.00000	S	9.0000	9.0000	0.00	37	7/12/2012 22:09	0.1833	0.5333	120	0.0420	0.3190	1000	dpm
3072085017	1.00000	S	9.0000	9.0000	0.00	27	7/13/2012 9:35	0.0900	0.5000	100	0.0740	0.2880	1000	dpm
3072085018	1.00000	S	9.0000	9.0000	0.00	29	7/13/2012 9:35	0.1182	0.3455	110	0.0840	0.3220	1000	dpm
3072085019	1.00000	S	9.0000	9.0000	0.00	30	7/13/2012 9:35	0.2600	0.6100	100	0.0720	0.4090	1000	dpm
LCS12464	1.00000	S	9.0000	9.0000	0.00	12	7/17/2012 13:06	0.6333	4.7667	90	0.1550	0.4240	1000	dpm
LCSD12464	1.00000	S	9.0000	9.0000	0.00	13	7/17/2012 16:26	0.5222	4.3222	90	0.1230	0.3450	1000	dpm

Ch 7/18/12

7/19/12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12464
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 Conversion	Activity Conversion
458978	0.289	0.443	0.446	0.974	0.310	dpm/S	0.044	0.00	0.000000	0.044	15.32%	1
3072060100	0.279	0.374	0.377	0.785	0.238	dpm/S	0.042	0.00	0.000000	0.042	14.96%	1
3072085001	0.303	0.402	0.406	0.853	0.266	dpm/S	0.048	0.00	0.000000	0.048	15.72%	1
3072085002	0.062	0.365	0.365	0.924	0.293	dpm/S	0.010	0.00	0.000000	0.010	15.61%	1
3072085003	0.145	0.351	0.352	0.829	0.256	dpm/S	0.022	0.00	0.000000	0.022	15.37%	1
3072085004	0.788	0.512	0.531	0.845	0.262	dpm/S	0.120	0.00	0.000000	0.120	15.27%	1
3072085005	-0.284	0.240	0.245	0.912	0.287	dpm/S	-0.044	0.00	0.000000	-0.044	15.39%	1
3072085006	-0.141	0.337	0.338	0.992	0.318	dpm/S	-0.022	0.00	0.000000	-0.022	15.61%	1
3072085007	-0.075	0.326	0.326	0.933	0.294	dpm/S	-0.011	0.00	0.000000	-0.011	15.13%	1
3072085008	0.605	0.461	0.474	0.807	0.248	dpm/S	0.093	0.00	0.000000	0.093	15.36%	1
3072085009	0.160	0.378	0.379	0.888	0.279	dpm/S	0.025	0.00	0.000000	0.025	15.64%	1
3072085010	-0.205	0.255	0.257	0.874	0.274	dpm/S	-0.032	0.00	0.000000	-0.032	15.80%	1
3072085011	0.122	0.381	0.382	0.923	0.292	dpm/S	0.019	0.00	0.000000	0.019	15.54%	1
3072085012	-0.059	0.340	0.340	0.948	0.301	dpm/S	-0.009	0.00	0.000000	-0.009	15.36%	1
3072085013	0.611	0.483	0.496	0.881	0.276	dpm/S	0.095	0.00	0.000000	0.095	15.50%	1
3072085014	0.372	0.444	0.449	0.929	0.296	dpm/S	0.060	0.00	0.000000	0.060	16.15%	1
3072085015	0.046	0.338	0.338	0.866	0.273	dpm/S	0.007	0.00	0.000000	0.007	16.12%	1
3072085016	0.884	0.486	0.511	0.686	0.204	dpm/S	0.141	0.00	0.000000	0.141	15.98%	1
3072085017	0.101	0.387	0.387	0.972	0.298	dpm/S	0.016	0.00	0.000000	0.016	15.80%	1
3072085018	0.222	0.434	0.436	0.997	0.313	dpm/S	0.034	0.00	0.000000	0.034	15.36%	1
3072085019	1.213	0.654	0.689	0.980	0.300	dpm/S	0.188	0.00	0.000000	0.188	15.50%	1
LCS12464	3.122	1.085	1.220	1.456	0.467	dpm/S	0.478	0.00	0.000000	0.478	15.32%	1
LCSD12464	2.669	1.009	1.116	1.350	0.426	dpm/S	0.399	0.00	0.000000	0.399	14.96%	1

Mr 7/18/12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12464
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
458978	-0.061	0.251	0.251	0.619	0.214	dpm/S	-0.011	0.00	0.016570	-0.028	45.83%	1
3072060100	0.043	0.292	0.292	0.685	0.236	dpm/S	0.034	0.00	0.016976	0.017	39.03%	1
3072085001	0.455	0.322	0.332	0.637	0.220	dpm/S	0.220	0.00	0.017107	0.203	44.64%	1
3072085002	0.153	0.317	0.318	0.719	0.251	dpm/S	0.072	0.00	0.003357	0.068	44.66%	1
3072085003	-0.073	0.262	0.262	0.656	0.222	dpm/S	-0.024	0.00	0.007914	-0.032	43.92%	1
3072085004	0.112	0.291	0.291	0.641	0.222	dpm/S	0.093	0.00	0.043344	0.050	44.42%	1
3072085005	0.130	0.291	0.292	0.676	0.235	dpm/S	0.043	0.00	-0.016705	0.060	45.78%	1
3072085006	0.397	0.312	0.320	0.643	0.222	dpm/S	0.168	0.00	-0.008135	0.176	44.32%	1
3072085007	0.003	0.255	0.255	0.623	0.215	dpm/S	-0.003	0.00	-0.004587	0.002	45.53%	1
3072085008	-0.030	0.288	0.288	0.682	0.237	dpm/S	0.024	0.00	0.036532	-0.013	43.55%	1
3072085009	-0.018	0.287	0.287	0.694	0.242	dpm/S	0.001	0.00	0.009220	-0.008	44.61%	1
3072085010	0.088	0.236	0.237	0.558	0.191	dpm/S	0.029	0.00	-0.010937	0.040	44.88%	1
3072085011	0.176	0.277	0.278	0.612	0.210	dpm/S	0.084	0.00	0.006521	0.077	43.73%	1
3072085012	0.297	0.283	0.288	0.596	0.205	dpm/S	0.128	0.00	-0.003111	0.131	44.19%	1
3072085013	-0.150	0.260	0.262	0.657	0.228	dpm/S	-0.034	0.00	0.033279	-0.067	44.74%	1
3072085014	0.256	0.295	0.299	0.626	0.216	dpm/S	0.138	0.00	0.020790	0.117	45.82%	1
3072085015	0.172	0.292	0.294	0.654	0.227	dpm/S	0.079	0.00	0.002455	0.077	44.69%	1
3072085016	0.379	0.303	0.310	0.587	0.201	dpm/S	0.214	0.00	0.045070	0.169	44.70%	1
3072085017	0.460	0.318	0.328	0.616	0.207	dpm/S	0.212	0.00	0.005412	0.207	44.88%	1
3072085018	0.026	0.261	0.261	0.625	0.213	dpm/S	0.023	0.00	0.011817	0.012	44.19%	1
3072085019	0.302	0.353	0.358	0.725	0.247	dpm/S	0.201	0.00	0.066090	0.135	44.74%	1
LCS12464	9.086	0.988	1.902	0.762	0.258	dpm/S	4.343	0.00	0.178782	4.164	45.83%	1
LCSD12464	9.773	1.104	2.068	0.815	0.273	dpm/S	3.977	0.00	0.162651	3.815	39.03%	1

M 7/18/12

Quality Control Sample Performance Assessment



RCDU Upload

Analyst: MBT
Date: 7/19/2012
Worklist: 12464
Matrix: Filter
Method: EPA 900.0m
SOP: PGH-R-001
MB Sample ID: 458978

Method Blank Assessment			
Analyte	Activity	1.96 Sig. Unc.	MDC
Gross Alpha	0.2890	0.4460	0.8740
Gross Beta	-0.0610	0.2510	0.6190

Laboratory Control Sample Assessment						
Analyte:	Count Date:	Spike I.D.:	LCS	LCSD	LCS	LCSD
	7/17/12 13:06	12-018-F3	9.799	1.000	12-014-F3	9.799
	7/17/12 16:26	12-018-F4	1.000	1.000	12-014-F4	1.000
	7/17/12 16:26	12-014-F4	9.799	1.000	12-014-F4	9.799
	7/17/12 16:26	12-014-F4	1.000	1.000	12-014-F4	1.000
	7/17/12 16:26	12-014-F4	9.799	1.000	12-014-F4	9.799
	7/17/12 16:26	12-014-F4	0.138	0.192	12-014-F4	0.192
	7/17/12 16:26	12-014-F4	3.122	2.669	12-014-F4	9.773
	7/17/12 16:26	12-014-F4	1.220	1.116	12-014-F4	2.068
	7/17/12 16:26	12-014-F4	132.69%	113.43%	12-014-F4	99.73%
	7/17/12 16:26	12-014-F4	High**	Pass	12-014-F4	Pass
	7/17/12 16:26	12-014-F4	119.00%	119.00%	12-014-F4	130.00%
	7/17/12 16:26	12-014-F4	62.00%	62.00%	12-014-F4	79.00%

Duplicate Sample Assessment						
Analyte:	Sample I.D.:	Duplicate Sample I.D.:	LCS	LCSD	LCS	LCSD
	12464	12464	9.0860	1.9020	9.0860	1.9020
	12464	12464	2.6690	9.7730	2.6690	9.7730
	12464	12464	No	No	No	No
	12464	12464	15.64%	7.28%	15.64%	7.28%
	12464	12464	Pass	Pass	Pass	Pass
	12464	12464	35.00%	17.00%	35.00%	17.00%

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

Comments:

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:	
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:	

7/19/12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

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

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

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12464
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

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	BKG 2 Date	7/14/2012
	a	b	c		d	e	a		b	c	d							
1																		
2																		
3																		
4																		
5																		
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7/9/12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12464
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 Efficiency	Alpha-to-Beta Cross-talk : $ax^4 + bx^3 + cx^2 + dx + e$			Beta Eff. $ax + b$	Beta-to-Alpha X-talk : $ax + b$			Alpha Bkg	Beta Bkg	Alpha Bkg	Beta Bkg
	a	b	c		d	e	a		b	c	d		e	a	b				
28					1.533E-01					3.4323E-01					0.0810	0.3330	0.1500	0.3480	
29					1.536E-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					3.4582E-01					0.0900	0.3670	0.1200	0.4100	
34					1.6117E-01					3.4468E-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					3.4689E-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					4.4279E-01					0.0780	12.4760	0.0780	12.4760	
40					1.8176E-01					4.5734E-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					0.2050	9.9000	0.2050	9.9000	
43					1.7364E-01					4.4499E-01					0.1620	1.1560	0.1620	1.1560	
44					1.7507E-01					4.5195E-01					0.1110	0.9900	0.1110	0.9900	
45					1.6896E-01					4.3550E-01					0.1410	1.7460	0.1410	1.7460	
46					1.6416E-01					4.4755E-01					0.2330	0.9940	0.2330	0.9840	
47					1.7203E-01					4.5901E-01					0.0940	1.1670	0.0940	1.1670	
48					1.8314E-01					4.6967E-01					0.1650	2.0860	0.1650	2.0860	
49					1.6993E-01					4.4190E-01					0.3330	1.3450	0.3330	1.3450	
50					1.6594E-01					4.406E-01					0.2050	1.4800	0.2050	1.4600	
51					1.7880E-01					4.5625E-01					0.1500	1.3750	0.1500	1.3750	
52					1.7970E-01					4.5689E-01					0.1070	1.1480	0.1070	1.1480	
53					1.7780E-01					4.7119E-01					0.1070	1.3970	0.1070	1.3970	

Outlier

7/16/12 MB

2/18/12
700

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%

7/18/12
P

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

SAMPLE_ID	Det#	BEG_DATE	BATCH_ID	ACPM	BCPM	CNT_TIME
3072085017	27	7/13/2012 9:35	GAB12464	0.09	0.5	100
3072085018	29	7/13/2012 9:35	GAB12464	0.118181818	0.345454545	110
458978	12	7/12/2012 22:07	GAB12464	0.133333333	0.366666667	120
3072060100	13	7/12/2012 22:07	GAB12464	0.091666667	0.366666667	120
3072085001	14	7/12/2012 22:08	GAB12464	0.116666667	0.6	120
3072085002	15	7/12/2012 22:08	GAB12464	0.091666667	0.566666667	120
3072085003	16	7/12/2012 22:08	GAB12464	0.083333333	0.366666667	120
3072085004	18	7/12/2012 22:08	GAB12464	0.183333333	0.475	120
3072085005	19	7/12/2012 22:08	GAB12464	0.033333333	0.5	120
3072085006	20	7/12/2012 22:08	GAB12464	0.075	0.55	120
3072085007	21	7/12/2012 22:08	GAB12464	0.066666667	0.375	120
3072085008	22	7/12/2012 22:08	GAB12464	0.15	0.441666667	120
3072085009	23	7/12/2012 22:08	GAB12464	0.1	0.458333333	120
3072085010	27	7/12/2012 22:08	GAB12464	0.041666667	0.316666667	120
3072085011	28	7/12/2012 22:08	GAB12464	0.1	0.416666667	120
3072085012	29	7/12/2012 22:08	GAB12464	0.075	0.45	120
3072085013	30	7/12/2012 22:08	GAB12464	0.166666667	0.375	120
3072085014	33	7/12/2012 22:09	GAB12464	0.15	0.525	120
3072085015	34	7/12/2012 22:09	GAB12464	0.083333333	0.483333333	120
3072085016	37	7/12/2012 22:09	GAB12464	0.183333333	0.533333333	120
3072085019	30	7/13/2012 9:35	GAB12464	0.26	0.61	100
LCS12464	12	7/17/2012 13:06	GAB12464	0.633333333	4.766666667	90
LCSD12464	13	7/17/2012 16:26	GAB12464	0.522222222	4.322222222	90

7/18/12
P

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
3072085019	7/13/2012 9:35:27 AM	30	GAB12464	0.260	0.6100	100.0
3072085018	7/13/2012 9:35:21 AM	29	GAB12464	0.118	0.3455	110.0
3072085017	7/13/2012 9:35:16 AM	27	GAB12464	0.090	0.5000	100.0
3072085016	7/12/2012 10:09:10 PM	37	GAB12464	0.183	0.5333	120.0
3072085015	7/12/2012 10:09:04 PM	34	GAB12464	0.083	0.4833	120.0
3072085014	7/12/2012 10:09:01 PM	33	GAB12464	0.150	0.5250	120.0
3072085013	7/12/2012 10:08:56 PM	30	GAB12464	0.167	0.3750	120.0
3072085012	7/12/2012 10:08:53 PM	29	GAB12464	0.075	0.4500	120.0
3072085011	7/12/2012 10:08:50 PM	28	GAB12464	0.100	0.4167	120.0
3072085010	7/12/2012 10:08:45 PM	27	GAB12464	0.042	0.3167	120.0
3072085009	7/12/2012 10:08:36 PM	23	GAB12464	0.100	0.4583	120.0
3072085008	7/12/2012 10:08:32 PM	22	GAB12464	0.150	0.4417	120.0
3072085007	7/12/2012 10:08:28 PM	21	GAB12464	0.067	0.3750	120.0
3072085006	7/12/2012 10:08:25 PM	20	GAB12464	0.075	0.5500	120.0
3072085005	7/12/2012 10:08:21 PM	19	GAB12464	0.033	0.5000	120.0
3072085004	7/12/2012 10:08:14 PM	18	GAB12464	0.183	0.4750	120.0

PK
7/16/12

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
3072085003	7/12/2012 10:08:11 PM	16	GAB12464	0.083	0.3667	120.0
3072085002	7/12/2012 10:08:07 PM	15	GAB12464	0.092	0.5667	120.0
3072085001	7/12/2012 10:08:04 PM	14	GAB12464	0.117	0.6000	120.0
3072060100	7/12/2012 10:07:59 PM	13	GAB12464	0.092	0.3667	120.0
458978	7/12/2012 10:07:54 PM	12	GAB12464	0.133	0.3667	120.0

7/16/12
ML

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	37	3072060081	GAB 12463	120	7/12/12 16:32		NA	NA
	12	082			7/12/12 20:05			
	13	083						
	14	084						
	15	085						
	16	086						
	18	087						
	19	088						
	20	089						
	21	090						
	22	091						
	23	092						
	27	093						
	26	094						
	29	095						
	30	096						
	33	097						
	34	098						
	37	099						
	12	458978	GAB 12464	120	7/12/12 22:09	BSH	NA	NA
	13	3072060100						
	14	3072085001						
	15	002						
	16	003						

- 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

J:\QAQC\Master\Document Management\Radiological\GFPC Run Log (R002-3 7Oct2010).xls

202
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
GAB	18	307 2085004	GAB12464	120	7/13/12 22:09	BSH	NA	NA
	19	005						
	20	006						
	21	007						
	22	008						
	23	009						
	27	010						
	28	011						
	29	012						
	30	013						
	33	014						
	34	015						
	37	016						
	27	017			7/13/12 935	BSH	NA	NA
	29	018						
	30	019						
GAB	43	458979	LAB12465	300	7-13-12 0800	MBT	NA	NA
	44	3072085020						
	45	21						
	46	22						
	47	23						
	48	24						
	49	25						
	50	26						

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- 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 Sample Analysis Data

Quality Control Review



Batch RADC/12465 HBN 91035
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

1 458979-BLANK for HBN 91035 [RADC/1246

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

Prep Information

Procedure 9000 I Batch RADC/12465 Prep Date 7/13/2012 07:59 Dilution
 Method EPA 900.0m HBN 91035 Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795662 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 7/13/2012 07:59 Dilution
 Method EPA 900.0m Col ID Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795662 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL
Rad Chemistry	OK				
Gross Alpha	OK	-0.242U ± 0.271 (0.674)	pCi/sa -0.242U ± 0.271 (0.674)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					
Gross Beta	OK	0.111U ± 0.316 (0.670)	pCi/sa 0.111U ± 0.316 (0.670)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					

2 3072085020-2540-SU9-9

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth Location
 1207073

Prep Information

Procedure 9000 I Batch RADC/12465 Prep Date 7/13/2012 07:59 Dilution
 Method EPA 900.0m HBN 91035 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785148 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 7/13/2012 07:59 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785148 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.375J ± 0.304 (0.563)	pCi/sa 0.375J ± 0.304 (0.563)			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/12465 HBN 91035
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

2 3072085020-2540-SU9-9

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Beta	OK	0.489J ± 0.322 (0.611)	pCi/sa 0.489J ± 0.322 (0.611)		dpm/sa		

The lab does not hold TNI accreditation for this parameter.

3 3072085021-2540-SU9-10

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12465 Prep Date 7/13/2012 07:59 Dilution
 Method EPA 900.0m HBN 91035 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785150 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 7/13/2012 07:59 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785150 File CC OK F

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.349J ± 0.336 (0.650)	pCi/sa 0.349J ± 0.336 (0.650)		dpm/sa		

The lab does not hold TNI accreditation for this parameter.

Gross Beta OK -0.838U ± pCi/sa -0.838U ± dpm/sa
 0.390 0.390
 (0.835) (0.835)

The lab does not hold TNI accreditation for this parameter.

4 3072085022-2540-SU9-11

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12465 Prep Date 7/13/2012 07:59 Dilution
 Method EPA 900.0m HBN 91035 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785152 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/12465 HBN 91035
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

4 3072085022-2540-SU9-11

Analytical Information

Procedure 9000 I	Instru NONE	Run Date 7/13/2012 07:59	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785152	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.875 ± 0.487 (0.844)	pCi/sa 0.875 ± 0.487 (0.844)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.083U ± 0.295 (0.615)	pCi/sa 0.083U ± 0.295 (0.615)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

5 3072085023-2540-SU9-12

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

Prep Information

Procedure 9000 I	Batch RADC/12465	Prep Date 7/13/2012 07:59	Dilution
Method EPA 900.0m	HBN 91035	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785154	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 7/13/2012 07:59	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785154	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.229J ± 0.268 (0.531)	pCi/sa 0.229J ± 0.268 (0.531)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.584J ± 0.347 (0.652)	pCi/sa 0.584J ± 0.347 (0.652)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

6 3072085024-2540-SU9-13

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

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

Quality Control Review



Batch RADC/12465 HBN 91035
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

6 3072085024-2540-SU9-13

Prep Information

Procedure 9000 I Batch RADC/12465 Prep Date 7/13/2012 07:59 Dilution
 Method EPA 900.0m HBN 91035 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785156 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 7/13/2012 07:59 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785156 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.282J ± 0.323 (0.645)	pCi/sa 0.282J ± 0.323 (0.645)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.937U ± 0.401 (0.845)	pCi/sa -0.937U ± 0.401 (0.845)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

7 3072085025-2540-SU9-15

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12465 Prep Date 7/13/2012 07:59 Dilution
 Method EPA 900.0m HBN 91035 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785158 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 7/13/2012 07:59 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785158 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.626U ± 0.397 (0.965)	pCi/sa -0.626U ± 0.397 (0.965)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.353J ± 0.356 (0.725)	pCi/sa 0.353J ± 0.356 (0.725)			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/12465 HBN 91035
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

7 3072085025-2540-SU9-15

8 3072085026-2540-SU9-16

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12465 Prep Date 7/13/2012 07:59 Dilution
 Method EPA 900.0m HBN 91035 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785160 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 7/13/2012 07:59 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785160 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.070U ± 0.344 (0.787)	pCi/sa -0.070U ± 0.344 (0.787)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.279U ± 0.335 (0.734)	pCi/sa -0.279U ± 0.335 (0.734)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

9 3072085027-2540-SU9-17

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12465 Prep Date 7/13/2012 07:59 Dilution
 Method EPA 900.0m HBN 91035 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785162 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 7/13/2012 07:59 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785162 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/12465 HBN 91035
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

9 3072085027-2540-SU9-17

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Gross Alpha	OK	0.093U ± 0.292 (0.632)	pCi/sa 0.093U ± 0.292 (0.632)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.460U ± 0.323 (0.710)	pCi/sa -0.460U ± 0.323 (0.710)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

10 3072085028-2540-SU9-18

Type PS Client RTI	Matrix Wipe WO 3072085	Collected 6/19/2012 00:01 Work ID Fort Monmonth 1207073	% Moisture Location
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Prep Information

Procedure 9000 I Method EPA 900.0m Schedule 2785164	Batch RADC/12465 HBN 91035 Instru NONE	Prep Date 7/13/2012 07:59 Hold Date 12/16/2012 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 2785164	Instru NONE Col ID File	Run Date 7/13/2012 07:59 Hold Date 12/16/2012 23:59	Dilution Analyst MBT CC OK F
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Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.351J ± 0.290 (0.539)	pCi/sa 0.351J ± 0.290 (0.539)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.138U ± 0.299 (0.650)	pCi/sa -0.138U ± 0.299 (0.650)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

11 3072085029-2540-SU9-19

Type PS Client RTI	Matrix Wipe WO 3072085	Collected 6/19/2012 00:01 Work ID Fort Monmonth 1207073	% Moisture Location
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Prep Information

Procedure 9000 I Method EPA 900.0m Schedule 2785166	Batch RADC/12465 HBN 91035 Instru NONE	Prep Date 7/13/2012 07:59 Hold Date 12/16/2012 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/12465 HBN 91035
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

11 3072085029-2540-SU9-19

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/13/2012 07:59 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785166 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.373J ± 0.296 (0.545)	pCi/sa 0.373J ± 0.296 (0.545)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.053U ± 0.328 (0.693)	pCi/sa 0.053U ± 0.328 (0.693)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

12 3072085030-2540-SU9-20

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12465 Prep Date 7/13/2012 13:24 Dilution
 Method EPA 900.0m HBN 91035 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785168 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 7/13/2012 13:24 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785168 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.032U ± 0.250 (0.563)	pCi/sa 0.032U ± 0.250 (0.563)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.100U ± 0.290 (0.611)	pCi/sa 0.100U ± 0.290 (0.611)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

13 3072085031-2540-SU9-21

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

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

Quality Control Review



Batch RADC/12465 HBN 91035
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

13 3072085031-2540-SU9-21

Prep Information

Procedure 9000 I Batch RADC/12465 Prep Date 7/13/2012 13:24 Dilution
 Method EPA 900.0m HBN 91035 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785170 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 7/13/2012 13:24 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785170 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.645J ± 0.380 (0.650)	pCi/sa 0.645J ± 0.380 (0.650)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.715U ± 0.388 (0.835)	pCi/sa -0.715U ± 0.388 (0.835)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

14 3072085032-2540-SU9-22

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12465 Prep Date 7/13/2012 13:24 Dilution
 Method EPA 900.0m HBN 91035 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785172 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 7/13/2012 13:24 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785172 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	1.42 ± 0.566 (0.844)	pCi/sa 1.42 ± 0.566 (0.844)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.091U ± 0.298 (0.615)	pCi/sa 0.091U ± 0.298 (0.615)		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/12465 HBN 91035
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

14 3072085032-2540-SU9-22

15 3072085033-2540-SU9-23

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12465 Prep Date 7/13/2012 13:24 Dilution
 Method EPA 900.0m HBN 91035 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785174 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 7/13/2012 13:24 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785174 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.074U ± 0.242 (0.531)	pCi/sa 0.074U ± 0.242 (0.531)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.180U ± 0.314 (0.652)	pCi/sa 0.180U ± 0.314 (0.652)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

16 3072085034-2540-SU9-24

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12465 Prep Date 7/13/2012 13:24 Dilution
 Method EPA 900.0m HBN 91035 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785176 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 7/13/2012 13:24 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785176 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/12465 HBN 91035
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

16 3072085034-2540-SU9-24

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Alpha	OK	0.082U ± 0.296 (0.645)	pCi/sa 0.082U ± 0.296 (0.645)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-1.11U ± 0.408 (0.845)	pCi/sa -1.11U ± 0.408 (0.845)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

17 3072085035-2540-SU9-24D

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

Prep Information

Procedure 9000 I	Batch RADC/12465	Prep Date 7/13/2012 13:24	Dilution
Method EPA 900.0m	HBN 91035	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785178	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 7/13/2012 13:24	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785178	File		CC OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-1.08U ± 0.385 (0.965)	pCi/sa -1.08U ± 0.385 (0.965)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.072U ± 0.337 (0.725)	pCi/sa 0.072U ± 0.337 (0.725)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

18 3072085036-2540-SU9-25

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

Prep Information

Procedure 9000 I	Batch RADC/12465	Prep Date 7/13/2012 13:24	Dilution
Method EPA 900.0m	HBN 91035	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785180	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/12465 HBN 91035
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

18 3072085036-2540-SU9-25

Analytical Information

Procedure 9000 I	Instru NONE	Run Date 7/13/2012 13:24	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785180	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.372U ± 0.316 (0.787)	pCi/sa -0.372U ± 0.316 (0.787)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.023U ± 0.343 (0.734)	pCi/sa 0.023U ± 0.343 (0.734)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

19 3072085037-2540-SU9-26

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

Prep Information

Procedure 9000 I	Batch RADC/12465	Prep Date 7/13/2012 13:24	Dilution
Method EPA 900.0m	HBN 91035	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785182	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 7/13/2012 13:24	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785182	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.168U ± 0.259 (0.632)	pCi/sa -0.168U ± 0.259 (0.632)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.277U ± 0.323 (0.710)	pCi/sa -0.277U ± 0.323 (0.710)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

20 3072085038-2540-SU9-27

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

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

Quality Control Review



Batch RADC/12465 HBN 91035
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

20 3072085038-2540-SU9-27

Prep Information

Procedure 9000 I **Batch** RADC/12465 **Prep Date** 7/13/2012 13:24 **Dilution**
Method EPA 900.0m **HBN** 91035 **Hold Date** 12/16/2012 23:59 **Analyst** MBT
Schedule 2785184 **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** 7/13/2012 13:24 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/16/2012 23:59 **Analyst** MBT
Schedule 2785184 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.425J ± 0.302 (0.539)	pCi/sa 0.425J ± 0.302 (0.539)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.073U ± 0.302 (0.650)	pCi/sa -0.073U ± 0.302 (0.650)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

21 3072085039-2540-SU9-28

Type PS **Matrix** Wipe **Collected** 6/19/2012 00:01 **% Moisture**
Client RTI **WO** 3072085 **Work ID** Fort Monmouth 1207073 **Location**

Prep Information

Procedure 9000 I **Batch** RADC/12465 **Prep Date** 7/13/2012 13:24 **Dilution**
Method EPA 900.0m **HBN** 91035 **Hold Date** 12/16/2012 23:59 **Analyst** MBT
Schedule 2785186 **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** 7/13/2012 13:24 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/16/2012 23:59 **Analyst** MBT
Schedule 2785186 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.017U ± 0.240 (0.545)	pCi/sa 0.017U ± 0.240 (0.545)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.090U ± 0.328 (0.693)	pCi/sa 0.090U ± 0.328 (0.693)		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/12465	HBN	91035
Rule	9000 I	Status	RE
Create Date	6/28/2012	Analyst	MBT



21 3072085039-2540-SU9-28

** 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 13:07
Batch ID 12465
Assigned Analyst MBT
Earliest Due Date 07/04/2012 07:12
A-code 9000 I 9000W or NJ HBN 91035
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
	458979	BLANK	IP		QCACCOUNT	-0.242U	0.271	0.674	0.111U	0.316	0.670	7/13/12 7:59		
3072085	3072085020	PS	WP	6/19/2012 0:01	RTI	0.375J	0.304	0.563	0.489J	0.322	0.611	7/13/12 7:59		
3072085	3072085021	PS	WP	6/19/2012 0:01	RTI	0.349J	0.336	0.650	-0.348U	0.390	0.835	7/13/12 7:59		
3072085	3072085022	PS	WP	6/19/2012 0:01	RTI	0.875	0.487	0.844	0.083U	0.285	0.615	7/13/12 7:59		
3072085	3072085023	PS	WP	6/19/2012 0:01	RTI	0.229J	0.268	0.531	0.584J	0.347	0.652	7/13/12 7:59		
3072085	3072085024	PS	WP	6/19/2012 0:01	RTI	0.282J	0.323	0.645	-0.937U	0.401	0.845	7/13/12 7:59		
3072085	3072085025	PS	WP	6/19/2012 0:01	RTI	-0.626U	0.397	0.965	0.353J	0.356	0.725	7/13/12 7:59		
3072085	3072085026	PS	WP	6/19/2012 0:01	RTI	-0.070U	0.344	0.787	-0.279U	0.335	0.734	7/13/12 7:59		
3072085	3072085027	PS	WP	6/19/2012 0:01	RTI	0.093U	0.292	0.632	-0.460U	0.323	0.710	7/13/12 7:59		
3072085	3072085028	PS	WP	6/19/2012 0:01	RTI	0.351J	0.290	0.539	-0.138U	0.299	0.650	7/13/12 7:59		
3072085	3072085029	PS	WP	6/19/2012 0:01	RTI	0.373J	0.296	0.545	0.053U	0.328	0.693	7/13/12 7:59		
3072085	3072085030	PS	WP	6/19/2012 0:01	RTI	0.032U	0.250	0.563	0.100U	0.290	0.611	7/13/12 13:24		
3072085	3072085031	PS	WP	6/19/2012 0:01	RTI	0.645J	0.380	0.650	-0.715U	0.388	0.835	7/13/12 13:24		
3072085	3072085032	PS	WP	6/19/2012 0:01	RTI	1.42	0.566	0.844	0.091U	0.298	0.615	7/13/12 13:24		
3072085	3072085033	PS	WP	6/19/2012 0:01	RTI	0.074U	0.242	0.531	0.180U	0.314	0.652	7/13/12 13:24		
3072085	3072085034	PS	WP	6/19/2012 0:01	RTI	0.082U	0.296	0.645	-1.11U	0.408	0.845	7/13/12 13:24		
3072085	3072085035	PS	WP	6/19/2012 0:01	RTI	-1.08U	0.365	0.965	0.072U	0.337	0.725	7/13/12 13:24		
3072085	3072085036	PS	WP	6/19/2012 0:01	RTI	-0.372U	0.316	0.787	0.023U	0.343	0.734	7/13/12 13:24		
3072085	3072085037	PS	WP	6/19/2012 0:01	RTI	-0.168U	0.259	0.632	-0.277U	0.323	0.710	7/13/12 13:24		
3072085	3072085038	PS	WP	6/19/2012 0:01	RTI	0.425J	0.302	0.539	-0.073U	0.302	0.650	7/13/12 13:24		
3072085	3072085039	PS	WP	6/19/2012 0:01	RTI	0.017U	0.240	0.545	0.090U	0.328	0.693	7/13/12 13:24		

* 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.

Murphy

Murphy

Gross Alpha and Gross Beta Preparation Sheet



Batch: 124105

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

b: NA

b: NA

b: 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	Analyst Initials	Analyst Initials	Sample Comments
		Tare Mass (g)	5mL Test Mass (g)	Sample Volume (mL)	Gross Mass (g)		
NA	458979	NA	NA	NA	NA	NA	
	3072085020			1.0			
1	21						
2	22						
3	23						
4	24						
5	25						
6	26						
7	27						
8	28						
9	29						
10	30						
11	31						
12	32						
13	33						
14	34						
15	35						
16	36						
17	37						
18	38						
19	39						
20	LOS 124105						
21	LCS 124105						
22							
23							
24							

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

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12465
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
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
458979	1.00000	S	9.0000	9.0000	0.00	43	7/13/2012 7:59	0.1200	1.1933	300	0.1620	1.1560	1000	dpm
3072085020	1.00000	S	9.0000	9.0000	0.00	44	7/13/2012 7:59	0.1767	1.2300	300	0.1110	0.9900	1000	dpm
3072085021	1.00000	S	9.0000	9.0000	0.00	45	7/13/2012 7:59	0.2000	1.3967	300	0.1410	1.7460	1000	dpm
3072085022	1.00000	S	9.0000	9.0000	0.00	46	7/13/2012 7:59	0.3767	1.0633	300	0.2330	0.9840	1000	dpm
3072085023	1.00000	S	9.0000	9.0000	0.00	47	7/13/2012 7:59	0.1333	1.4467	300	0.0940	1.1670	1000	dpm
3072085024	1.00000	S	9.0000	9.0000	0.00	48	7/13/2012 7:59	0.2167	1.6600	300	0.1650	2.0860	1000	dpm
3072085025	1.00000	S	9.0000	9.0000	0.00	49	7/13/2012 7:59	0.2267	1.4700	300	0.3330	1.3450	1000	dpm
3072085026	1.00000	S	9.0000	9.0000	0.00	50	7/13/2012 7:59	0.1933	1.3300	300	0.2050	1.4600	1000	dpm
3072085027	1.00000	S	9.0000	9.0000	0.00	51	7/13/2012 7:59	0.1667	1.1700	300	0.1500	1.3750	1000	dpm
3072085028	1.00000	S	9.0000	9.0000	0.00	52	7/13/2012 7:59	0.1700	1.1033	300	0.1070	1.1480	1000	dpm
3072085029	1.00000	S	9.0000	9.0000	0.00	53	7/13/2012 7:59	0.1733	1.4400	300	0.1070	1.3970	1000	dpm
3072085030	1.00000	S	9.0000	9.0000	0.00	44	7/13/2012 13:24	0.1167	1.0367	300	0.1110	0.9900	1000	dpm
3072085031	1.00000	S	9.0000	9.0000	0.00	45	7/13/2012 13:24	0.2500	1.4633	300	0.1410	1.7460	1000	dpm
3072085032	1.00000	S	9.0000	9.0000	0.00	46	7/13/2012 13:24	0.4667	1.0933	300	0.2330	0.9840	1000	dpm
3072085033	1.00000	S	9.0000	9.0000	0.00	47	7/13/2012 13:24	0.1067	1.2533	300	0.0940	1.1670	1000	dpm
3072085034	1.00000	S	9.0000	9.0000	0.00	48	7/13/2012 13:24	0.1800	1.5700	300	0.1650	2.0860	1000	dpm
3072085035	1.00000	S	9.0000	9.0000	0.00	49	7/13/2012 13:24	0.1500	1.3233	300	0.3330	1.3450	1000	dpm
3072085036	1.00000	S	9.0000	9.0000	0.00	50	7/13/2012 13:24	0.1433	1.4533	300	0.2050	1.4600	1000	dpm
3072085037	1.00000	S	9.0000	9.0000	0.00	51	7/13/2012 13:24	0.1200	1.2400	300	0.1500	1.3750	1000	dpm
3072085038	1.00000	S	9.0000	9.0000	0.00	52	7/13/2012 13:24	0.1833	1.1367	300	0.1070	1.1480	1000	dpm
3072085039	1.00000	S	9.0000	9.0000	0.00	53	7/13/2012 13:24	0.1100	1.4400	300	0.1070	1.3970	1000	dpm
LCS12465	1.00000	S	9.0000	9.0000	0.00	43	7/18/2012 10:17	0.7444	6.3111	90	0.1620	1.1560	1000	dpm
LCSD12465	1.00000	S	9.0000	9.0000	0.00	44	7/18/2012 10:17	0.5556	5.8778	90	0.1110	0.9900	1000	dpm

Handwritten signature

Handwritten initials

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12465
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
458979	-0.242	0.268	0.271	0.674	0.252	dpm/S	-0.042	0.00	0.000000	-0.042	17.36%	1
3072085020	0.375	0.296	0.304	0.563	0.207	dpm/S	0.066	0.00	0.000000	0.066	17.51%	1
3072085021	0.349	0.330	0.336	0.650	0.241	dpm/S	0.059	0.00	0.000000	0.059	16.90%	1
3072085022	0.875	0.461	0.487	0.844	0.319	dpm/S	0.144	0.00	0.000000	0.144	16.42%	1
3072085023	0.229	0.264	0.268	0.531	0.194	dpm/S	0.039	0.00	0.000000	0.039	17.20%	1
3072085024	0.282	0.319	0.323	0.645	0.241	dpm/S	0.052	0.00	0.000000	0.052	18.31%	1
3072085025	-0.626	0.381	0.397	0.965	0.369	dpm/S	-0.106	0.00	0.000000	-0.106	16.99%	1
3072085026	-0.070	0.344	0.344	0.787	0.296	dpm/S	-0.012	0.00	0.000000	-0.012	16.59%	1
3072085027	0.093	0.291	0.292	0.632	0.235	dpm/S	0.017	0.00	0.000000	0.017	17.88%	1
3072085028	0.351	0.283	0.290	0.539	0.198	dpm/S	0.063	0.00	0.000000	0.063	17.97%	1
3072085029	0.373	0.288	0.296	0.545	0.200	dpm/S	0.066	0.00	0.000000	0.066	17.78%	1
3072085030	0.032	0.250	0.250	0.563	0.207	dpm/S	0.006	0.00	0.000000	0.006	17.51%	1
3072085031	0.645	0.362	0.380	0.650	0.241	dpm/S	0.109	0.00	0.000000	0.109	16.90%	1
3072085032	1.423	0.505	0.566	0.844	0.319	dpm/S	0.234	0.00	0.000000	0.234	16.42%	1
3072085033	0.074	0.242	0.242	0.531	0.194	dpm/S	0.013	0.00	0.000000	0.013	17.20%	1
3072085034	0.082	0.296	0.296	0.645	0.241	dpm/S	0.015	0.00	0.000000	0.015	18.31%	1
3072085035	-1.077	0.333	0.385	0.965	0.369	dpm/S	-0.183	0.00	0.000000	-0.183	16.99%	1
3072085036	-0.372	0.309	0.316	0.787	0.296	dpm/S	-0.062	0.00	0.000000	-0.062	16.59%	1
3072085037	-0.168	0.257	0.259	0.632	0.235	dpm/S	-0.030	0.00	0.000000	-0.030	17.88%	1
3072085038	0.425	0.292	0.302	0.539	0.198	dpm/S	0.076	0.00	0.000000	0.076	17.97%	1
3072085039	0.017	0.240	0.240	0.545	0.200	dpm/S	0.003	0.00	0.000000	0.003	17.78%	1
LCS12465	3.354	1.037	1.198	1.310	0.421	dpm/S	0.582	0.00	0.000000	0.582	17.36%	1
LCSD12465	2.539	0.887	0.997	1.105	0.346	dpm/S	0.445	0.00	0.000000	0.445	17.51%	1

MBT

MBT

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12465
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
458979	0.111	0.316	0.316	0.670	0.263	dpm/S	0.037	0.00	-0.011843	0.049	44.46%	1
3072085020	0.489	0.309	0.322	0.611	0.239	dpm/S	0.240	0.00	0.019206	0.221	45.20%	1
3072085021	-0.838	0.360	0.390	0.835	0.330	dpm/S	-0.349	0.00	0.015659	-0.365	43.55%	1
3072085022	0.083	0.295	0.295	0.615	0.241	dpm/S	0.079	0.00	0.042089	0.037	44.76%	1
3072085023	0.584	0.330	0.347	0.652	0.256	dpm/S	0.280	0.00	0.011422	0.268	45.90%	1
3072085024	-0.937	0.364	0.401	0.845	0.334	dpm/S	-0.426	0.00	0.013941	-0.440	46.97%	1
3072085025	0.353	0.351	0.356	0.725	0.285	dpm/S	0.125	0.00	-0.031179	0.156	44.19%	1
3072085026	-0.279	0.331	0.335	0.734	0.289	dpm/S	-0.130	0.00	-0.003272	-0.127	45.41%	1
3072085027	-0.460	0.312	0.323	0.710	0.279	dpm/S	-0.205	0.00	0.004671	-0.210	45.63%	1
3072085028	-0.138	0.298	0.299	0.650	0.255	dpm/S	-0.045	0.00	0.018174	-0.063	45.67%	1
3072085029	0.053	0.327	0.328	0.693	0.272	dpm/S	0.043	0.00	0.018211	0.025	47.12%	1
3072085030	0.100	0.289	0.290	0.611	0.239	dpm/S	0.047	0.00	0.001657	0.045	45.20%	1
3072085031	-0.715	0.366	0.388	0.835	0.330	dpm/S	-0.283	0.00	0.028930	-0.312	43.55%	1
3072085032	0.091	0.298	0.298	0.615	0.241	dpm/S	0.109	0.00	0.068455	0.041	44.76%	1
3072085033	0.180	0.312	0.314	0.652	0.256	dpm/S	0.086	0.00	0.003678	0.083	45.90%	1
3072085034	-1.107	0.357	0.408	0.845	0.334	dpm/S	-0.516	0.00	0.004047	-0.520	46.97%	1
3072085035	0.072	0.337	0.337	0.725	0.285	dpm/S	-0.022	0.00	-0.053659	0.032	44.19%	1
3072085036	0.023	0.343	0.343	0.734	0.289	dpm/S	-0.007	0.00	-0.017295	0.011	45.41%	1
3072085037	-0.277	0.319	0.323	0.710	0.279	dpm/S	-0.135	0.00	-0.008407	-0.127	45.63%	1
3072085038	-0.073	0.302	0.302	0.650	0.255	dpm/S	-0.011	0.00	0.022020	-0.033	45.67%	1
3072085039	0.090	0.327	0.328	0.693	0.272	dpm/S	0.043	0.00	0.000824	0.042	47.12%	1
LCS12465	11.226	1.177	2.328	1.253	0.439	dpm/S	5.155	0.00	0.164232	4.991	44.46%	1
LCSD12465	10.527	1.117	2.189	1.146	0.400	dpm/S	4.888	0.00	0.130019	4.758	45.20%	1

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Quality Control Sample Performance Assessment

RCDU Upload



Analyst: MBT
Date: 7/18/2012
Worklist: 12465
Matrix: Filler

Method: EPA 900.0m
SOP: PGR-R-001
MB Sample ID: 458979

Method Blank Assessment						
Analyte	Activity	1.96 Sig Unc.	MDC	Critical Value	Flag	Assessment
Gross Alpha	-0.2420	0.2710	0.6740	0.25200		
Gross Beta	0.1110	0.3160	0.6700	0.26300		

Laboratory Control Sample Assessment								
Analyte:	LCS		LCSD		LCS	LCSD	LCS	LCSD
	Gross Alpha	Gross Beta	Gross Alpha	Gross Beta				
Count Date:	7/18/12 10:17	7/18/12 10:17	7/18/12 10:17	7/18/12 10:17				
Spike I.D.:	12-018-F1	12-018-F3	12-014-F1	12-014-F3				
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):	3.354	2.539	11.226	10.527				
1.96 Sigma Unc:	1.198	0.997	2.328	2.189				
% Recovery:	142.55%	107.91%	114.57%	107.43%				
Assessment:	High**	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%				

Duplicate Sample Assessment			
LCS/LCSD Y or N?:	LCS	LCSD	Assessment
Gross Alpha	Y	Y	Pass
Gross Beta	Y	Y	Pass
Sample I.D.:	LCS12465	LCS12465	
Duplicate Sample I.D.:	LCS12465	LCS12465	
Sample Result (DPM/Sample, g, F):	3.3540	11.2260	
1.96 Sigma Unc:	1.1980	2.3280	
Duplicate Result (DPM/Sample, g, F):	2.5390	10.5270	
Duplicate Sample 1.96 Sigma Unc:	0.9970	2.1890	
Either results below MDC?:	N	N	
Relative Percent Difference:	27.66%	6.43%	
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:

Sample Matrix Spike Control Assessment	
Analyte:	
Sample Collection Date:	
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):	
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:	

Quelcnd

DL
7/20/12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12465
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

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	11/20/2006	Alpha to Beta Cross-Talk	11/20/2006	Beta Efficiency	11/20/2006	Beta to Alpha Cross-Talk	N/A	Beta Eff: ax + b					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				
1					1.4258E-01							3.2338E-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					1.5708E-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					1.5195E-01							3.7378E-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							3.5889E-01			4.4638E-01								0.0690	0.3800	0.0820	0.4390	
15					1.5606E-01							3.4723E-01			4.4658E-01								0.0820	0.4950	0.1200	0.4700	
16					1.5369E-01							3.5438E-01			4.3920E-01								0.0610	0.3910	0.0870	0.3430	
17					1.5472E-01							3.2984E-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	0.3840	
19					1.5393E-01							3.9235E-01			4.5782E-01								0.0770	0.4570	0.0900	0.4330	
20					1.5610E-01							3.6978E-01			4.4321E-01								0.0970	0.3820	0.0700	0.3890	
21					1.5130E-01							4.0476E-01			4.5533E-01								0.0780	0.3780	0.0580	0.3810	
22					1.5360E-01							3.9282E-01			4.3554E-01								0.0570	0.4180	0.1140	0.4060	
23					1.5639E-01							3.6878E-01			4.4612E-01								0.0750	0.4570	0.0720	0.4150	
24					#N/A							#N/A			#N/A												
25					1.5898E-01							3.5571E-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	

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12465
Prep Start Date/Time: 7/9/2012 12:00
Prep Finish: 7/9/2012

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	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	a	b	c	a	b							
28					1.5336E-01					3.4323E-01				4.3728E-01							0.0810	0.3330	0.1500	0.3480			
29					1.5363E-01					3.4570E-01				4.4188E-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					1.5333E-01					3.5204E-01				4.4881E-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					3.4690E-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					3.6098E-01				4.5203E-01							0.0930	0.4070	0.0670	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	366.8100	2.7170	366.8100			
42					1.4541E-01					4.9586E-01				3.3352E-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				4.5195E-01							0.1110	0.9900	0.1110	0.9900			
45					1.6896E-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					2.8932E-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			

2/10/12
PAC

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%	

7/19/12
P

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

alpha
cto

SAMPLE_ID	Det#	BEG_DATE	BATCH_ID	ACPM	BCPM	CNT_TIME	
458979	43	7/13/2012 7:59	GAB12465	0.12	1.193	300	36
3072085020	44	7/13/2012 7:59	GAB12465	0.1767	1.23	300	53
3072085021	45	7/13/2012 7:59	GAB12465	0.2	1.397	300	60
3072085022	46	7/13/2012 7:59	GAB12465	0.3767	1.063	300	113
3072085023	47	7/13/2012 7:59	GAB12465	0.1333	1.447	300	40
3072085024	48	7/13/2012 7:59	GAB12465	0.2167	1.66	300	65
3072085025	49	7/13/2012 7:59	GAB12465	0.2267	1.47	300	68
3072085026	50	7/13/2012 7:59	GAB12465	0.1933	1.33	300	58
3072085027	51	7/13/2012 7:59	GAB12465	0.1667	1.17	300	50
3072085028	52	7/13/2012 7:59	GAB12465	0.17	1.103	300	51
3072085029	53	7/13/2012 7:59	GAB12465	0.1733	1.44	300	52
3072085030	44	7/13/2012 13:24	GAB12465	0.1167	1.037	300	35
3072085031	45	7/13/2012 13:24	GAB12465	0.25	1.463	300	75
3072085032	46	7/13/2012 13:24	GAB12465	0.4667	1.093	300	140
3072085033	47	7/13/2012 13:24	GAB12465	0.1067	1.253	300	32
3072085034	48	7/13/2012 13:24	GAB12465	0.18	1.57	300	54
3072085035	49	7/13/2012 13:24	GAB12465	0.15	1.323	300	45
3072085036	50	7/13/2012 13:24	GAB12465	0.1433	1.453	300	43
3072085037	51	7/13/2012 13:24	GAB12465	0.12	1.24	300	36
3072085038	52	7/13/2012 13:24	GAB12465	0.1833	1.137	300	55
3072085039	53	7/13/2012 13:24	GAB12465	0.11	1.44	300	33
LCS12465	43	7/18/2012 10:17	GAB12465	0.7444	6.311	90	67
LCSD12465	44	7/18/2012 10:17	GAB12465	0.5556	5.878	90	50

Oh
7/20/12

7/20/12
PRL

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

beta etc

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Antibodies



Batch Report

Batch Name: GAB12465 Count Date: 7/13/2012 7:59:56 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)
458979	43	36	358	7/13/2012 7:59:52 AM	300
3072085020	44	53	369	7/13/2012 7:59:52 AM	300
3072085021	45	60	419	7/13/2012 7:59:52 AM	300
3072085022	46	113	319	7/13/2012 7:59:52 AM	300
3072085023	47	40	434	7/13/2012 7:59:52 AM	300
3072085024	48	65	498	7/13/2012 7:59:52 AM	300
3072085025	49	68	441	7/13/2012 7:59:52 AM	300
3072085026	50	58	399	7/13/2012 7:59:52 AM	300
3072085027	51	50	351	7/13/2012 7:59:53 AM	300
3072085028	52	51	331	7/13/2012 7:59:53 AM	300
3072085029	53	52	432	7/13/2012 7:59:53 AM	300
3072085030	44	35	311	7/13/2012 1:24:55 PM	300
3072085031	45	75	439	7/13/2012 1:24:56 PM	300
3072085032	46	140	328	7/13/2012 1:24:56 PM	300
3072085033	47	32	376	7/13/2012 1:24:56 PM	300
3072085034	48	54	471	7/13/2012 1:24:56 PM	300

7/27/12

7/12/12
200

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
3072085035	49	45	397	7/13/2012 1:24:56 PM	300
3072085036	50	43	436	7/13/2012 1:24:56 PM	300
3072085037	51	36	372	7/13/2012 1:24:56 PM	300
3072085038	52	55	341	7/13/2012 1:24:56 PM	300
3072085039	53	33	432	7/13/2012 1:24:57 PM	300



Batch Report

Batch Name: GAB12465B

Procedure: GAB Counting

Calibration: Water

Count Date: 7/18/2012 10:17:30 AM

Preset Count Time: 18000

Count Mode: Simultaneous

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
LCS#1-12465	43	67	568	7/18/2012 10:17:27 AM	90
LCS#3-12465	44	50	529	7/18/2012 10:17:27 AM	90

12/11/12

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	18	3072085004	GAB12464	120	7/12/12 22:01	BSH	NA	NA
	19	005						
	20	006						
	21	007						
	22	008						
	23	009						
	27	010						
	28	011						
	29	012						
	30	013						
	33	014						
	34	015						
	37	016						
	27	017			7/13/12 9:35	an	NA	NA
	29	018						
	30	019						
GAB	43	458979	UAB12465	300	7-13-12 0800	MBT	NA	NA
	44	3072085020						
	45	21						
	46	22						
	47	23						
	48	24						
	49	25						
	50	26						

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- 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: 7/13/12

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10/2/12

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
LAB	51	3072085 0 27	LAB 124105	300	7-13-12 0800	MBT	NA	NA
	52	↓ 28	↓	↓	↓	↓	↓	↓
	53	↓ 29	↓	↓	↓	↓	↓	↓
LAB	43	LCS 3 12475	LAB 12475	90	7-10-12-125	MBT	NA	NA
	44	↓ 4	↓	↓	↓	↓	↓	↓
	45	LCS 1 - 124100	LAB 124100	↓	↓	↓	↓	↓
	46	LCS 2 - 124100	↓	↓	↓	↓	↓	↓
LAB	2	307254100	LAB 12575	1000	7/16/12 1504	g	NA	NA
	3	↓ 720300	↓	↓	↓	↓	↓	↓
	6	307279001	LAB 12555	↓	7/16/12 1504	↓	↓	↓
	7	↓ 72003	↓	↓	↓	↓	↓	↓
	8	↓ 72121	↓	↓	↓	↓	↓	↓
	9	↓ 002	↓	↓	↓	↓	↓	↓
	10	↓ 722800	↓	↓	↓	↓	↓	↓

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

7/20/12

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
GAB	49	30720850 35	GAB12465	300	7-13-12 13:25	WBS	NA	NA
	50	36						
	51	37						
	52	38						
	53	39						
GAD	18	30720850 01	GAB12467	100	7-13-12 14:40	WBS	NA	NA
	28	62		110				
	37	63		90				
	38	64		150				
GAB	12	65	GAB12467	120	7/13/12 14:44	RL	NA	NA
	13	66		100	7/13/12 15:25	RL	NA	NA
	14	67						
	16	68	GAB 12467	120	7/13/12 15:32	BSH	NA	NA
	17	69		180				
	19	70		120				
	20	71						
	22	72						
	23	73						
	25	74		150				
	27	75		120				
	29	76						
	30	77						
	34	78						
	36	79						

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

7/13/12

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
GAB	27	3072085017	GAB12404	100	7-13-12 0935	MBT	NA	NA
	29	18	↓	110	↓	↓	↓	↓
	30	19	↓	100	↓	↓	↓	↓
	36	3072085046	GAB12406	130	↓	↓	↓	↓
	38	47	↓	150	↓	↓	↓	↓
GAB	11	3072085048	GAB12406	200	7-13-12 0935	MBT	NA	NA
	13	49	↓	120	↓	↓	↓	↓
	14	50	↓	100	↓	↓	↓	↓
GAB	1	30703072085051	GAB12406	130	7-13-12 0954	MBT	NA	NA
	3	52	↓	↓	↓	↓	↓	↓
	7	53	↓	↓	↓	↓	↓	↓
	9	54	↓	↓	↓	↓	↓	↓
GAB	17	3072085055	GAB12406	180	7-13-12 1010	MBT	NA	NA
	25	56	↓	150	↓	↓	↓	↓
GAB	28	3072085057	GAB12406	120	7-13-12	MBT	NA	NA
GAB	25	3072085058	GAB12406	150	7-13-12 1245	MBT	NA	NA
	11	3072085059	GAB12406	200	7-13-12 1320	MBT	NA	NA
	17	458981	GAB12407	120	↓	↓	↓	↓
	22	3072085060	↓	↓	↓	↓	↓	↓
GAB	44	3072085030	GAB10405	300	7-13-12	MBT	NA	NA
	45	31	↓	↓	↓	↓	↓	↓
	46	32	↓	↓	↓	↓	↓	↓
	47	33	↓	↓	↓	↓	↓	↓
	48	34	↓	↓	↓	↓	↓	↓

- 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

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
GAB	33	462474	GAB12597	90	7/18/12 0909	G	N/A	N/A
	34	3301002532 PMA						
	3A	201002533						
GAB	43	LOS#1-124US	GAB124US	96	7-18-12 1017	MBT	N/A	N/A
	44	LOS#3-124US						
GAB	47	3072080130	GAB12475	300	7-18-12 1020	MBT	N/A	N/A
	48	3072080106	GAB12474	300	7-18-12 1023	MBT		
	49	107						
	50	108						
	51	109/100						
	52	101						
	53	458989						
GAB	32	3561420001	GAB12032	1000	7/18/12 130	G	N/A	N/A
	35	2						
GAB	31	3072080019	GAB	100	7/18/12 1215	DL	2	N/A
GAB	14	3072080100	GAB12469	110	7/18/12 1420	DL	2	N/A
	15	3072080002		140				
	16	005		120	7/18/12 1415			
	17	006		110				
	18	007			1442			
	19	001		120	1416			
	20	010		100				
	21	018			1442			
	23	458984	GAB12470	100	1416			

- 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 Sample Analysis Data

Quality Control Review



Batch RADC/12466 HBN 91036
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

1 458980-BLANK for HBN 91036 [RADC/1246

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

Prep Information

Procedure 9000 I Batch RADC/12466 Prep Date 7/13/2012 09:34 Dilution
 Method EPA 900.0m HBN 91036 Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795663 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 7/13/2012 09:34 Dilution
 Method EPA 900.0m Col ID Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795663 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL
Rad Chemistry	OK				
Gross Alpha	OK	0.581J ± 0.521 (0.971)	pCi/sa 0.581J ± 0.521 (0.971)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					
Gross Beta	OK	-0.161U ± 0.300 (0.754)	pCi/sa -0.161U ± 0.300 (0.754)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					

2 3072085040-2540-SU9-29

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12466 Prep Date 7/13/2012 09:34 Dilution
 Method EPA 900.0m HBN 91036 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785188 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 7/13/2012 09:34 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785188 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.254U ± 0.439 (0.984)	pCi/sa 0.254U ± 0.439 (0.984)			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/12466 HBN 91036
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

2 3072085040-2540-SU9-29

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Beta	OK	0.166U ± 0.338 (0.766)	pCi/sa 0.166U ± 0.338 (0.766)			dpm/sa	

The lab does not hold TNI accreditation for this parameter.

3 3072085041-2540-SU9-30

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12466 Prep Date 7/13/2012 09:34 Dilution
 Method EPA 900.0m HBN 91036 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785190 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 7/13/2012 09:34 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785190 File CC OK F

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.327J ± 0.451 (0.959)	pCi/sa 0.327J ± 0.451 (0.959)			dpm/sa	

The lab does not hold TNI accreditation for this parameter.

Gross Beta	OK	-0.008U ± 0.295 (0.708)	pCi/sa -0.008U ± 0.295 (0.708)			dpm/sa	
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The lab does not hold TNI accreditation for this parameter.

4 3072085042-2540-SU9-31

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12466 Prep Date 7/13/2012 09:34 Dilution
 Method EPA 900.0m HBN 91036 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785192 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/12466 HBN 91036
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

4 3072085042-2540-SU9-31

Analytical Information

Procedure 9000 I	Instru NONE	Run Date 7/13/2012 09:34	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785192	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.141U ± 0.338 (0.992)	pCi/sa -0.141U ± 0.338 (0.992)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.454J ± 0.328 (0.643)	pCi/sa 0.454J ± 0.328 (0.643)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

5 3072085043-2540-SU9-32

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

Prep Information

Procedure 9000 I	Batch RADC/12466	Prep Date 7/13/2012 09:34	Dilution
Method EPA 900.0m	HBN 91036	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785194	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 7/13/2012 09:34	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785194	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.446J ± 0.491 (0.981)	pCi/sa 0.446J ± 0.491 (0.981)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.547J ± 0.356 (0.653)	pCi/sa 0.547J ± 0.356 (0.653)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

6 3072085044-2540-SU9-34

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

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

Quality Control Review



Batch RADC/12466 HBN 91036
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

6 3072085044-2540-SU9-34

Prep Information

Procedure 9000 I Batch RADC/12466 Prep Date 7/13/2012 09:34 Dilution
 Method EPA 900.0m HBN 91036 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785196 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 7/13/2012 09:34 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785196 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.544J ± 0.522 (0.988)	pCi/sa 0.544J ± 0.522 (0.988)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.295J ± 0.362 (0.765)	pCi/sa 0.295J ± 0.362 (0.765)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

7 3072085045-2540-SU9-36

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12466 Prep Date 7/13/2012 09:35 Dilution
 Method EPA 900.0m HBN 91036 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785198 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 7/13/2012 09:35 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785198 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.382U ± 0.323 (0.945)	pCi/sa -0.382U ± 0.323 (0.945)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.195J ± 0.248 (0.537)	pCi/sa 0.195J ± 0.248 (0.537)			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/12466 HBN 91036
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

7 3072085045-2540-SU9-36

8 3072085046-2540-SU9-37

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12466 Prep Date 7/13/2012 09:35 Dilution
 Method EPA 900.0m HBN 91036 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785200 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 7/13/2012 09:35 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785200 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 ± 0.358 (0.971)	pCi/sa -0.056U ± 0.358 (0.971)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.178U ± 0.281 (0.622)	pCi/sa 0.178U ± 0.281 (0.622)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

9 3072085047-2540-SU9-38

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12466 Prep Date 7/13/2012 09:35 Dilution
 Method EPA 900.0m HBN 91036 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785202 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 7/13/2012 09:35 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785202 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/12466 HBN 91036
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

9 3072085047-2540-SU9-38

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Alpha	OK	0.284U ± 0.435 (0.944)	pCi/sa 0.284U ± 0.435 (0.944)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.182U ± 0.229 (0.582)	pCi/sa -0.182U ± 0.229 (0.582)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

10 3072085048-2540-SU9-39

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12466 Prep Date 7/13/2012 09:33 Dilution
 Method EPA 900.0m HBN 91036 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785204 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 7/13/2012 09:33 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785204 File CC OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.318U ± 0.455 (0.966)	pCi/sa 0.318U ± 0.455 (0.966)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.007U ± 0.233 (0.527)	pCi/sa -0.007U ± 0.233 (0.527)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

11 3072085049-2540-SU9-40

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12466 Prep Date 7/13/2012 09:34 Dilution
 Method EPA 900.0m HBN 91036 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785206 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/12466 HBN 91036
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

11 3072085049-2540-SU9-40

Analytical Information

Procedure 9000 I	Instru NONE	Run Date 7/13/2012 09:34	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785206	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.501J ± 0.442 (0.785)	pCi/sa 0.501J ± 0.442 (0.785)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.243J ± 0.326 (0.685)	pCi/sa 0.243J ± 0.326 (0.685)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

12 3072085050-2540-SU9-41

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

Prep Information

Procedure 9000 I	Batch RADC/12466	Prep Date 7/13/2012 09:33	Dilution
Method EPA 900.0m	HBN 91036	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785208	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 7/13/2012 09:33	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785208	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.197U ± 0.409 (0.949)	pCi/sa 0.197U ± 0.409 (0.949)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.468J ± 0.361 (0.703)	pCi/sa 0.468J ± 0.361 (0.703)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

13 3072085051-2540-SU9-42

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

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

Quality Control Review



Batch RADC/12466 HBN 91036
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

13 3072085051-2540-SU9-42

Prep Information

Procedure 9000 I Batch RADC/12466 Prep Date 7/13/2012 09:55 Dilution
 Method EPA 900.0m HBN 91036 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785210 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 7/13/2012 09:55 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785210 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.344U ± 0.195 (0.870)	pCi/sa -0.344U ± 0.195 (0.870)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.263U ± 0.382 (0.847)	pCi/sa 0.263U ± 0.382 (0.847)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

14 3072085052-2540-SU9-43

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12466 Prep Date 7/13/2012 09:55 Dilution
 Method EPA 900.0m HBN 91036 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785212 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 7/13/2012 09:55 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785212 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.013U ± 0.301 (0.801)	pCi/sa 0.013U ± 0.301 (0.801)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.039U ± 0.339 (0.795)	pCi/sa 0.039U ± 0.339 (0.795)			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/12466 HBN 91036
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

14 3072085052-2540-SU9-43

15 3072085053-2540-SU9-44

Type PS **Matrix Wipe** **Collected 6/19/2012 00:01** **% Moisture**
Client RTI **WO 3072085** **Work ID Fort Monmonth** **Location**
 1207073

Prep Information

Procedure 9000 I **Batch RADC/12466** **Prep Date 7/13/2012 09:55** **Dilution**
Method EPA 900.0m **HBN 91036** **Hold Date 12/16/2012 23:59** **Analyst MBT**
Schedule 2785214 **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 7/13/2012 09:55** **Dilution**
Method EPA 900.0m **Col ID** **Hold Date 12/16/2012 23:59** **Analyst MBT**
Schedule 2785214 **File** **CC OK F**

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.083U ± 0.401 (0.982)	pCi/sa 0.083U ± 0.401 (0.982)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.138U ± 0.330 (0.810)	pCi/sa -0.138U ± 0.330 (0.810)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

16 3072085054-2540-SU9-46

Type PS **Matrix Wipe** **Collected 6/19/2012 00:01** **% Moisture**
Client RTI **WO 3072085** **Work ID Fort Monmonth** **Location**
 1207073

Prep Information

Procedure 9000 I **Batch RADC/12466** **Prep Date 7/13/2012 09:55** **Dilution**
Method EPA 900.0m **HBN 91036** **Hold Date 12/16/2012 23:59** **Analyst MBT**
Schedule 2785216 **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 7/13/2012 09:55** **Dilution**
Method EPA 900.0m **Col ID** **Hold Date 12/16/2012 23:59** **Analyst MBT**
Schedule 2785216 **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/12466 HBN 91036
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

16 3072085054-2540-SU9-46

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Alpha	OK	-0.238U ± 0.226 (0.866)	pCi/sa -0.238U ± 0.226 (0.866)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.322J ± 0.362 (0.779)	pCi/sa 0.322J ± 0.362 (0.779)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

17 3072085055-2540-SU9-49

Type PS Client RTI	Matrix Wipe WO 3072085	Collected 6/19/2012 00:01 Work ID Fort Monmouth 1207073	% Moisture Location
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Prep Information

Procedure 9000 I Method EPA 900.0m Schedule 2785218	Batch RADC/12466 HBN 91036 Instru NONE	Prep Date 7/13/2012 10:10 Hold Date 12/16/2012 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 2785218	Instru NONE Col ID File	Run Date 7/13/2012 10:10 Hold Date 12/16/2012 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					dpm/sa	
Gross Alpha	OK	-0.203U ± 0.343 (0.926)	pCi/sa -0.203U ± 0.343 (0.926)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.129U ± 0.233 (0.516)	pCi/sa 0.129U ± 0.233 (0.516)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

18 3072085056-2540-SU9-50

Type PS Client RTI	Matrix Wipe WO 3072085	Collected 6/19/2012 00:01 Work ID Fort Monmouth 1207073	% Moisture Location
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Prep Information

Procedure 9000 I Method EPA 900.0m Schedule 2785220	Batch RADC/12466 HBN 91036 Instru NONE	Prep Date 7/13/2012 10:10 Hold Date 12/16/2012 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/12466 HBN 91036
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

18 3072085056-2540-SU9-50

Analytical Information

Procedure 9000 I	Instru NONE	Run Date 7/13/2012 10:10	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785220	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.250U ± 0.436 (0.965)	pCi/sa 0.250U ± 0.436 (0.965)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.085U ± 0.237 (0.576)	pCi/sa -0.085U ± 0.237 (0.576)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

19 3072085057-2540-SU9-51

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

Prep Information

Procedure 9000 I	Batch RADC/12466	Prep Date 7/13/2012 10:27	Dilution
Method EPA 900.0m	HBN 91036	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785222	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 7/13/2012 10:27	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785222	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.230U ± 0.411 (0.923)	pCi/sa 0.230U ± 0.411 (0.923)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.008U ± 0.253 (0.612)	pCi/sa -0.008U ± 0.253 (0.612)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

20 3072085058-2540-SU9-52

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

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

Quality Control Review



Batch RADC/12466 HBN 91036
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

20 3072085058-2540-SU9-52

Prep Information

Procedure 9000 I Batch RADC/12466 Prep Date 7/13/2012 12:44 Dilution
 Method EPA 900.0m HBN 91036 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785224 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 7/13/2012 12:44 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785224 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.375J ± 0.461 (0.965)	pCi/sa 0.375J ± 0.461 (0.965)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.071U ± 0.240 (0.576)	pCi/sa -0.071U ± 0.240 (0.576)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

21 3072085059-2540-SU9-52D

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12466 Prep Date 7/13/2012 13:20 Dilution
 Method EPA 900.0m HBN 91036 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785226 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 7/13/2012 13:20 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785226 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.311U ± 0.357 (0.966)	pCi/sa -0.311U ± 0.357 (0.966)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.033U ± 0.229 (0.527)	pCi/sa 0.033U ± 0.229 (0.527)		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/12466	HBN	91036
Rule	9000 I	Status	RE
Create Date	6/28/2012	Analyst	MBT



21 3072085059-2540-SU9-52D

** 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 13:07
Batch ID 12466
A-code 9000 I 9000W or NJ
Method EPA 900.0m EPA 900.0 or NJAC7186
Assigned Analyst MBT
Earliest Due Date 07/04/2012 07:12
HBN 91036

WorkerID	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
	458980	BLANK	IP		QCACCOUNT	0.581J	0.521	0.971	-0.161U	0.300	0.754	7/13/12 9:34		
3072085	3072085040	PS	WP	6/19/2012 0:01	RTI	0.254U	0.439	0.984	0.166U	0.338	0.766	7/13/12 9:34		
3072085	3072085041	PS	WP	6/19/2012 0:01	RTI	0.327J	0.451	0.959	-0.008U	0.295	0.708	7/13/12 9:34		
3072085	3072085042	PS	WP	6/19/2012 0:01	RTI	-0.141U	0.338	0.992	0.454J	0.328	0.843	7/13/12 9:34		
3072085	3072085043	PS	WP	6/19/2012 0:01	RTI	0.446J	0.491	0.981	0.547J	0.356	0.653	7/13/12 9:34		
3072085	3072085044	PS	WP	6/19/2012 0:01	RTI	0.544J	0.522	0.988	0.295J	0.362	0.765	7/13/12 9:34		
3072085	3072085045	PS	WP	6/19/2012 0:01	RTI	-0.382U	0.323	0.945	0.195J	0.248	0.537	7/13/12 9:35		
3072085	3072085046	PS	WP	6/19/2012 0:01	RTI	-0.056U	0.358	0.971	0.178U	0.281	0.622	7/13/12 9:35		
3072085	3072085047	PS	WP	6/19/2012 0:01	RTI	0.284U	0.435	0.944	-0.182U	0.229	0.582	7/13/12 9:35		
3072085	3072085048	PS	WP	6/19/2012 0:01	RTI	0.318U	0.455	0.966	-0.007U	0.233	0.527	7/13/12 9:33		
3072085	3072085049	PS	WP	6/19/2012 0:01	RTI	0.501J	0.442	0.785	0.243J	0.326	0.685	7/13/12 9:34		
3072085	3072085050	PS	WP	6/19/2012 0:01	RTI	0.197U	0.409	0.949	0.468J	0.361	0.703	7/13/12 9:33		
3072085	3072085051	PS	WP	6/19/2012 0:01	RTI	-0.344U	0.195	0.870	0.263U	0.382	0.847	7/13/12 9:55		
3072085	3072085052	PS	WP	6/19/2012 0:01	RTI	0.013U	0.301	0.801	0.039U	0.339	0.795	7/13/12 9:55		
3072085	3072085053	PS	WP	6/19/2012 0:01	RTI	0.083U	0.401	0.982	-0.138U	0.330	0.810	7/13/12 9:55		
3072085	3072085054	PS	WP	6/19/2012 0:01	RTI	-0.238U	0.226	0.866	0.322J	0.362	0.779	7/13/12 9:55		
3072085	3072085055	PS	WP	6/19/2012 0:01	RTI	-0.203U	0.343	0.926	0.129U	0.233	0.516	7/13/12 10:10		
3072085	3072085056	PS	WP	6/19/2012 0:01	RTI	0.250U	0.436	0.965	-0.085U	0.237	0.576	7/13/12 10:10		
3072085	3072085057	PS	WP	6/19/2012 0:01	RTI	0.230U	0.411	0.923	-0.008U	0.253	0.612	7/13/12 10:27		
3072085	3072085058	PS	WP	6/19/2012 0:01	RTI	0.375J	0.461	0.965	-0.071U	0.240	0.576	7/13/12 12:44		
3072085	3072085059	PS	WP	6/19/2012 0:01	RTI	-0.311U	0.357	0.966	0.033U	0.229	0.527	7/13/12 13:20		

* 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.

M 7/20/12

*7/19/12
289*

Gross Alpha and Gross Beta Preparation Sheet

Batch: 12400
 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:
 MS/MSD QC Vol (mL): a:
 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	458980	NA	NA	1.0	NA	NA	NA	NA	NA	
	3072085040									
	41									
	42									
	43									
	44									
	45									
	46									
	47									
	48									
	49									
	50									
	51									
	52									
	53									
	54									
	55									
	56									
	57									
	58									
	59									
	LCS 12400									
	LCS D 12400									

Batch Comments: Ludox: 8N HNO₃ Date Removed: / / @ Conc HNO₃: MBT 7-11-12
 Date Placed in oven: / / @ Date: Peer Review: Date:

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12466
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
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
458980	1.00000	S	9.0000	9.0000	0.00	15	7/13/2012 9:34	0.1727	0.4545	110	0.0820	0.4950	1000	dpm
3072085040	1.00000	S	9.0000	9.0000	0.00	16	7/13/2012 9:34	0.1000	0.4778	90	0.0610	0.3910	1000	dpm
3072085041	1.00000	S	9.0000	9.0000	0.00	19	7/13/2012 9:34	0.1273	0.4727	110	0.0770	0.4570	1000	dpm
3072085042	1.00000	S	9.0000	9.0000	0.00	20	7/13/2012 9:34	0.0750	0.5750	120	0.0970	0.3820	1000	dpm
3072085043	1.00000	S	9.0000	9.0000	0.00	21	7/13/2012 9:34	0.1455	0.6545	110	0.0780	0.3780	1000	dpm
3072085044	1.00000	S	9.0000	9.0000	0.00	23	7/13/2012 9:34	0.1600	0.6200	100	0.0750	0.4570	1000	dpm
3072085045	1.00000	S	9.0000	9.0000	0.00	26	7/13/2012 9:35	0.0889	0.5056	180	0.1490	0.4370	1000	dpm
3072085046	1.00000	S	9.0000	9.0000	0.00	36	7/13/2012 9:35	0.0846	0.4846	130	0.0930	0.4070	1000	dpm
3072085047	1.00000	S	9.0000	9.0000	0.00	38	7/13/2012 9:35	0.1533	0.3333	150	0.1100	0.3990	1000	dpm
3072085048	1.00000	S	9.0000	9.0000	0.00	11	7/13/2012 9:33	0.2100	0.4850	200	0.1620	0.4690	1000	dpm
3072085049	1.00000	S	9.0000	9.0000	0.00	13	7/13/2012 9:34	0.1250	0.4583	120	0.0500	0.3330	1000	dpm
3072085050	1.00000	S	9.0000	9.0000	0.00	14	7/13/2012 9:33	0.1000	0.6000	100	0.0690	0.3800	1000	dpm
3072085051	1.00000	S	9.0000	9.0000	0.00	1	7/13/2012 9:55	0.0150	0.9080	130	0.0640	0.8040	1000	dpm
3072085052	1.00000	S	9.0000	9.0000	0.00	3	7/13/2012 9:55	0.0620	0.6850	130	0.0600	0.6670	1000	dpm
3072085053	1.00000	S	9.0000	9.0000	0.00	7	7/13/2012 9:55	0.1200	0.6310	130	0.1070	0.6890	1000	dpm
3072085054	1.00000	S	9.0000	9.0000	0.00	9	7/13/2012 9:55	0.0230	0.7690	130	0.0550	0.6370	1000	dpm
3072085055	1.00000	S	9.0000	9.0000	0.00	17	7/13/2012 10:10	0.1056	0.4333	180	0.1370	0.3860	1000	dpm
3072085056	1.00000	S	9.0000	9.0000	0.00	25	7/13/2012 10:10	0.1667	0.3867	150	0.1270	0.4110	1000	dpm
3072085057	1.00000	S	9.0000	9.0000	0.00	28	7/13/2012 10:27	0.1167	0.3417	120	0.0810	0.3330	1000	dpm
3072085058	1.00000	S	9.0000	9.0000	0.00	25	7/13/2012 12:44	0.1867	0.4000	150	0.1270	0.4110	1000	dpm
3072085059	1.00000	S	9.0000	9.0000	0.00	11	7/13/2012 13:20	0.1150	0.4650	200	0.1620	0.4690	1000	dpm
LCS12466	1.00000	S	9.0000	9.0000	0.00	38	7/18/2012 15:53	0.5778	4.4556	90	0.1040	0.3900	1000	dpm
LCSD12466	1.00000	S	9.0000	9.0000	0.00	26	7/18/2012 16:12	0.4778	4.6556	90	0.0970	0.4050	1000	dpm

Mu/2012

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12466
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 Conversion	Activity Conversion
458980	0.581	0.511	0.521	0.971	0.304	dpm/S	0.091	0.00	0.000000	0.091	15.61%	1
3072085040	0.254	0.437	0.439	0.984	0.292	dpm/S	0.039	0.00	0.000000	0.039	15.37%	1
3072085041	0.327	0.447	0.451	0.959	0.299	dpm/S	0.050	0.00	0.000000	0.050	15.39%	1
3072085042	-0.141	0.337	0.338	0.992	0.318	dpm/S	-0.022	0.00	0.000000	-0.022	15.61%	1
3072085043	0.446	0.485	0.491	0.981	0.306	dpm/S	0.067	0.00	0.000000	0.067	15.13%	1
3072085044	0.544	0.513	0.522	0.988	0.303	dpm/S	0.085	0.00	0.000000	0.085	15.64%	1
3072085045	-0.382	0.316	0.323	0.945	0.328	dpm/S	-0.060	0.00	0.000000	-0.060	15.74%	1
3072085046	-0.056	0.358	0.358	0.971	0.314	dpm/S	-0.008	0.00	0.000000	-0.008	14.95%	1
3072085047	0.284	0.432	0.435	0.944	0.314	dpm/S	0.043	0.00	0.000000	0.043	15.25%	1
3072085048	0.318	0.452	0.455	0.966	0.341	dpm/S	0.048	0.00	0.000000	0.048	15.10%	1
3072085049	0.501	0.433	0.442	0.785	0.238	dpm/S	0.075	0.00	0.000000	0.075	14.96%	1
3072085050	0.197	0.408	0.409	0.949	0.289	dpm/S	0.031	0.00	0.000000	0.031	15.72%	1
3072085051	-0.344	0.184	0.195	0.870	0.273	dpm/S	-0.049	0.00	0.000000	-0.049	14.26%	1
3072085052	0.013	0.301	0.301	0.801	0.250	dpm/S	0.002	0.00	0.000000	0.002	15.07%	1
3072085053	0.083	0.401	0.401	0.982	0.320	dpm/S	0.013	0.00	0.000000	0.013	15.71%	1
3072085054	-0.238	0.222	0.226	0.866	0.268	dpm/S	-0.032	0.00	0.000000	-0.032	13.45%	1
3072085055	-0.203	0.341	0.343	0.926	0.320	dpm/S	-0.031	0.00	0.000000	-0.031	15.47%	1
3072085056	0.250	0.434	0.436	0.965	0.324	dpm/S	0.040	0.00	0.000000	0.040	15.90%	1
3072085057	0.230	0.409	0.411	0.923	0.292	dpm/S	0.036	0.00	0.000000	0.036	15.54%	1
3072085058	0.375	0.457	0.461	0.965	0.324	dpm/S	0.060	0.00	0.000000	0.060	15.90%	1
3072085059	-0.311	0.352	0.357	0.966	0.341	dpm/S	-0.047	0.00	0.000000	-0.047	15.10%	1
LCS12466	3.106	1.038	1.177	1.234	0.384	dpm/S	0.474	0.00	0.000000	0.474	15.25%	1
LCSD12466	2.419	0.915	1.012	1.161	0.359	dpm/S	0.381	0.00	0.000000	0.381	15.74%	1

M 7/20/12

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GAB_12466_I
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Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12466
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 Xtk CPM	Xtk corr. Net beta CPM	Beta eff	Activity Conversion
458980	-0.161	0.299	0.300	0.754	0.261	dpm/S	-0.040	0.00	0.031503	-0.072	44.66%	1
3072085040	0.166	0.337	0.338	0.766	0.259	dpm/S	0.087	0.00	0.013821	0.073	43.92%	1
3072085041	-0.008	0.295	0.295	0.708	0.245	dpm/S	0.016	0.00	0.019232	-0.004	45.78%	1
3072085042	0.454	0.318	0.328	0.643	0.222	dpm/S	0.193	0.00	-0.008135	0.201	44.32%	1
3072085043	0.547	0.342	0.356	0.653	0.224	dpm/S	0.277	0.00	0.027303	0.249	45.53%	1
3072085044	0.295	0.358	0.362	0.765	0.262	dpm/S	0.163	0.00	0.031346	0.132	44.61%	1
3072085045	0.195	0.246	0.248	0.537	0.194	dpm/S	0.069	0.00	-0.020306	0.089	45.46%	1
3072085046	0.178	0.279	0.281	0.622	0.217	dpm/S	0.078	0.00	-0.003023	0.081	45.20%	1
3072085047	-0.182	0.227	0.229	0.582	0.206	dpm/S	-0.066	0.00	0.015034	-0.081	44.28%	1
3072085048	-0.007	0.233	0.233	0.527	0.193	dpm/S	0.016	0.00	0.019345	-0.003	45.34%	1
3072085049	0.243	0.324	0.326	0.685	0.236	dpm/S	0.125	0.00	0.030557	0.095	39.03%	1
3072085050	0.468	0.351	0.361	0.703	0.239	dpm/S	0.220	0.00	0.011126	0.209	44.64%	1
3072085051	0.263	0.379	0.382	0.847	0.302	dpm/S	0.104	0.00	-0.015845	0.120	45.62%	1
3072085052	0.039	0.339	0.339	0.795	0.282	dpm/S	0.018	0.00	0.000618	0.017	44.49%	1
3072085053	-0.138	0.329	0.330	0.810	0.288	dpm/S	-0.058	0.00	0.003203	-0.061	44.36%	1
3072085054	0.322	0.357	0.362	0.779	0.276	dpm/S	0.132	0.00	-0.010972	0.143	44.45%	1
3072085055	0.129	0.232	0.233	0.516	0.186	dpm/S	0.047	0.00	-0.010365	0.058	44.69%	1
3072085056	-0.085	0.236	0.237	0.576	0.204	dpm/S	-0.024	0.00	0.014086	-0.038	45.37%	1
3072085057	-0.008	0.253	0.253	0.612	0.210	dpm/S	0.009	0.00	0.012242	-0.004	43.73%	1
3072085058	-0.071	0.240	0.240	0.576	0.204	dpm/S	-0.011	0.00	0.021188	-0.032	45.37%	1
3072085059	0.033	0.229	0.229	0.527	0.193	dpm/S	-0.004	0.00	-0.018942	0.015	45.34%	1
LCS12466	8.810	0.989	1.861	0.759	0.256	dpm/S	4.066	0.00	0.164368	3.901	44.28%	1
LCSD12466	9.068	0.984	1.897	0.752	0.254	dpm/S	4.251	0.00	0.128631	4.122	45.46%	1

Mt12012

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Quality Control Sample Performance Assessment



RCDU Upload

Analyst: MBT
Date: 7/20/2012
Worklist: 12466
Matrix: Filler

Method: EPA 900.0m
SOP: PCHR-001
MB Sample ID: 459990

Method Blank Assessment						
Analyte	Activity	1.96 Sig. Unc.	MDC	Critical Value	Flag	Assessment
Gross Alpha	0.5810	0.3000	0.9710	0.30400		
Gross Beta	-0.1610	0.3000	0.7540	0.26100		

Laboratory Control Sample Assessment						
Analyte:	Count Date:	LCS	LCSD	LCS	LCSD	LCS
Gross Alpha	7/18/12 15:53					
Gross Beta	7/18/12 16:12					
	7/18/12 15:53					
Count Date:	7/18/12 16:12					
Spike I.D.:	12-018-F3					
	12-018-F4					
Spike Concentration (DPM/Sample):	2.353					
	2.353					
Volume Used (mL):	1.000					
	1.000					
Aliquot Volume (L, g, F):	1.000					
	1.000					
Target Conc. (DPM/Sample, g, F):	2.353					
	2.353					
1.96 Sigma Uncertainty (Calculated):	0.138					
	0.138					
Result (DPM/Sample, g, F):	3.106					
	2.419					
1.96 Sigma Unc:	1.177					
	1.012					
% Recovery:	132.01%					
	102.81%					
Assessment:	High**					
Upper % Recovery Limits:	119.00%					
	130.00%					
Lower % Recovery Limits:	62.00%					
	79.00%					

Duplicate Sample Assessment						
LCS/LCSD Y or N?:	Y	Y	Y	Y	Y	Y
Gross Alpha						
Gross Beta						
Sample I.D.:	LCS12466	LCS12466	LCS12466	LCS12466	LCS12466	LCS12466
Duplicate Sample I.D.:	LCSD12466	LCSD12466	LCSD12466	LCSD12466	LCSD12466	LCSD12466
Sample Result (DPM/Sample, g, F):	3.1050	8.3100	1.8610	8.3100	1.8610	8.3100
1.96 Sigma Unc:	1.1770	1.8610	1.8610	1.1770	1.8610	1.8610
Duplicate Result (DPM/Sample, g, F):	2.4190	2.4190	2.4190	2.4190	2.4190	2.4190
Duplicate Sample 1.96 Sigma Unc:	1.0120	1.8970	1.8970	1.0120	1.8970	1.8970
Either results below MDC?	No	No	No	No	No	No
Relative Percent Difference:	24.87%	2.89%	2.89%	2.89%	2.89%	2.89%
Assessment:	Pass	Pass	Pass	Pass	Pass	Pass
% RPD Limit:	35.00%	17.00%	17.00%	35.00%	17.00%	17.00%

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

Comments:

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 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:	
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:	

M/2012

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12466
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	11/20/2006	Alpha to Beta Cross-Talk				Beta Efficiency	11/20/2006	Beta to Alpha Cross-Talk	N/A	Beta Eff. ax + b				Beta-to-Alpha Xtalk : ax + b				BK1 Date: 6/3/2012	BK2 Date: 7/14/2012	
	a	b	c	d			e	a	b	c					d	e	a	b	c	d	e	a			b
1						1.4256E-01						3.2346E-01				4.5624E-01						0.0640	0.8040	0.0640	0.8040
2						1.5524E-01						2.7382E-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				4.4300E-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						3.5899E-01				4.4635E-01						0.0690	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	0.0970	0.5430
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	0.3940
19						1.5393E-01						3.8255E-01				4.5782E-01						0.0770	0.4570	0.0900	0.4330
20						1.5610E-01						4.4321E-01				4.4321E-01						0.0970	0.3820	0.0700	0.3890
21						1.5130E-01						4.0476E-01				4.5533E-01						0.0780	0.3760	0.0580	0.3810
22						1.5360E-01						3.3282E-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				4.5488E-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: 12466
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	Beta Eff: ax + b				Beta-to-Alpha Xtalk: ax + b				BKG 1 Date	BKG 2 Date	
	a	b	c	d					e	a	b	c	d	e	a	b			c
28					1.5536E-01					3.4372E-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					1.5538E-01					3.5204E-01						0.0890	0.3670	0.0900	0.3680
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					1.6117E-01					3.3480E-01						0.0760	0.4040	0.1250	0.4480
35					#N/A					#N/A						0.1970	0.3930	0.2070	3.5640
36					1.4953E-01					3.6059E-01						0.0930	0.4070	0.0670	0.3320
37					1.6981E-01					3.4689E-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					4.4279E-01						0.0780	12.4760	0.0780	12.4760
40					1.8176E-01					2.7763E-01						0.2630	12.5520	0.2630	12.5520
41					#N/A					4.5470E-01						2.7170	366.8100	2.7170	366.8100
42					1.4541E-01					3.3352E-01						0.2050	9.9000	0.2050	9.9000
43					1.7364E-01					4.4459E-01						0.1620	1.5600	0.1620	1.5600
44					1.7507E-01					4.5195E-01						0.1110	0.9900	0.1110	0.9900
45					1.6896E-01					4.3550E-01						0.1410	1.7460	0.1410	1.7460
46					1.6416E-01					4.4755E-01						0.2330	0.9940	0.2330	0.9840
47					1.7203E-01					4.5901E-01						0.0940	1.1670	0.0940	1.1670
48					1.8314E-01					4.6987E-01						0.1650	2.0860	0.1650	2.0860
49					1.6993E-01					4.4190E-01						0.3330	1.3450	0.3330	1.3450
50					1.6594E-01					4.5406E-01						0.2050	1.4600	0.2050	1.4600
51					1.7880E-01					4.5625E-01						0.1500	1.3750	0.1500	1.3750
52					1.7970E-01					4.5669E-01						0.1070	1.1480	0.1070	1.1480
53					1.7780E-01					4.7119E-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) 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%

Rec
7/19/12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

SAMPLE_ID	Det#	BEG_DATE	BATCH_ID	ACPM	BCPM	CNT_TIME
458980	15	7/13/2012 9:34	GAB12466	0.172727273	0.454545455	110
3072085040	16	7/13/2012 9:34	GAB12466	0.1	0.477777778	90
3072085041	19	7/13/2012 9:34	GAB12466	0.127272727	0.472727273	110
3072085042	20	7/13/2012 9:34	GAB12466	0.075	0.575	120
3072085043	21	7/13/2012 9:34	GAB12466	0.145454545	0.654545455	110
3072085044	23	7/13/2012 9:34	GAB12466	0.16	0.62	100
3072085045	26	7/13/2012 9:35	GAB12466	0.088888889	0.505555556	180
3072085046	36	7/13/2012 9:35	GAB12466	0.084615385	0.484615385	130
3072085047	38	7/13/2012 9:35	GAB12466	0.153333333	0.333333333	150
3072085048	11	7/13/2012 9:33	GAB12466	0.21	0.485	200
3072085049	13	7/13/2012 9:34	GAB12466	0.125	0.458333333	120
3072085050	14	7/13/2012 9:33	GAB12466	0.1	0.6	100
3072085055	17	7/13/2012 10:10	GAB12466	0.105555556	0.433333333	180
3072085056	25	7/13/2012 10:10	GAB12466	0.166666667	0.386666667	150
3072085057	28	7/13/2012 10:27	GAB12466	0.116666667	0.341666667	120
3072085058	25	7/13/2012 12:44	GAB12466	0.186666667	0.4	150
3072085059	11	7/13/2012 13:20	GAB12466	0.115	0.465	200
LCS12466	38	7/18/2012 15:53	GAB12466	0.577777778	4.455555556	90
LCSD12466	26	7/18/2012 16:12	GAB12466	0.477777778	4.655555556	90
3072085051	1	7/13/2012 9:55	GAB12466	0.015	0.908	130
3072085052	3	7/13/2012 9:55	GAB12466	0.062	0.685	130
3072085053	7	7/13/2012 9:55	GAB12466	0.12	0.631	130
3072085054	9	7/13/2012 9:55	GAB12466	0.023	0.769	130

Pace Analytical Protean GFPC System Count Data

SAMPLE_ID	Count Start:	DET#	BATCH_ID	Alpha cpm	Beta cpm	Ct. Time (min)
LCSD12466	7/18/2012 4:12:52 PM	26	GAB12466	0.478	4.6556	90.0
LCS12466	7/18/2012 3:53:37 PM	38	GAB12466	0.578	4.4556	90.0
3072085059	7/13/2012 1:20:27 PM	11	GAB12466	0.115	0.4650	200.0
3072085058	7/13/2012 12:44:58 PM	25	GAB12466	0.187	0.4000	150.0
3072085057	7/13/2012 10:27:26 AM	28	GAB12466	0.117	0.3417	120.0
3072085056	7/13/2012 10:10:10 AM	25	GAB12466	0.167	0.3867	150.0
3072085055	7/13/2012 10:10:02 AM	17	GAB12466	0.106	0.4333	180.0
3072085047	7/13/2012 9:35:43 AM	38	GAB12466	0.153	0.3333	150.0
3072085046	7/13/2012 9:35:37 AM	36	GAB12466	0.085	0.4846	130.0
3072085045	7/13/2012 9:35:05 AM	26	GAB12466	0.089	0.5056	180.0
3072085044	7/13/2012 9:34:55 AM	23	GAB12466	0.160	0.6200	100.0
3072085043	7/13/2012 9:34:39 AM	21	GAB12466	0.145	0.6545	110.0
3072085042	7/13/2012 9:34:34 AM	20	GAB12466	0.075	0.5750	120.0
3072085041	7/13/2012 9:34:28 AM	19	GAB12466	0.127	0.4727	110.0
3072085040	7/13/2012 9:34:18 AM	16	GAB12466	0.100	0.4778	90.0
3072085049	7/13/2012 9:34:11 AM	13	GAB12466	0.125	0.4583	120.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
458980	7/13/2012 9:34:02 AM	15	GAB12466	0.173	0.4545	110.0
3072085050	7/13/2012 9:33:49 AM	14	GAB12466	0.100	0.6000	100.0
3072085048	7/13/2012 9:33:32 AM	11	GAB12466	0.210	0.4850	200.0

Sample Measurement
C:\UMS\GAB12466.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 1

Start Time: 07/13/2012 9:55:28

Elapsed Time: 130:00

Guard: 816.6 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	12466	3072085051	0.015 (±70.7%)	0.0039	0.0020	0.908 (±9.21%)	0.0112	0.0055
2	12857	E	0.092 (±28.9%)	0.0047	0.0024	0.623 (±11.1%)	0.0105	0.0051
3	12466	3072085052	0.062 (±35.4%)	0.0054	0.0027	0.685 (±10.6%)	0.0107	0.0053
4	12857	E	0.15 (±22.4%)	0.0047	0.0024	0.785 (±9.90%)	0.0112	0.0055
5	12891	E	0.054 (±37.8%)	0.0047	0.0024	5.777 (±3.65%)	0.0202	0.0099
6	12891	E	0.069 (±33.3%)	0.0054	0.0027	62.62 (±1.11%)	0.0298	0.0148
7	12466	3072085053	0.12 (±25.0%)	0.0054	0.0027	0.631 (±11.0%)	0.0112	0.0055
8	12857	E	0.12 (±25.8%)	0.0039	0.0020	0.585 (±11.5%)	0.0102	0.0050
9	12466	3072085054	0.023 (±57.7%)	0.0054	0.0027	0.769 (±10.0%)	0.0114	0.0056
10	12891	E	0.092 (±28.9%)	undef.	undef.	Outliers!	0.0118	0.0058

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	3437	3073057001	GAB1207K	200	7/13/12 0753	C	NA	NA
	36	W0124231	GAB12051	90				
RA	17	3073071001	RA1255C	90				
GAB	25	307307001M	GAB12021	90				
	12	3073059001		370				
	2	403458	GAB1203L	90				
	3	403457						
	4	3073058001						
	7							
	8	W012423L	GAB12022					
	9	W00						
	10	3073050001M						
	22	3073054002		270				
GAB	28	356074802		90				
GAB	11	3072058090	GAB12458	200	7-13-12	10087	NA	NA
	13	30720580101	GAB12459	120				
	14	3072050001		100				
	15	458980	GAB12406	110	0935			
	16	3072088040		90				
	19			110				
	20			120				
	21			110				
	23			100				
	26			180				

- 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	27	3072085017	GAB124104	100	7-13-12 0935	MBT	NA	NA
	29	↓ 18	↓	110				
	30	↓ 19		100				
	31	3072085046	GAB124106	130				
	38	↓ 47	↓	150				
GAB	11	3072085048	GAB124106	200	7-13-12 0935	MBT	NA	NA
	13	↓ 49	↓	120				
	14	↓ 50	↓	100				
GAB	1	3072085051	GAB124106	130	7-13-12 0954	MBT	NA	NA
	3	↓ 52	↓					
	7	↓ 53						
	9	↓ 54						
GAB	17	3072085055	GAB124106	180	7-13-12 1010	MBT	NA	NA
	25	↓ 56	↓	150				
GAB	28	3072085057	GAB124106	120	7-13-12	MBT	NA	NA
GAB	25	3072085058	GAB124106	150	7-13-12 1245	MBT	NA	NA
	11	3072085059	GAB124106	200	7-13-12 1320	MBT	NA	NA
	17	458981	GAB124107	120				
	22	3072085060	↓					
GAB	44	3072085030	GAB124105	300	7-13-12	MBT	NA	NA
	45	↓ 31	↓					
	46	↓ 32						
	47	↓ 33						
	48	↓ 34	↓					

- 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
C45	25	3072086036	64B 12470	810	7/18/12 1402	JW	2	
	26	020		120	1410			
	27	021		100	1402			
	28	022		100	1328			
	30	040	64B 12471	270	1402			
	31	024	64B 12470	120	1505			
	36	031		100	1402			
	37	038		220	1328			
	38	035		130	1328			
	39	80040						
C45	29	3072060019	64B 12459	100	1523	JW	2	
	14	3072086002	64B 12469	110	7/18/12 1611			
	16	041	12471	120	1627			
	17	042		110	1607			
	18	044			1652			
	19	045		120	1627			
	20	051		100	1602			
	21	053			1627			
	23	050			1602			
	24	LS012416 #4	64B 12466	100	1612			
27	3072086057	12471	100	1554				
29	058			1553				
36	458987	12472	100					
38	LS12466 #3	64B 12466	90					

- 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 Sample Analysis Data

Quality Control Review



Batch RADC/12467 HBN 91037
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

1 458981-BLANK for HBN 91037 [RADC/1246

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

Prep Information

Procedure 9000 I Batch RADC/12467 Prep Date 7/20/2012 16:37 Dilution
 Method EPA 900.0m HBN 91037 Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795664 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 7/20/2012 16:37 Dilution
 Method EPA 900.0m Col ID Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795664 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL
Rad Chemistry	OK				
Gross Alpha	OK	0.278J ± 0.424 (0.919)	pCi/sa 0.278J ± 0.424 (0.919)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					
Gross Beta	OK	0.180U ± 0.312 (0.690)	pCi/sa 0.180U ± 0.312 (0.690)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					

2 3072085060-2540-SU9-53

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12467 Prep Date 7/13/2012 13:20 Dilution
 Method EPA 900.0m HBN 91037 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785228 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 7/13/2012 13:20 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785228 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.388J ± 0.415 (0.807)	pCi/sa 0.388J ± 0.415 (0.807)			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/12467 HBN 91037
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

2 3072085060-2540-SU9-53

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Beta	OK	-0.038U ± 0.283 (0.682)	pCi/sa -0.038U ± 0.283 (0.682)		dpm/sa		

The lab does not hold TNI accreditation for this parameter.

3 3072085061-2540-SU9-54

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12467 Prep Date 7/13/2012 14:06 Dilution
 Method EPA 900.0m HBN 91037 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785230 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 7/13/2012 14:06 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785230 File CC OK F

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.242U ± 0.421 (0.942)	pCi/sa 0.242U ± 0.421 (0.942)		dpm/sa		

The lab does not hold TNI accreditation for this parameter.

Gross Beta	OK	0.686J ± 0.398 (0.708)	pCi/sa 0.686J ± 0.398 (0.708)		dpm/sa		
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The lab does not hold TNI accreditation for this parameter.

4 3072085062-2540-SU9-55

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12467 Prep Date 7/13/2012 14:06 Dilution
 Method EPA 900.0m HBN 91037 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785232 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/12467 HBN 91037
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

4 3072085062-2540-SU9-55

Analytical Information

Procedure 9000 I	Instru NONE	Run Date 7/13/2012 14:06	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785232	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.239U ± 0.431 (0.971)	pCi/sa 0.239U ± 0.431 (0.971)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.020U ± 0.267 (0.641)	pCi/sa 0.020U ± 0.267 (0.641)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

5 3072085063-2540-SU9-56

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

Prep Information

Procedure 9000 I	Batch RADC/12467	Prep Date 7/13/2012 14:06	Dilution
Method EPA 900.0m	HBN 91037	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785234	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 7/13/2012 14:06	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785234	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.850 ± 0.571 (0.817)	pCi/sa 0.850 ± 0.571 (0.817)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.631J ± 0.396 (0.687)	pCi/sa 0.631J ± 0.396 (0.687)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

6 3072085064-2540-SU9-57

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

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

Quality Control Review



Batch RADC/12467 HBN 91037
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

6 3072085064-2540-SU9-57

Prep Information

Procedure 9000 I Batch RADC/12467 Prep Date 7/13/2012 14:06 Dilution
 Method EPA 900.0m HBN 91037 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785236 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 7/13/2012 14:06 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785236 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.240U ± 0.317 (0.944)	pCi/sa -0.240U ± 0.317 (0.944)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.120U ± 0.228 (0.582)	pCi/sa -0.120U ± 0.228 (0.582)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

7 3072085065-2540-SU9-58

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12467 Prep Date 7/13/2012 14:44 Dilution
 Method EPA 900.0m HBN 91037 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785238 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 7/13/2012 14:44 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785238 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.289U ± 0.446 (0.974)	pCi/sa 0.289U ± 0.446 (0.974)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.557J ± 0.340 (0.619)	pCi/sa 0.557J ± 0.340 (0.619)			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/12467 HBN 91037
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

7 3072085065-2540-SU9-58

8 3072085066-2540-SU9-59

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12467 Prep Date 7/13/2012 15:24 Dilution
 Method EPA 900.0m HBN 91037 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785240 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 7/13/2012 15:24 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785240 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.067U ± 0.334 (0.876)	pCi/sa 0.067U ± 0.334 (0.876)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.018U ± 0.303 (0.757)	pCi/sa -0.018U ± 0.303 (0.757)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

9 3072085067-2540-SU9-60

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12467 Prep Date 7/13/2012 15:24 Dilution
 Method EPA 900.0m HBN 91037 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785242 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 7/13/2012 15:24 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785242 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/12467 HBN 91037
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

9 3072085067-2540-SU9-60

Analyte	CC	Posted Result		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Gross Alpha	OK	0.261U ± 0.429 (0.949)	pCi/sa 0.261U ± 0.429 (0.949)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								
Gross Beta	OK	-0.055U ± 0.281 (0.703)	pCi/sa -0.055U ± 0.281 (0.703)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								

10 3072085068-2540-SU9-61

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12467 Prep Date 7/13/2012 15:31 Dilution
 Method EPA 900.0m HBN 91037 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785244 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 7/13/2012 15:31 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785244 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 ± 0.317 (0.829)	pCi/sa 0.037U ± 0.317 (0.829)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								
Gross Beta	OK	0.035U ± 0.275 (0.656)	pCi/sa 0.035U ± 0.275 (0.656)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								

11 3072085069-2540-SU9-62

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12467 Prep Date 7/13/2012 15:32 Dilution
 Method EPA 900.0m HBN 91037 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785246 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/12467 HBN 91037
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

11 3072085069-2540-SU9-62

Analytical Information

Procedure 9000 I	Instru NONE	Run Date 7/13/2012 15:32	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785246	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.311U ± 0.323 (0.926)	pCi/sa -0.311U ± 0.323 (0.926)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.117U ± 0.230 (0.516)	pCi/sa 0.117U ± 0.230 (0.516)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

12 3072085070-2540-SU9-63

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

Prep Information

Procedure 9000 I	Batch RADC/12467	Prep Date 7/13/2012 15:32	Dilution
Method EPA 900.0m	HBN 91037	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785248	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 7/13/2012 15:32	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785248	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.149U ± 0.385 (0.912)	pCi/sa 0.149U ± 0.385 (0.912)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.002U ± 0.282 (0.676)	pCi/sa 0.002U ± 0.282 (0.676)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

13 3072085071-2540-SU9-64

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

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

Quality Control Review



Batch RADC/12467 HBN 91037
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

13 3072085071-2540-SU9-64

Prep Information

Procedure 9000 I **Batch** RADC/12467 **Prep Date** 7/13/2012 15:32 **Dilution**
Method EPA 900.0m **HBN** 91037 **Hold Date** 12/16/2012 23:59 **Analyst** MBT
Schedule 2785250 **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** 7/13/2012 15:32 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/16/2012 23:59 **Analyst** MBT
Schedule 2785250 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.019U ± 0.383 (0.992)	pCi/sa 0.019U ± 0.383 (0.992)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.113U ± 0.280 (0.643)	pCi/sa 0.113U ± 0.280 (0.643)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

14 3072085072-2540-SU9-65

Type PS **Matrix** Wipe **Collected** 6/19/2012 00:01 **% Moisture**
Client RTI **WO** 3072085 **Work ID** Fort Monmonth 1207073 **Location**

Prep Information

Procedure 9000 I **Batch** RADC/12467 **Prep Date** 7/13/2012 15:32 **Dilution**
Method EPA 900.0m **HBN** 91037 **Hold Date** 12/16/2012 23:59 **Analyst** MBT
Schedule 2785252 **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** 7/13/2012 15:32 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/16/2012 23:59 **Analyst** MBT
Schedule 2785252 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.822 ± 0.529 (0.807)	pCi/sa 0.822 ± 0.529 (0.807)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.098U ± 0.284 (0.682)	pCi/sa -0.098U ± 0.284 (0.682)		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/12467 HBN 91037
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

14 3072085072-2540-SU9-65

15 3072085073-2540-SU9-66

Type PS **Matrix Wipe** **Collected** 6/19/2012 00:01 **% Moisture**
Client RTI **WO 3072085** **Work ID** Fort Monmonth **Location**
 1207073

Prep Information

Procedure 9000 I **Batch** RADC/12467 **Prep Date** 7/13/2012 15:32 **Dilution**
Method EPA 900.0m **HBN** 91037 **Hold Date** 12/16/2012 23:59 **Analyst** MBT
Schedule 2785254 **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** 7/13/2012 15:32 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/16/2012 23:59 **Analyst** MBT
Schedule 2785254 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.266U ± 0.408 (0.888)	pCi/sa 0.266U ± 0.408 (0.888)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.069U ± 0.283 (0.694)	pCi/sa -0.069U ± 0.283 (0.694)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

16 3072085074-2540-SU9-67

Type PS **Matrix Wipe** **Collected** 6/19/2012 00:01 **% Moisture**
Client RTI **WO 3072085** **Work ID** Fort Monmonth **Location**
 1207073

Prep Information

Procedure 9000 I **Batch** RADC/12467 **Prep Date** 7/13/2012 15:32 **Dilution**
Method EPA 900.0m **HBN** 91037 **Hold Date** 12/16/2012 23:59 **Analyst** MBT
Schedule 2785256 **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** 7/13/2012 15:32 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/16/2012 23:59 **Analyst** MBT
Schedule 2785256 **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/12467 HBN 91037
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

16 3072085074-2540-SU9-67

Analyte	CC	Posted		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Gross Alpha	OK	0.291U ± 0.445 (0.965)	pCi/sa 0.291U ± 0.445 (0.965)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								
Gross Beta	OK	-0.031U ± 0.243 (0.576)	pCi/sa -0.031U ± 0.243 (0.576)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								

17 3072085075-2540-SU9-68

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12467 Prep Date 7/13/2012 15:32 Dilution
 Method EPA 900.0m HBN 91037 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785258 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 7/13/2012 15:32 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785258 File CC OK F

Analyte	CC	Posted		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Rad Chemistry	OK					dpm/sa		
Gross Alpha	OK	-0.205U ± 0.257 (0.874)	pCi/sa -0.205U ± 0.257 (0.874)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								
Gross Beta	OK	0.534J ± 0.311 (0.558)	pCi/sa 0.534J ± 0.311 (0.558)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								

18 3072085076-2540-SU9-69

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12467 Prep Date 7/13/2012 15:32 Dilution
 Method EPA 900.0m HBN 91037 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785260 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/12467 HBN 91037
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

18 3072085076-2540-SU9-69

Analytical Information

Procedure 9000 I	Instru NONE	Run Date 7/13/2012 15:32	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785260	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.221U ± 0.288 (0.948)	pCi/sa -0.221U ± 0.288 (0.948)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.071U ± 0.250 (0.596)	pCi/sa 0.071U ± 0.250 (0.596)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

19 3072085077-2540-SU9-70

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

Prep Information

Procedure 9000 I	Batch RADC/12467	Prep Date 7/13/2012 15:32	Dilution
Method EPA 900.0m	HBN 91037	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785262	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 7/13/2012 15:32	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785262	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.934 ± 0.573 (0.881)	pCi/sa 0.934 ± 0.573 (0.881)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.152U ± 0.267 (0.657)	pCi/sa -0.152U ± 0.267 (0.657)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

20 3072085078-2540-SU9-71

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmouth 1207073	Location

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

Quality Control Review



Batch RADC/12467 HBN 91037
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

20 3072085078-2540-SU9-71

Prep Information

Procedure 9000 I Batch RADC/12467 Prep Date 7/13/2012 15:32 Dilution
 Method EPA 900.0m HBN 91037 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785264 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 7/13/2012 15:32 Dilution
 Method EPA 900.0m CoI ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785264 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.149U ± 0.368 (0.866)	pCi/sa 0.149U ± 0.368 (0.866)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.046U ± 0.266 (0.654)	pCi/sa -0.046U ± 0.266 (0.654)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

21 3072085079-2540-SU9-72

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12467 Prep Date 7/13/2012 15:33 Dilution
 Method EPA 900.0m HBN 91037 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785266 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 7/13/2012 15:33 Dilution
 Method EPA 900.0m CoI ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785266 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.108U ± 0.344 (0.971)	pCi/sa -0.108U ± 0.344 (0.971)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.037U ± 0.252 (0.622)	pCi/sa -0.037U ± 0.252 (0.622)			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/12467	HBN	91037
Rule	9000 I	Status	RE
Create Date	6/28/2012	Analyst	MBT



21 3072085079-2540-SU9-72

** 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 13:07 Assigned Analyst MBT
Batch ID 12467 Earliest Due Date 07/04/2012 07:12
A-code 9000 I 9000W or NJ HBN 91037
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
	458981	BLANK	IP		QCACCOUNT	0.278J	0.424	0.919	0.180U	0.312	0.690	7/20/12 16:37			
3072085	3072085060	PS	WP	6/19/2012 0:01	RTI	0.388J	0.415	0.807	-0.038U	0.283	0.682	7/13/12 13:20			
3072085	3072085061	PS	WP	6/19/2012 0:01	RTI	0.242U	0.421	0.942	0.686J	0.398	0.708	7/13/12 14:06			
3072085	3072085062	PS	WP	6/19/2012 0:01	RTI	0.239U	0.431	0.971	0.020U	0.267	0.641	7/13/12 14:06			
3072085	3072085063	PS	WP	6/19/2012 0:01	RTI	0.850	0.571	0.817	0.631J	0.396	0.687	7/13/12 14:06			
3072085	3072085064	PS	WP	6/19/2012 0:01	RTI	-0.240U	0.317	0.944	-0.120U	0.228	0.582	7/13/12 14:06			
3072085	3072085065	PS	WP	6/19/2012 0:01	RTI	0.289U	0.446	0.974	0.557J	0.340	0.619	7/13/12 14:44			
3072085	3072085066	PS	WP	6/19/2012 0:01	RTI	0.067U	0.334	0.876	-0.018U	0.303	0.757	7/13/12 15:24			
3072085	3072085067	PS	WP	6/19/2012 0:01	RTI	0.261U	0.429	0.949	-0.055U	0.281	0.703	7/13/12 15:24			
3072085	3072085068	PS	WP	6/19/2012 0:01	RTI	0.037U	0.317	0.829	0.035U	0.275	0.656	7/13/12 15:31			
3072085	3072085069	PS	WP	6/19/2012 0:01	RTI	-0.311U	0.323	0.926	0.117U	0.230	0.516	7/13/12 15:32			
3072085	3072085070	PS	WP	6/19/2012 0:01	RTI	0.149U	0.385	0.912	0.002U	0.282	0.676	7/13/12 15:32			
3072085	3072085071	PS	WP	6/19/2012 0:01	RTI	0.019U	0.383	0.992	0.113U	0.280	0.643	7/13/12 15:32			
3072085	3072085072	PS	WP	6/19/2012 0:01	RTI	0.822	0.529	0.807	-0.098U	0.284	0.682	7/13/12 15:32			
3072085	3072085073	PS	WP	6/19/2012 0:01	RTI	0.266U	0.408	0.888	-0.069U	0.283	0.694	7/13/12 15:32			
3072085	3072085074	PS	WP	6/19/2012 0:01	RTI	0.291U	0.445	0.965	-0.031U	0.243	0.576	7/13/12 15:32			
3072085	3072085075	PS	WP	6/19/2012 0:01	RTI	-0.205U	0.257	0.874	0.534J	0.311	0.558	7/13/12 15:32			
3072085	3072085076	PS	WP	6/19/2012 0:01	RTI	-0.221U	0.288	0.948	0.071U	0.250	0.596	7/13/12 15:32			
3072085	3072085077	PS	WP	6/19/2012 0:01	RTI	0.934	0.573	0.881	-0.152U	0.267	0.657	7/13/12 15:32			
3072085	3072085078	PS	WP	6/19/2012 0:01	RTI	0.149U	0.368	0.866	-0.046U	0.266	0.654	7/13/12 15:32			
3072085	3072085079	PS	WP	6/19/2012 0:01	RTI	-0.108U	0.344	0.971	-0.037U	0.252	0.622	7/13/12 15:33			

* 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.

Handwritten signature: m-12/11/12

Gross Alpha and Gross Beta Preparation Sheet

Batch: 12407
 Transfer Analyst: MBT 7-9-12 J
 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:
 MS/MSD QC Vol (mL): a:
 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	458981	NA	NA	1.0	NA	NA	NA	NA	NA	
	3072085000									
	01									
	02									
	03									
	04									
	05									
	06									
	07									
	08									
	09									
	10									
	11									
	12									
	13									
	14									
	15									
	16									
	17									
	18									
	19									
	20									
	21		LOS 12407							
	22		LOS 12407							
	23									
	24									

Batch Comments: Ludox: 8N HNO₃ / / @ Date Removed / / @ Conc HNO₃: MBT 7-11-12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12467
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
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
458981	1.00000	S	9.0000	9.0000	0.00	21	7/20/2012 16:37	0.1000	0.4800	100	0.0580	0.3810	1000	dpm
3072085060	1.00000	S	9.0000	9.0000	0.00	22	7/13/2012 13:20	0.1167	0.4250	120	0.0570	0.4180	1000	dpm
3072085061	1.00000	S	9.0000	9.0000	0.00	18	7/13/2012 14:06	0.1000	0.7000	100	0.0630	0.3820	1000	dpm
3072085062	1.00000	S	9.0000	9.0000	0.00	28	7/13/2012 14:06	0.1182	0.3545	110	0.0810	0.3330	1000	dpm
3072085063	1.00000	S	9.0000	9.0000	0.00	37	7/13/2012 14:06	0.1778	0.6444	90	0.0420	0.3190	1000	dpm
3072085064	1.00000	S	9.0000	9.0000	0.00	38	7/13/2012 14:06	0.0733	0.3333	150	0.1100	0.3990	1000	dpm
3072085065	1.00000	S	9.0000	9.0000	0.00	12	7/13/2012 14:44	0.1333	0.6500	120	0.0890	0.3780	1000	dpm
3072085066	1.00000	S	9.0000	9.0000	0.00	13	7/13/2012 15:24	0.0600	0.3300	100	0.0500	0.3330	1000	dpm
3072085067	1.00000	S	9.0000	9.0000	0.00	14	7/13/2012 15:24	0.1100	0.3700	100	0.0690	0.3800	1000	dpm
3072085068	1.00000	S	9.0000	9.0000	0.00	16	7/13/2012 15:31	0.0667	0.4083	120	0.0610	0.3910	1000	dpm
3072085069	1.00000	S	9.0000	9.0000	0.00	17	7/13/2012 15:32	0.0889	0.4222	180	0.1370	0.3860	1000	dpm
3072085070	1.00000	S	9.0000	9.0000	0.00	19	7/13/2012 15:32	0.1000	0.4667	120	0.0770	0.4570	1000	dpm
3072085071	1.00000	S	9.0000	9.0000	0.00	20	7/13/2012 15:32	0.1000	0.4333	120	0.0970	0.3820	1000	dpm
3072085072	1.00000	S	9.0000	9.0000	0.00	22	7/13/2012 15:32	0.1833	0.4250	120	0.0570	0.4180	1000	dpm
3072085073	1.00000	S	9.0000	9.0000	0.00	23	7/13/2012 15:32	0.1167	0.4417	120	0.0750	0.4570	1000	dpm
3072085074	1.00000	S	9.0000	9.0000	0.00	25	7/13/2012 15:32	0.1733	0.4133	150	0.1270	0.4110	1000	dpm
3072085075	1.00000	S	9.0000	9.0000	0.00	27	7/13/2012 15:32	0.0417	0.5167	120	0.0740	0.2880	1000	dpm
3072085076	1.00000	S	9.0000	9.0000	0.00	29	7/13/2012 15:32	0.0500	0.3417	120	0.0840	0.3220	1000	dpm
3072085077	1.00000	S	9.0000	9.0000	0.00	30	7/13/2012 15:32	0.2167	0.3917	120	0.0720	0.4090	1000	dpm
3072085078	1.00000	S	9.0000	9.0000	0.00	34	7/13/2012 15:32	0.1000	0.3917	120	0.0760	0.4040	1000	dpm
3072085079	1.00000	S	9.0000	9.0000	0.00	36	7/13/2012 15:33	0.0769	0.3846	130	0.0930	0.4070	1000	dpm
LCSD12467	1.00000	S	9.0000	9.0000	0.00	11	7/18/2012 21:33	0.6111	5.1111	90	0.1770	0.4410	1000	dpm
LCSD12467	1.00000	S	9.0000	9.0000	0.00	12	7/18/2012 21:33	0.5000	5.1778	90	0.1550	0.4240	1000	dpm

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Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12467
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
458981	0.278	0.421	0.424	0.919	0.275	dpm/S	0.042	0.00	0.000000	0.042	15.13%	1
3072085060	0.388	0.409	0.415	0.807	0.248	dpm/S	0.060	0.00	0.000000	0.060	15.36%	1
3072085061	0.242	0.418	0.421	0.942	0.284	dpm/S	0.037	0.00	0.000000	0.037	15.27%	1
3072085062	0.239	0.429	0.431	0.971	0.304	dpm/S	0.037	0.00	0.000000	0.037	15.54%	1
3072085063	0.850	0.551	0.571	0.817	0.233	dpm/S	0.136	0.00	0.000000	0.136	15.98%	1
3072085064	-0.240	0.314	0.317	0.944	0.314	dpm/S	-0.037	0.00	0.000000	-0.037	15.25%	1
3072085065	0.289	0.443	0.446	0.974	0.310	dpm/S	0.044	0.00	0.000000	0.044	15.32%	1
3072085066	0.067	0.334	0.334	0.876	0.259	dpm/S	0.010	0.00	0.000000	0.010	14.96%	1
3072085067	0.261	0.426	0.429	0.949	0.289	dpm/S	0.041	0.00	0.000000	0.041	15.72%	1
3072085068	0.037	0.317	0.317	0.829	0.256	dpm/S	0.006	0.00	0.000000	0.006	15.37%	1
3072085069	-0.311	0.318	0.323	0.926	0.320	dpm/S	-0.048	0.00	0.000000	-0.048	15.47%	1
3072085070	0.149	0.384	0.385	0.912	0.287	dpm/S	0.023	0.00	0.000000	0.023	15.39%	1
3072085071	0.019	0.383	0.383	0.992	0.318	dpm/S	0.003	0.00	0.000000	0.003	15.61%	1
3072085072	0.822	0.508	0.529	0.807	0.248	dpm/S	0.126	0.00	0.000000	0.126	15.36%	1
3072085073	0.266	0.406	0.408	0.888	0.279	dpm/S	0.042	0.00	0.000000	0.042	15.64%	1
3072085074	0.291	0.442	0.445	0.965	0.324	dpm/S	0.046	0.00	0.000000	0.046	15.90%	1
3072085075	-0.205	0.255	0.257	0.874	0.274	dpm/S	-0.032	0.00	0.000000	-0.032	15.80%	1
3072085076	-0.221	0.285	0.288	0.948	0.301	dpm/S	-0.034	0.00	0.000000	-0.034	15.36%	1
3072085077	0.934	0.548	0.573	0.881	0.276	dpm/S	0.145	0.00	0.000000	0.145	15.50%	1
3072085078	0.149	0.367	0.368	0.866	0.273	dpm/S	0.024	0.00	0.000000	0.024	16.12%	1
3072085079	-0.108	0.343	0.344	0.971	0.314	dpm/S	-0.016	0.00	0.000000	-0.016	14.95%	1
LCS12467	2.874	1.083	1.199	1.565	0.506	dpm/S	0.434	0.00	0.000000	0.434	15.10%	1
LCSD12467	2.252	0.967	1.047	1.456	0.467	dpm/S	0.345	0.00	0.000000	0.345	15.32%	1

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: 12467
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
458981	0.180	0.310	0.312	0.690	0.235	dpm/S	0.099	0.00	0.017000	0.082	45.53%	1
3072085060	-0.038	0.283	0.283	0.682	0.237	dpm/S	0.007	0.00	0.023438	-0.016	43.55%	1
3072085061	0.686	0.379	0.398	0.708	0.241	dpm/S	0.318	0.00	0.013327	0.305	44.42%	1
3072085062	0.020	0.267	0.267	0.641	0.219	dpm/S	0.022	0.00	0.012762	0.009	43.73%	1
3072085063	0.631	0.379	0.396	0.687	0.229	dpm/S	0.325	0.00	0.043298	0.282	44.70%	1
3072085064	-0.120	0.227	0.228	0.582	0.206	dpm/S	-0.066	0.00	-0.012721	-0.053	44.28%	1
3072085065	0.557	0.326	0.340	0.619	0.214	dpm/S	0.272	0.00	0.016570	0.255	45.83%	1
3072085066	-0.018	0.303	0.303	0.757	0.256	dpm/S	-0.003	0.00	0.004074	-0.007	39.03%	1
3072085067	-0.055	0.280	0.281	0.703	0.239	dpm/S	-0.010	0.00	0.014714	-0.025	44.64%	1
3072085068	0.035	0.275	0.275	0.656	0.227	dpm/S	0.017	0.00	0.002008	0.015	43.92%	1
3072085069	0.117	0.229	0.230	0.516	0.186	dpm/S	0.036	0.00	-0.015859	0.052	44.69%	1
3072085070	0.002	0.282	0.282	0.676	0.235	dpm/S	0.010	0.00	0.008799	0.001	45.78%	1
3072085071	0.113	0.279	0.280	0.643	0.222	dpm/S	0.051	0.00	0.001109	0.050	44.32%	1
3072085072	-0.098	0.283	0.284	0.682	0.237	dpm/S	0.007	0.00	0.049626	-0.043	43.55%	1
3072085073	-0.069	0.283	0.283	0.694	0.242	dpm/S	-0.015	0.00	0.015366	-0.031	44.61%	1
3072085074	-0.031	0.243	0.243	0.576	0.204	dpm/S	0.002	0.00	0.016453	-0.014	45.37%	1
3072085075	0.534	0.296	0.311	0.558	0.191	dpm/S	0.229	0.00	-0.010937	0.240	44.88%	1
3072085076	0.071	0.250	0.250	0.596	0.205	dpm/S	0.020	0.00	-0.011754	0.031	44.19%	1
3072085077	-0.152	0.266	0.267	0.657	0.228	dpm/S	-0.017	0.00	0.050856	-0.068	44.74%	1
3072085078	-0.046	0.266	0.266	0.654	0.227	dpm/S	-0.012	0.00	0.008035	-0.020	44.69%	1
3072085079	-0.037	0.252	0.252	0.622	0.217	dpm/S	-0.022	0.00	-0.005797	-0.017	45.20%	1
LCS12467	9.915	1.034	2.053	0.784	0.266	dpm/S	4.670	0.00	0.174960	4.495	45.34%	1
LCSD12467	10.091	1.030	2.078	0.762	0.258	dpm/S	4.754	0.00	0.128947	4.625	45.83%	1

Amelia

Quality Control Sample Performance Assessment

RCDU Upload



Analyt: MBT
Date: 7/21/2012
Worklist: 12467
Matrix: Filter
Method: EPA 900.0m
SOP: PGH-R-001
MB Sample ID: 458881

Analyte	Method Blank Assessment			
	Activity	1.96 Sig Unc.	MDC	Critical Value
Gross Alpha	0.2760	0.4240	0.9190	0.27500
Gross Beta	0.1800	0.3120	0.6900	0.23500

Analyte:	Laboratory Control Sample Assessment			
	LCS	LCSD	LCS	LCSD
Count Date:	7/18/12 21:33	7/18/12 21:33	7/18/12 21:33	7/18/12 21:33
Spike I.D.:	12-018-F1	12-018-F2	12-014-F1	12-014-F2
Spike Concentration (DPM/Sample):	2.353	9.798	1.000	9.798
Volume Used (mL):	1.000	1.000	1.000	1.000
Aliquot Volume (L, g, F):	2.353	2.353	9.798	9.798
Target Conc. (DPM/Sample, g, F):	0.138	0.138	0.192	0.192
1.96 Sigma Uncertainty (Calculated):	2.874	2.252	9.915	10.091
Result (DPM/Sample, g, F):	1.199	1.047	2.053	2.078
1.96 Sigma Unc:				
% Recovery:	122.15%	95.71%	101.19%	102.95%
Assessment:	High**	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/ILCSD Y or N?	Duplicate Sample Assessment			
	Y	Y	Y	Y
Analyte:	Gross Alpha	Gross Beta		
Sample I.D.:	LCS12467	LCS12467		
Duplicate Sample I.D.:	LCSD12467	LCSD12467		
Sample Result (DPM/Sample, g, F):	2.8740	9.9150		
1.96 Sigma Unc:	1.1990	2.0530		
Duplicate Result (DPM/Sample, g, F):	2.2520	10.0910		
Duplicate Sample 1.96 Sigma Unc:	1.0470	2.0780		
Either results below MDC?	No	No		
Relative Percent Difference:	24.27%	1.76%		
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:

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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 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	
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:	

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12467
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	11/20/2006	Alpha to Beta Cross-Talk	11/20/2006	Beta Efficiency	11/20/2006	Beta to Alpha Cross-Talk	N/A	Beta to Alpha Xtalk: ax + b			Beta Eff: ax + b			Beta-to-Alpha Xtalk: ax + b			BKG 1 Date: 6/3/2012	BKG 2 Date: 7/14/2012	
	a	b	c	d	e									a	b	c	d	e	a	b	c	a			b
1					1.4256E-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	0.8670	0.0600	0.8670
4					1.4437E-01							2.9231E-01			4.3652E-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					1.5708E-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							0.0650	0.6370	0.0650	0.6370
10					#N/A							#N/A			#N/A							0.0690	0.7940	0.0690	0.7940
11					1.5108E-01							4.0908E-01			4.5335E-01							0.1620	0.4690	0.1770	0.4410
12					1.5319E-01							3.7376E-01			4.5830E-01							0.0980	0.3780	0.1560	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	0.3800	0.0620	0.4390
15					1.5608E-01							3.4723E-01			4.4658E-01							0.0820	0.4650	0.1200	0.4700
16					1.5368E-01							3.5438E-01			4.3920E-01							0.0610	0.3910	0.0670	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	0.3940
19					1.5393E-01							3.8255E-01			4.5782E-01							0.0770	0.4570	0.0900	0.4330
20					1.5610E-01							3.6978E-01			4.4321E-01							0.0970	0.3820	0.0700	0.3890
21					1.5130E-01							4.0476E-01			4.5533E-01							0.0780	0.3780	0.0580	0.3810
22					1.5360E-01							3.9282E-01			4.3554E-01							0.0570	0.4180	0.1140	0.4060
23					1.5639E-01							3.6878E-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							3.3761E-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

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12467
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.	Alpha Efficiency : $ax^4 + bx^3 + cx^2 + dx + e$				Alpha-to-Beta Crosstalk : $ax^4 + bx^3 + cx^2 + dx + e$				Beta Efficiency				Beta-to-Alpha Xtalk : $ax + b$				BKG 1 Date: 6/3/2012		BKG 2 Date: 7/14/2012	
	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e	a	b	Alpha Bkg	Beta Bkg	
28					1.5538E-01					3.4232E-01					4.3725E-01		0.0810	0.3330	0.1500	0.3480
29					1.5363E-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					1.5553E-01					3.5204E-01					4.4881E-01		0.0890	0.3570	0.0900	0.3650
32					1.5823E-01					3.3321E-01					4.6019E-01		0.0540	0.4120	0.0550	0.3380
33					1.6147E-01					3.4580E-01					4.5824E-01		0.0900	0.3870	0.1200	0.4100
34					1.6117E-01					3.3480E-01					4.4688E-01		0.0750	0.4040	0.1250	0.4480
35					#N/A					#N/A					#N/A		0.1970	0.3930	0.2070	3.6640
36					1.4959E-01					3.6059E-01					4.5203E-01		0.0930	0.4070	0.0670	0.3320
37					1.5981E-01					3.1889E-01					4.4698E-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					1.8178E-01					2.5995E-01					4.5470E-01		0.2530	12.5520	0.2530	12.5520
41					#N/A					#N/A					#N/A		2.7170	366.8100	2.7170	366.8100
42					1.4541E-01					4.9686E-01					3.3525E-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					1.6898E-01					2.6541E-01					4.3550E-01		0.1410	1.7460	0.1410	1.7460
46					1.6418E-01					2.9298E-01					4.4755E-01		0.2390	0.9840	0.2390	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					2.8023E-01					4.5625E-01		0.1500	1.3750	0.1500	1.3750
52					1.7970E-01					2.6847E-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

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%

Pace Analytical Services
 Gross Alpha and Gross Beta
 Analysis

SAMPLE_ID	Det#	BEG_DATE	BATCH_ID	ACPM	BCPM	CNT_TIME
458981	17	7/13/2012 13:20	GAB12467	0.041666667	0.233333333	120
3072085060	22	7/13/2012 13:20	GAB12467	0.116666667	0.425	120
3072085061	18	7/13/2012 14:06	GAB12467	0.1	0.7	100
3072085062	28	7/13/2012 14:06	GAB12467	0.118181818	0.354545455	110
3072085063	37	7/13/2012 14:06	GAB12467	0.177777778	0.644444444	90
3072085064	38	7/13/2012 14:06	GAB12467	0.073333333	0.333333333	150
3072085065	12	7/13/2012 14:44	GAB12467	0.133333333	0.65	120
3072085066	13	7/13/2012 15:24	GAB12467	0.06	0.33	100
3072085067	14	7/13/2012 15:24	GAB12467	0.11	0.37	100
3072085068	16	7/13/2012 15:31	GAB12467	0.066666667	0.408333333	120
3072085069	17	7/13/2012 15:32	GAB12467	0.088888889	0.422222222	180
3072085070	19	7/13/2012 15:32	GAB12467	0.1	0.466666667	120
3072085071	20	7/13/2012 15:32	GAB12467	0.1	0.433333333	120
3072085072	22	7/13/2012 15:32	GAB12467	0.183333333	0.425	120
3072085073	23	7/13/2012 15:32	GAB12467	0.116666667	0.441666667	120
3072085074	25	7/13/2012 15:32	GAB12467	0.173333333	0.413333333	150
3072085075	27	7/13/2012 15:32	GAB12467	0.041666667	0.516666667	120
3072085076	29	7/13/2012 15:32	GAB12467	0.05	0.341666667	120
3072085077	30	7/13/2012 15:32	GAB12467	0.216666667	0.391666667	120
3072085078	34	7/13/2012 15:32	GAB12467	0.1	0.391666667	120
3072085079	36	7/13/2012 15:33	GAB12467	0.076923077	0.384615385	130
LCS12467	11	7/18/2012 21:33	GAB12467	0.611111111	5.111111111	90
LCSD12467	12	7/18/2012 21:33	GAB12467	0.5	5.177777778	90
458981	21	7/20/2012 16:37	GAB12467	0.1	0.48	100

Pace Analytical Protean GFPC System Count Data

SAMPLE_ID	Count Start:	DET#	BATCH_ID	Alpha cpm	Beta cpm	Ct. Time (min)
458981	7/20/2012 4:37:43 PM	21	GAB12467	0.100	0.4800	100.0
LCSD12467	7/18/2012 9:33:10 PM	12	GAB12467	0.500	5.1778	90.0
LCS12467	7/18/2012 9:33:05 PM	11	GAB12467	0.611	5.1111	90.0
3072085079	7/13/2012 3:33:58 PM	36	GAB12467	0.077	0.3846	130.0
3072085078	7/13/2012 3:32:47 PM	34	GAB12467	0.100	0.3917	120.0
3072085077	7/13/2012 3:32:43 PM	30	GAB12467	0.217	0.3917	120.0
3072085076	7/13/2012 3:32:39 PM	29	GAB12467	0.050	0.3417	120.0
3072085075	7/13/2012 3:32:36 PM	27	GAB12467	0.042	0.5167	120.0
3072085074	7/13/2012 3:32:30 PM	25	GAB12467	0.173	0.4133	150.0
3072085073	7/13/2012 3:32:19 PM	23	GAB12467	0.117	0.4417	120.0
3072085072	7/13/2012 3:32:16 PM	22	GAB12467	0.183	0.4250	120.0
3072085071	7/13/2012 3:32:12 PM	20	GAB12467	0.100	0.4333	120.0
3072085070	7/13/2012 3:32:09 PM	19	GAB12467	0.100	0.4667	120.0
3072085069	7/13/2012 3:32:01 PM	17	GAB12467	0.089	0.4222	180.0
3072085068	7/13/2012 3:31:29 PM	16	GAB12467	0.067	0.4083	120.0
3072085067	7/13/2012 3:24:43 PM	14	GAB12467	0.110	0.3700	100.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
3072085066	7/13/2012 3:24:38 PM	13	GAB12467	0.060	0.3300	100.0
3072085065	7/13/2012 2:44:29 PM	12	GAB12467	0.133	0.6500	120.0
3072085064	7/13/2012 2:06:39 PM	38	GAB12467	0.073	0.3333	150.0
3072085063	7/13/2012 2:06:31 PM	37	GAB12467	0.178	0.6444	90.0
3072085062	7/13/2012 2:06:22 PM	28	GAB12467	0.118	0.3545	110.0
3072085061	7/13/2012 2:06:09 PM	18	GAB12467	0.100	0.7000	100.0
3072085060	7/13/2012 1:20:42 PM	22	GAB12467	0.117	0.4250	120.0
458981	7/13/2012 1:20:33 PM	17	GAB12467	0.042	0.2333	120.0

did not meet MR

06/20/12

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
GAB	27	3072085017	GAB12404	100	7-13-12 0935	MBT	NA	NA
	29	18	↓	110	↓	↓	↓	↓
	30	19	↓	100	↓	↓	↓	↓
	36	3072085046	GAB12406	130	↓	↓	↓	↓
	38	47	↓	150	↓	↓	↓	↓
GAB	11	3072085048	GAB12406	200	7-13-12 0935	MBT	NA	NA
	13	49	↓	120	↓	↓	↓	↓
	14	50	↓	100	↓	↓	↓	↓
GAB	1	30703072085051	GAB12406	130	7-13-12 0954	MBT	NA	NA
	3	52	↓	↓	↓	↓	↓	↓
	7	53	↓	↓	↓	↓	↓	↓
	9	54	↓	↓	↓	↓	↓	↓
GAB	17	3072085055	GAB12406	180	7-13-12 1010	MBT	NA	NA
	25	56	↓	150	↓	↓	↓	↓
GAB	28	3072085057	GAB12406	120	7-13-12	MBT	NA	NA
GAB	25	3072085058	GAB12406	150	7-13-12 1245	MBT	NA	NA
	11	3072085059	GAB12406	200	7-13-12 1320	MBT	NA	NA
	17	458981	GAB12407	120	↓	↓	↓	↓
	22	3072085060	↓	↓	↓	↓	↓	↓
GAB	44	3072085030	GAB12406	300	7-13-12	MBT	NA	NA
	45	31	↓	↓	↓	↓	↓	↓
	46	32	↓	↓	↓	↓	↓	↓
	47	33	↓	↓	↓	↓	↓	↓
	48	34	↓	↓	↓	↓	↓	↓

- 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
WAB	49	3072085035	GAB12465	300	7-13-12 13:25	WBS	NA	NA
	50	36						
	51	37						
	52	38						
	53	39						
WAB	18	3072085061	GAB12467	100	7-13-12 14:40	WBS	NA	NA
	28	62		110				
	37	63		90				
	38	64		150				
	12	65	GAB12467	120	7/13/12 14:44	OL	NA	NA
	13	66		100	7/13/12 15:25	OL	NA	NA
	14	67				F		
	16	68	GAB12467	120	7/13/12 15:30	BSH	NA	NA
	17	69		180				
	19	70		120				
	20	71						
	22	72						
	23	73						
	25	74		150				
	27	75		120				
	29	76						
	30	77						
	34	78						
	36	79						

- 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
WAB	12	35610120010	WAB12033	90	7/17/12	Q	Q/A	Q/A
J	14	35610120055	J	140	J	J	J	J
J	15	1019177001	J	90	J	J	J	J
GAB	14	460288	GAB12037	90	7/9/12 0737	Q	Q/A	Sample added to Book
J	32	307208001	J	J	7/10/12 0804	J	J	J
J	35	307208002	J	J	7/10/12 0831	J	J	J
J	3	307208003	J	J	7/10/12 0844	J	J	J
GAB	15	LOS#1 - 12456	GAB12456	90	7-17-12 0915	WBST	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	WBST	NA	NA
J	20	458981	GAB12467	120	J	J	J	MDC
J	21	3072080083	GAB12468	110	J	J	J	MDC
J	22	J	J	100120	J	J	J	MDC
J	29	3072080093	GAB12468	110	J	J	J	MDC
J	31	3072080008	GAB12469	120	J	J	J	NA
J	33	J	J	120	J	J	J	J
J	34	3072080011	J	100	J	J	J	J
J	36	J	J	130	J	J	J	J
J	37	J	J	90	J	J	J	J
J	38	J	J	150	J	J	J	J
WAB	23	3072080015	GAB12469	100	07-17-12 0949	WBST	NA	NA
J	27	J	J	J	J	WBST	J	J

- 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	34	3072086018	GAB 12469	120	7/17/12 1012	Qu	2	
	36	043	12471	130				
	37	048		120				
GAB	12	458981	GAB 12467	140	7-17-12 1041	WST	2	MDC
	13	3072080045	GAB 12471	120				
GAB	43	3012086109	GAB 12474	300	7/17/12 1130	Qu	ret	ret
	44	110						
	45	111						
	46	112						
	47	113						
	48	114						
	49	115						
	50	116						
	51	117						
	52	118						
	53	119						

- 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	19	307284004	00B12051	90	7/16/12 2:54	U	N/A	N/A
	20	307314801						
	21	307315001						
	22	307320001						
	23	U0 12043	00B12043					
	25	U0 J						
	26	U0505	00B12056					
	27	U0 12006						
	28	U0 J						
	29	307301101 No						
	30	307275801 No						
	31	U0344	00B12035					
	32	U0 12033						
	34	U0 J						
	36	307350200						
	37	U0 12034	U031200					
	38	U0 J						
GAS	11	U0 12467	00B12407	90	7/16/12 2:39	U	N/A	N/A
	12	U0 J						
	13	307200000		100				
	14	071						
	15	073						
	16	076						
	17	077						

- 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
GAS	51	3072086 (127)	GAB12475	300	7/14/12 9:49	PTH	NA	NOT ENTERED IN RUN LOG
	52	↓	↓	↓	↓	↓	↓	PA time of Count
	53	128 129	↓	↓	↓	↓	↓	↓
GAS	38	GAS 12474 458481	GAB12472	90	7/20/12 13:24	PA	NA	restated after power outage
↓	21	↓	GAB12467	100	7/20/12 14:41	PA	NA	↓
GAS	12	LCS12474 (2)	GAB12474	60	7/20/12 15:13	PA	NA	@ 1637
↓	13	LCS12474 (3)	↓	↓	↓	↓	↓	↓

- 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 Sample Analysis Data

Quality Control Review



Batch RADC/12468 HBN 91038
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

1 458982-BLANK for HBN 91038 [RADC/1246

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

Prep Information

Procedure 9000 I Batch RADC/12468 Prep Date 7/13/2012 15:39 Dilution
 Method EPA 900.0m HBN 91038 Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795665 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 7/13/2012 15:39 Dilution
 Method EPA 900.0m Col ID Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795665 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL
Rad Chemistry	OK				
Gross Alpha	OK	0.884B ± 0.511 (0.686)	pCi/sa 0.884B ± 0.511 (0.686)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					
Gross Beta	OK	0.509J ± 0.331 (0.587)	pCi/sa 0.509J ± 0.331 (0.587)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					

2 3072085080-2540-SU9-73

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12468 Prep Date 7/13/2012 16:03 Dilution
 Method EPA 900.0m HBN 91038 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785268 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 7/13/2012 16:03 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785268 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.242UB ± 0.387 (0.845)	pCi/sa 0.242UB ± 0.387 (0.845)		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/12468 HBN 91038
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

2 3072085080-2540-SU9-73							
Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High

Gross Beta	OK	-0.158U ± 0.247 (0.641)	pCi/sa -0.158U ± 0.247 (0.641)			dpm/sa	
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The lab does not hold TNI accreditation for this parameter.

3 3072085081-2540-SU9-73D				
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Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I	Batch RADC/12468	Prep Date 7/13/2012 16:32	Dilution
Method EPA 900.0m	HBN 91038	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785270	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 7/13/2012 16:32	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785270	File		CC OK F

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High

Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.222UB ± 0.410 (0.924)	pCi/sa 0.222UB ± 0.410 (0.924)			dpm/sa	

The lab does not hold TNI accreditation for this parameter.

Gross Beta	OK	-0.128U ± 0.287 (0.719)	pCi/sa -0.128U ± 0.287 (0.719)			dpm/sa	
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The lab does not hold TNI accreditation for this parameter.

4 3072085082-2540-SU9-74				
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Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I	Batch RADC/12468	Prep Date 7/13/2012 16:32	Dilution
Method EPA 900.0m	HBN 91038	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785272	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/12468 HBN 91038
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

4 3072085082-2540-SU9-74

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/13/2012 16:32 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785272 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.020UB ± 0.343 (0.933)	pCi/sa -0.020UB ± 0.343 (0.933)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.326J ± 0.302 (0.623)	pCi/sa 0.326J ± 0.302 (0.623)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

5 3072085083-2540-SU9-75

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12468 Prep Date 7/17/2012 09:27 Dilution
 Method EPA 900.0m HBN 91038 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785274 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 7/17/2012 09:27 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785274 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.097UB ± 0.348 (0.869)	pCi/sa 0.097UB ± 0.348 (0.869)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.228J ± 0.302 (0.655)	pCi/sa 0.228J ± 0.302 (0.655)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

6 3072085084-2540-SU9-76

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

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

Quality Control Review



Batch RADC/12468 HBN 91038
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

6 3072085084-2540-SU9-76

Prep Information

Procedure 9000 I Batch RADC/12468 Prep Date 7/13/2012 16:33 Dilution
 Method EPA 900.0m HBN 91038 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785276 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 7/13/2012 16:33 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785276 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.390JB ± 0.454 (0.923)	pCi/sa 0.390JB ± 0.454 (0.923)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.028U ± 0.253 (0.612)	pCi/sa -0.028U ± 0.253 (0.612)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

7 3072085085-2540-SU9-77

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12468 Prep Date 7/13/2012 16:33 Dilution
 Method EPA 900.0m HBN 91038 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785278 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 7/13/2012 16:33 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785278 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.506JB ± 0.499 (0.972)	pCi/sa 0.506JB ± 0.499 (0.972)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.755 ± 0.377 (0.623)	pCi/sa 0.755 ± 0.377 (0.623)			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/12468 HBN 91038
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

7 3072085085-2540-SU9-77

8 3072085086-2540-SU9-78

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12468 Prep Date 7/13/2012 16:33 Dilution
 Method EPA 900.0m HBN 91038 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785280 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 7/13/2012 16:33 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785280 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.733JB ± 0.535 (0.929)	pCi/sa 0.733JB ± 0.535 (0.929)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.103U ± 0.283 (0.626)	pCi/sa 0.103U ± 0.283 (0.626)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

9 3072085087-2540-SU9-79

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12468 Prep Date 7/19/2012 17:31 Dilution
 Method EPA 900.0m HBN 91038 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785282 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 7/19/2012 17:31 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785282 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/12468 HBN 91038
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

9 3072085087-2540-SU9-79

Analyte	CC	Posted Result		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Gross Alpha	OK	0.410JB ± 0.472 (0.962)	pCi/sa 0.410JB ± 0.472 (0.962)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								
Gross Beta	OK	0.155U ± 0.282 (0.617)	pCi/sa 0.155U ± 0.282 (0.617)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								

10 3072085088-2540-SU9-80

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12468 Prep Date 7/19/2012 17:32 Dilution
 Method EPA 900.0m HBN 91038 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785284 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 7/19/2012 17:32 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785284 File CC OK F

Analyte	CC	Posted Result		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Rad Chemistry	OK					dpm/sa		
Gross Alpha	OK	0.133UB ± 0.387 (0.944)	pCi/sa 0.133UB ± 0.387 (0.944)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								
Gross Beta	OK	0.089U ± 0.303 (0.710)	pCi/sa 0.089U ± 0.303 (0.710)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								

11 3072085089-2540-SU9-81-HOODVENT

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12468 Prep Date 7/19/2012 17:35 Dilution
 Method EPA 900.0m HBN 91038 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785286 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/12468 HBN 91038
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

11 3072085089-2540-SU9-81-HOODVENT

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/19/2012 17:35 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785286 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.672JB ± 0.522 (0.963)	pCi/sa 0.672JB ± 0.522 (0.963)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.520J ± 0.325 (0.591)	pCi/sa 0.520J ± 0.325 (0.591)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

12 3072085090-2540-SU9-82-HOODBASE

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12468 Prep Date 7/14/2012 21:40 Dilution
 Method EPA 900.0m HBN 91038 Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785288 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 7/14/2012 21:40 Dilution
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT
 Schedule 2785288 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.061UB ± 0.363 (0.917)	pCi/sa 0.061UB ± 0.363 (0.917)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.185U ± 0.306 (0.681)	pCi/sa 0.185U ± 0.306 (0.681)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

13 3072085091-2540-SU12-20

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

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

Quality Control Review



Batch RADC/12468 HBN 91038
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

13 3072085091-2540-SU12-20

Prep Information

Procedure 9000 I **Batch** RADC/12468 **Prep Date** 7/19/2012 17:36 **Dilution**
Method EPA 900.0m **HBN** 91038 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2785290 **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** 7/19/2012 17:36 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2785290 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.087UB ± 0.386 (0.986)	pCi/sa 0.087UB ± 0.386 (0.986)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.162U ± 0.290 (0.653)	pCi/sa 0.162U ± 0.290 (0.653)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

14 3072085092-2540-SU14-1

Type PS **Matrix** Wipe **Collected** 6/14/2012 00:01 **% Moisture**
Client RTI **WO** 3072085 **Work ID** Fort Monmouth
 1207073 **Location**

Prep Information

Procedure 9000 I **Batch** RADC/12468 **Prep Date** 7/14/2012 21:40 **Dilution**
Method EPA 900.0m **HBN** 91038 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2785292 **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** 7/14/2012 21:40 **Dilution**
Method EPA 900.0m **Col ID** **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2785292 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.573JB ± 0.512 (0.962)	pCi/sa 0.573JB ± 0.512 (0.962)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.438J ± 0.327 (0.617)	pCi/sa 0.438J ± 0.327 (0.617)			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/12468 HBN 91038
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

14 3072085092-2540-SU14-1

15 3072085093-2540-SU14-2

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12468 Prep Date 7/17/2012 09:27 Dilution
 Method EPA 900.0m HBN 91038 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2785294 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 7/17/2012 09:27 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2785294 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.655JB ± 0.516 (0.885)	pCi/sa 0.655JB ± 0.516 (0.885)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.453J ± 0.321 (0.581)	pCi/sa 0.453J ± 0.321 (0.581)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

16 3072085094-2540-SU14-3

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmonth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12468 Prep Date 7/14/2012 21:40 Dilution
 Method EPA 900.0m HBN 91038 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2785296 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 7/14/2012 21:40 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2785296 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/12468 HBN 91038
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

16 3072085094-2540-SU14-3

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Alpha	OK	0.941B ± 0.581 (0.899)	pCi/sa 0.941B ± 0.581 (0.899)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.876 ± 0.407 (0.643)	pCi/sa 0.876 ± 0.407 (0.643)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

17 3072085095-2540-SU14-4

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12468 Prep Date 7/14/2012 21:40 Dilution
 Method EPA 900.0m HBN 91038 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2785298 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 7/14/2012 21:40 Dilution
 Method EPA 900.0m CoI ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2785298 File CC OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.173UB ± 0.416 (0.974)	pCi/sa 0.173UB ± 0.416 (0.974)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.342J ± 0.321 (0.659)	pCi/sa 0.342J ± 0.321 (0.659)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

18 3072085096-2540-SU14-5

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12468 Prep Date 7/14/2012 21:40 Dilution
 Method EPA 900.0m HBN 91038 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2785300 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/12468 HBN 91038
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

18 3072085096-2540-SU14-5

Analytical Information

Procedure 9000 I		Instru NONE		Run Date 7/14/2012 21:40		Dilution	
Method EPA 900.0m		Col ID		Hold Date 12/11/2012 23:59		Analyst MBT	
Schedule 2785300		File				CC OK F	

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.673JB ± 0.505 (0.864)	pCi/sa 0.673JB ± 0.505 (0.864)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.370J ± 0.329 (0.648)	pCi/sa 0.370J ± 0.329 (0.648)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

19 3072085097-2540-SU14-6

Type PS	Matrix Wipe	Collected 6/14/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmonth 1207073	Location

Prep Information

Procedure 9000 I		Batch RADC/12468		Prep Date 7/14/2012 21:40		Dilution	
Method EPA 900.0m		HBN 91038		Hold Date 12/11/2012 23:59		Analyst MBT	
Schedule 2785302		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 7/14/2012 21:40		Dilution	
Method EPA 900.0m		Col ID		Hold Date 12/11/2012 23:59		Analyst MBT	
Schedule 2785302		File				CC OK F	

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.663JB ± 0.495 (0.825)	pCi/sa 0.663JB ± 0.495 (0.825)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.319J ± 0.313 (0.625)	pCi/sa 0.319J ± 0.313 (0.625)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

20 3072085098-2540-SU14-7

Type PS	Matrix Wipe	Collected 6/14/2012 00:01	% Moisture
Client RTI	WO 3072085	Work ID Fort Monmonth 1207073	Location

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

Quality Control Review



Batch RADC/12468 HBN 91038
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

20 3072085098-2540-SU14-7

Prep Information

Procedure 9000 I **Batch** RADC/12468 **Prep Date** 7/19/2012 17:36 **Dilution**
Method EPA 900.0m **HBN** 91038 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2785304 **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** 7/19/2012 17:36 **Dilution**
Method EPA 900.0m **Col ID** File **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2785304 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.528JB ± 0.510 (0.999)	pCi/sa 0.528JB ± 0.510 (0.999)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.133U ± 0.283 (0.622)	pCi/sa 0.133U ± 0.283 (0.622)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

21 3072085099-2540-SU14-8

Type PS **Matrix** Wipe **Collected** 6/14/2012 00:01 **% Moisture**
Client RTI **WO** 3072085 **Work ID** Fort Monmouth 1207073 **Location**

Prep Information

Procedure 9000 I **Batch** RADC/12468 **Prep Date** 7/14/2012 21:40 **Dilution**
Method EPA 900.0m **HBN** 91038 **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2785306 **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** 7/14/2012 21:40 **Dilution**
Method EPA 900.0m **Col ID** File **Hold Date** 12/11/2012 23:59 **Analyst** MBT
Schedule 2785306 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.232UB ± 0.393 (0.873)	pCi/sa 0.232UB ± 0.393 (0.873)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.235J ± 0.309 (0.664)	pCi/sa 0.235J ± 0.309 (0.664)		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/12468	HBN	91038
Rule	9000 I	Status	RE
Create Date	6/28/2012	Analyst	MBT



21 3072085099-2540-SU14-8

** 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 13:08
Batch ID 12468
A-code 9000 I
Method EPA 900.0m
Assigned Analyst MBT
Earliest Due Date 07/04/2012 07:12
HBN
91038
9000W or NJ
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	
													MCL Exceedance *		MCL Exceedance *	
	456982	BLANK	IP		QCACCOUNT	0.884B	0.511	0.686	0.509J	0.331	0.587	7/13/12 15:39				
3072085	3072085080	PS	WP	6/19/2012 0:01	RTI	0.242UB	0.387	0.845	-0.158U	0.247	0.641	7/13/12 16:03				
3072085	3072085081	PS	WP	6/19/2012 0:01	RTI	0.222UB	0.410	0.924	-0.128U	0.287	0.719	7/13/12 16:32				
3072085	3072085082	PS	WP	6/19/2012 0:01	RTI	-0.020UB	0.343	0.933	0.326J	0.302	0.623	7/13/12 16:32				
3072085	3072085083	PS	WP	6/19/2012 0:01	RTI	0.097UB	0.348	0.889	0.228J	0.302	0.655	7/17/12 9:27				
3072085	3072085084	PS	WP	6/19/2012 0:01	RTI	0.390UB	0.454	0.923	-0.028U	0.253	0.612	7/13/12 16:33				
3072085	3072085085	PS	WP	6/19/2012 0:01	RTI	0.506JB	0.499	0.972	0.755	0.377	0.623	7/13/12 16:33				
3072085	3072085086	PS	WP	6/19/2012 0:01	RTI	0.733JB	0.535	0.929	0.103U	0.283	0.626	7/13/12 16:33				
3072085	3072085087	PS	WP	6/19/2012 0:01	RTI	0.410UB	0.472	0.962	0.155U	0.282	0.617	7/19/12 17:31				
3072085	3072085088	PS	WP	6/19/2012 0:01	RTI	0.133UB	0.387	0.944	0.089U	0.303	0.710	7/19/12 17:32				
3072085	3072085089	PS	WP	6/19/2012 0:01	RTI	0.672JB	0.522	0.963	0.520J	0.325	0.591	7/19/12 17:35				
3072085	3072085090	PS	WP	6/19/2012 0:01	RTI	0.061UB	0.363	0.917	0.185U	0.306	0.681	7/14/12 21:40				
3072085	3072085091	PS	WP	6/14/2012 0:01	RTI	0.087UB	0.386	0.986	0.162U	0.290	0.653	7/19/12 17:36				
3072085	3072085092	PS	WP	6/14/2012 0:01	RTI	0.573JB	0.512	0.962	0.438J	0.327	0.617	7/14/12 21:40				
3072085	3072085093	PS	WP	6/14/2012 0:01	RTI	0.655JB	0.516	0.885	0.453J	0.321	0.581	7/17/12 9:27				
3072085	3072085094	PS	WP	6/14/2012 0:01	RTI	0.941B	0.581	0.899	0.876	0.407	0.643	7/14/12 21:40				
3072085	3072085095	PS	WP	6/14/2012 0:01	RTI	0.173UB	0.416	0.974	0.342J	0.321	0.659	7/14/12 21:40				
3072085	3072085096	PS	WP	6/14/2012 0:01	RTI	0.673JB	0.505	0.864	0.370J	0.329	0.648	7/14/12 21:40				
3072085	3072085097	PS	WP	6/14/2012 0:01	RTI	0.663JB	0.495	0.825	0.319J	0.313	0.625	7/14/12 21:40				
3072085	3072085098	PS	WP	6/14/2012 0:01	RTI	0.528JB	0.510	0.999	0.133U	0.283	0.622	7/19/12 17:36				
3072085	3072085099	PS	WP	6/14/2012 0:01	RTI	0.232UB	0.393	0.873	0.235J	0.309	0.664	7/14/12 21:40				

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* 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.

Gross Alpha and Gross Beta Preparation Sheet

Batch: 124108
 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 b: _____
 Aliquot Balance ID: NA Aliquot Wgt. Date: _____
 Tare Balance ID: _____ Tare Wgt. Date: _____
 LCS QC Vol (mL): a: _____ b: _____
 MS/MSD 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)			
NA	458982	NA	NA	1.0	NA	NA	NA	
	3072085080							
1	81							
2	82							
3	83							
4	84							
5	85							
6	86							
7	87							
8	88							
9	89							
10	90							
11	91							
12	92							
13	93							
14	94							
15	95							
16	96							
17	97							
18	98							
19	99							
20								
21	LOS 124108							
22	LOS P124108							
23								
24								

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

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12468
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
458982	1.00000	S	9.0000	9.0000	0.00	37	7/13/2012 15:39	0.1833	0.5917	120	0.0420	0.3190	1000	dpm
3072085080	1.00000	S	9.0000	9.0000	0.00	18	7/13/2012 16:03	0.1000	0.3250	120	0.0630	0.3820	1000	dpm
3072085081	1.00000	S	9.0000	9.0000	0.00	15	7/13/2012 16:32	0.1167	0.4500	120	0.0820	0.4950	1000	dpm
3072085082	1.00000	S	9.0000	9.0000	0.00	21	7/13/2012 16:32	0.0750	0.5250	120	0.0780	0.3780	1000	dpm
3072085083	1.00000	S	9.0000	9.0000	0.00	21	7/17/2012 9:27	0.0727	0.4909	110	0.0580	0.3810	1000	dpm
3072085084	1.00000	S	9.0000	9.0000	0.00	28	7/13/2012 16:33	0.1417	0.3417	120	0.0810	0.3330	1000	dpm
3072085085	1.00000	S	9.0000	9.0000	0.00	31	7/13/2012 16:33	0.1667	0.7333	120	0.0890	0.3670	1000	dpm
3072085086	1.00000	S	9.0000	9.0000	0.00	33	7/13/2012 16:33	0.2083	0.4750	120	0.0900	0.3870	1000	dpm
3072085087	1.00000	S	9.0000	9.0000	0.00	16	7/19/2012 17:31	0.1500	0.4333	120	0.0870	0.3430	1000	dpm
3072085088	1.00000	S	9.0000	9.0000	0.00	27	7/19/2012 17:32	0.0900	0.4400	100	0.0690	0.3930	1000	dpm
3072085089	1.00000	S	9.0000	9.0000	0.00	33	7/19/2012 17:35	0.2286	0.6857	140	0.1200	0.4100	1000	dpm
3072085090	1.00000	S	9.0000	9.0000	0.00	14	7/14/2012 21:40	0.0917	0.5250	120	0.0820	0.4390	1000	dpm
3072085091	1.00000	S	9.0000	9.0000	0.00	36	7/19/2012 17:36	0.0800	0.4100	100	0.0670	0.3320	1000	dpm
3072085092	1.00000	S	9.0000	9.0000	0.00	16	7/14/2012 21:40	0.1750	0.5667	120	0.0870	0.3430	1000	dpm
3072085093	1.00000	S	9.0000	9.0000	0.00	29	7/17/2012 9:27	0.1636	0.5091	110	0.0630	0.2740	1000	dpm
3072085094	1.00000	S	9.0000	9.0000	0.00	18	7/14/2012 21:40	0.2167	0.8250	120	0.0730	0.3840	1000	dpm
3072085095	1.00000	S	9.0000	9.0000	0.00	19	7/14/2012 21:40	0.1167	0.6000	120	0.0900	0.4330	1000	dpm
3072085096	1.00000	S	9.0000	9.0000	0.00	20	7/14/2012 21:40	0.1750	0.5917	120	0.0700	0.3890	1000	dpm
3072085097	1.00000	S	9.0000	9.0000	0.00	21	7/14/2012 21:40	0.1583	0.5667	120	0.0580	0.3810	1000	dpm
3072085098	1.00000	S	9.0000	9.0000	0.00	38	7/19/2012 17:36	0.1846	0.4769	130	0.1040	0.3900	1000	dpm
3072085099	1.00000	S	9.0000	9.0000	0.00	23	7/14/2012 21:40	0.1083	0.5333	120	0.0720	0.4150	1000	dpm
LCS12468	1.00000	S	9.0000	9.0000	0.00	25	7/14/2012 21:41	0.6000	5.0083	120	0.1580	0.4010	1000	dpm
LCSD12468	1.00000	S	9.0000	9.0000	0.00	26	7/14/2012 21:41	0.4833	4.5583	120	0.0970	0.4050	1000	dpm

MBT

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12468
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
458982	0.884	0.486	0.511	0.686	0.204	dpm/S	0.141	0.00	0.000000	0.141	15.98%	1
3072085080	0.242	0.384	0.387	0.845	0.262	dpm/S	0.037	0.00	0.000000	0.037	15.27%	1
3072085081	0.222	0.408	0.410	0.924	0.293	dpm/S	0.035	0.00	0.000000	0.035	15.61%	1
3072085082	-0.020	0.343	0.343	0.933	0.294	dpm/S	-0.003	0.00	0.000000	-0.003	15.13%	1
3072085083	0.097	0.347	0.348	0.869	0.264	dpm/S	0.015	0.00	0.000000	0.015	15.13%	1
3072085084	0.390	0.448	0.454	0.923	0.292	dpm/S	0.061	0.00	0.000000	0.061	15.54%	1
3072085085	0.506	0.491	0.499	0.972	0.310	dpm/S	0.078	0.00	0.000000	0.078	15.35%	1
3072085086	0.733	0.519	0.535	0.929	0.296	dpm/S	0.118	0.00	0.000000	0.118	16.15%	1
3072085087	0.410	0.466	0.472	0.962	0.306	dpm/S	0.063	0.00	0.000000	0.063	15.37%	1
3072085088	0.133	0.386	0.387	0.944	0.288	dpm/S	0.021	0.00	0.000000	0.021	15.80%	1
3072085089	0.672	0.508	0.522	0.963	0.319	dpm/S	0.109	0.00	0.000000	0.109	16.15%	1
3072085090	0.061	0.363	0.363	0.917	0.290	dpm/S	0.010	0.00	0.000000	0.010	15.72%	1
3072085091	0.087	0.386	0.386	0.986	0.300	dpm/S	0.013	0.00	0.000000	0.013	14.95%	1
3072085092	0.573	0.501	0.512	0.962	0.306	dpm/S	0.088	0.00	0.000000	0.088	15.37%	1
3072085093	0.655	0.502	0.516	0.885	0.271	dpm/S	0.101	0.00	0.000000	0.101	15.36%	1
3072085094	0.941	0.556	0.581	0.899	0.282	dpm/S	0.144	0.00	0.000000	0.144	15.27%	1
3072085095	0.173	0.415	0.416	0.974	0.311	dpm/S	0.027	0.00	0.000000	0.027	15.39%	1
3072085096	0.673	0.491	0.505	0.864	0.270	dpm/S	0.105	0.00	0.000000	0.105	15.61%	1
3072085097	0.663	0.481	0.495	0.825	0.254	dpm/S	0.100	0.00	0.000000	0.100	15.13%	1
3072085098	0.528	0.502	0.510	0.999	0.325	dpm/S	0.081	0.00	0.000000	0.081	15.25%	1
3072085099	0.232	0.391	0.393	0.873	0.274	dpm/S	0.036	0.00	0.000000	0.036	15.64%	1
LCS12468	2.780	0.885	1.016	1.203	0.399	dpm/S	0.442	0.00	0.000000	0.442	15.90%	1
LCS12468	2.454	0.800	0.912	0.983	0.315	dpm/S	0.386	0.00	0.000000	0.386	15.74%	1

MBT/2012

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12468
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
458982	0.509	0.318	0.331	0.587	0.201	dpm/S	0.273	0.00	0.045070	0.228	44.70%	1
3072085080	-0.158	0.245	0.247	0.641	0.222	dpm/S	-0.057	0.00	0.013327	-0.070	44.42%	1
3072085081	-0.128	0.286	0.287	0.719	0.251	dpm/S	-0.045	0.00	0.012037	-0.057	44.66%	1
3072085082	0.326	0.297	0.302	0.623	0.215	dpm/S	0.147	0.00	-0.001214	0.148	45.53%	1
3072085083	0.228	0.300	0.302	0.655	0.225	dpm/S	0.110	0.00	0.005961	0.104	45.53%	1
3072085084	-0.028	0.253	0.253	0.612	0.210	dpm/S	0.009	0.00	0.020823	-0.012	43.73%	1
3072085085	0.755	0.351	0.377	0.623	0.215	dpm/S	0.366	0.00	0.027342	0.339	44.88%	1
3072085086	0.103	0.282	0.283	0.626	0.216	dpm/S	0.088	0.00	0.041003	0.047	45.82%	1
3072085087	0.155	0.281	0.282	0.617	0.213	dpm/S	0.090	0.00	0.022326	0.068	43.92%	1
3072085088	0.089	0.302	0.303	0.710	0.242	dpm/S	0.047	0.00	0.007103	0.040	44.88%	1
3072085089	0.520	0.312	0.325	0.591	0.208	dpm/S	0.276	0.00	0.037620	0.238	45.82%	1
3072085090	0.185	0.305	0.306	0.681	0.237	dpm/S	0.086	0.00	0.003469	0.083	44.64%	1
3072085091	0.162	0.289	0.290	0.653	0.221	dpm/S	0.078	0.00	0.004688	0.073	45.20%	1
3072085092	0.438	0.318	0.327	0.617	0.213	dpm/S	0.224	0.00	0.031185	0.192	43.92%	1
3072085093	0.453	0.311	0.321	0.581	0.196	dpm/S	0.235	0.00	0.034790	0.200	44.19%	1
3072085094	0.876	0.376	0.407	0.643	0.222	dpm/S	0.441	0.00	0.051749	0.389	44.42%	1
3072085095	0.342	0.316	0.321	0.659	0.229	dpm/S	0.167	0.00	0.010201	0.157	45.78%	1
3072085096	0.370	0.323	0.329	0.648	0.224	dpm/S	0.203	0.00	0.038827	0.164	44.32%	1
3072085097	0.319	0.308	0.313	0.625	0.216	dpm/S	0.186	0.00	0.040611	0.145	45.53%	1
3072085098	0.133	0.282	0.283	0.622	0.217	dpm/S	0.087	0.00	0.027968	0.059	44.28%	1
3072085099	0.235	0.306	0.309	0.664	0.230	dpm/S	0.118	0.00	0.013399	0.105	44.61%	1
LCS12468	9.810	0.887	1.966	0.642	0.222	dpm/S	4.607	0.00	0.156959	4.450	45.37%	1
LCSD12468	8.850	0.845	1.794	0.644	0.223	dpm/S	4.153	0.00	0.130507	4.023	45.46%	1

MBT

Quality Control Sample Performance Assessment

RCDU Upload

Analyst: MBT
Date: 7/20/2012
Worklist: 12468
Matrix: Filter

Method: EPA 900.0m
SOP: PGH-R-001
MB Sample ID: 458982



Method Blank Assessment		Method Blank Assessment		Method Blank Assessment		
Analyte	Activity	1.96 Sig Unc.	MDC	Critical Value	Flag	Assessment
Gross Alpha	0.8840	0.5110	0.6960	0.20400		
Gross Beta	0.5090	0.3310	0.5870	0.20100		

Laboratory Control Sample Assessment		Laboratory Control Sample Assessment		Laboratory Control Sample Assessment			
Analyte:	Count Date:	LCS	LCSD	LCS	LCSD	LCS	LCSD
Gross Alpha	7/14/12 21:41	7/14/12 21:41	7/14/12 21:41	Gross Beta	7/14/12 21:41		
Spikes I.D.:	12-018-F1	12-018-F2	12-014-F1	12-014-F2			
Spike Concentration (DPM/Sample):	2.353	9.801	1.000	1.000	9.801		
Volume Used (mL):	1.000	1.000	1.000	1.000	1.000		
Aliquot Volume (L, g, F):	1.000	1.000	1.000	1.000	1.000		
Target Conc. (DPM/Sample, g, F):	2.353	2.353	9.801	9.801	9.801		
1.96 Sigma Uncertainty (Calculated):	0.138	0.138	0.192	0.192	0.192		
Result (DPM/Sample, g, F):	2.780	2.454	9.810	8.850	8.850		
1.96 Sigma Unc:	1.016	0.912	1.966	1.794	1.794		
% Recovery:	118.15%	104.30%	100.09%	90.30%	90.30%		
Assessment:	Pass	Pass	Pass	Pass	Pass		
Upper % Recovery Limits:	119.00%	119.00%	130.00%	130.00%	130.00%		
Lower % Recovery Limits:	62.00%	62.00%	79.00%	79.00%	79.00%		

Duplicate Sample Assessment		Duplicate Sample Assessment	
LCS/LCSD Y or NP:	Y	Y	Y
Gross Alpha	Gross Alpha	Gross Beta	Gross Beta
LCSD12468	LCSD12468	LCSD12468	LCSD12468
Duplicate Sample I.D.	LCSD12468	LCSD12468	LCSD12468
Sample Result (DPM/Sample, g, F):	2.7800	9.8100	9.8100
1.96 Sigma Unc:	1.0160	1.9660	1.9660
Sample Duplicate Result (DPM/Sample, g, F):	2.4540	8.8500	8.8500
Duplicate Sample 1.96 Sigma Unc:	0.9120	1.7940	1.7940
Either results below MDC?	No	No	No
Relative Percent Difference:	12.46%	10.29%	10.29%
Assessment:	Pass	Pass	Pass
% RPD Limit:	35.00%	17.00%	17.00%

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

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

Comments:

M/2012

7/20/12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12468
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			11/20/2006			Beta to Alpha Cross-Talk			Beta Eff: ax + b			Beta-to-Alpha Xtalk : ax + b			BKG 1 Date:		BKG 2 Date:				
	a	b	c	d	e	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					1.4256E-01					3.236E-01					4.5624E-01						0.0640	0.8040	0.0640	0.8040	0.0640	0.8040	0.0640	0.8040	0.0640	0.8040	
2					1.5524E-01					2.7392E-01					4.5635E-01						0.0620	0.7010	0.0620	0.7010	0.0620	0.7010	0.0620	0.7010	0.0620	0.7010	
3					1.5070E-01					3.0970E-01					4.4491E-01						0.0600	0.6670	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	0.6050	0.1120	0.6050	0.1120	0.6050	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	0.0520	5.1640	
6					#N/A					#N/A					#N/A						0.0510		0.0510		0.0510		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	0.1070	0.6890	
8					1.4091E-01					3.0938E-01					4.2938E-01						0.0960	0.6310	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	0.0550	0.6370	
10					#N/A					#N/A					#N/A						0.1620	0.4690	0.1620	0.4690	0.1620	0.4690	0.1620	0.4690	0.1620	0.4690	
11					1.5103E-01					4.0303E-01					4.5395E-01						0.0890	0.3780	0.0890	0.3780	0.0890	0.3780	0.0890	0.3780	0.0890	0.3780	
12					1.5319E-01					3.7376E-01					4.5830E-01						0.0500	0.3330	0.0500	0.3330	0.0500	0.3330	0.0500	0.3330	0.0500	0.3330	
13					1.4959E-01					4.0742E-01					3.9032E-01						0.0690	0.3800	0.0690	0.3800	0.0690	0.3800	0.0690	0.3800	0.0690	0.3800	
14					1.5721E-01					3.5889E-01					4.4635E-01						0.0820	0.4950	0.0820	0.4950	0.0820	0.4950	0.0820	0.4950	0.0820	0.4950	
15					1.5605E-01					3.4723E-01					4.4658E-01						0.0610	0.3910	0.0610	0.3910	0.0610	0.3910	0.0610	0.3910	0.0610	0.3910	
16					1.5365E-01					3.5438E-01					4.3920E-01						0.1370	0.3660	0.1370	0.3660	0.1370	0.3660	0.1370	0.3660	0.1370	0.3660	
17					1.5472E-01					3.2964E-01					4.4691E-01						0.0630	0.3620	0.0630	0.3620	0.0630	0.3620	0.0630	0.3620	0.0630	0.3620	
18					1.5273E-01					3.6020E-01					4.4422E-01						0.0770	0.4570	0.0770	0.4570	0.0770	0.4570	0.0770	0.4570	0.0770	0.4570	
19					1.5393E-01					3.8255E-01					4.5782E-01						0.0970	0.3620	0.0970	0.3620	0.0970	0.3620	0.0970	0.3620	0.0970	0.3620	
20					1.5610E-01					3.6978E-01					4.4321E-01						0.0760	0.3780	0.0760	0.3780	0.0760	0.3780	0.0760	0.3780	0.0760	0.3780	
21					1.5130E-01					4.0476E-01					4.5538E-01						0.0570	0.4180	0.0570	0.4180	0.0570	0.4180	0.0570	0.4180	0.0570	0.4180	
22					1.5360E-01					3.9282E-01					4.3554E-01						0.0750	0.4570	0.0750	0.4570	0.0750	0.4570	0.0750	0.4570	0.0750	0.4570	
23					1.5639E-01					3.6678E-01					4.4612E-01																
24					#N/A					#N/A					#N/A																
25					1.5898E-01					3.5511E-01					4.5368E-01						0.1270	0.4110	0.1270	0.4110	0.1270	0.4110	0.1270	0.4110	0.1270	0.4110	
26					1.5743E-01					3.3781E-01					4.5458E-01						0.1490	0.4370	0.1490	0.4370	0.1490	0.4370	0.1490	0.4370	0.1490	0.4370	
27					1.5803E-01					3.3826E-01					4.4893E-01						0.0740	0.2880	0.0740	0.2880	0.0740	0.2880	0.0740	0.2880	0.0740	0.2880	

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12468
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 Crosstalk : $ax^4 + bx^3 + cx^2 + dx + e$			Beta Eff: $ax + b$			Beta-to-Alpha Xtalk : $ax + b$			BKG 1 Date:	BKG 2 Date:	Alpha Bkg	Beta Bkg	Beta Bkg
	a	b	c		d	e	a		b	c	d	e	a	b	c	a	b					
28					1.5536E-01					3.4323E-01				4.3725E-01				0.0810	0.3330	0.1500	0.3480	
29					1.5363E-01					3.4570E-01				4.4186E-01				0.0840	0.3220	0.0930	0.2740	
30					1.5497E-01					3.5154E-01				4.4737E-01				0.0720	0.4090	0.2330	0.4240	
31					1.5353E-01					3.5004E-01				4.4881E-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					3.4650E-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					3.6059E-01				4.5203E-01				0.0930	0.4070	0.0670	0.3320	
37					1.5981E-01					3.1899E-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					2.5995E-01				4.5470E-01				0.2530	12.5520	0.2530	12.5520	
41					#N/A					#N/A				#N/A				2.7170	366.8100	2.7170	366.8100	
42					1.4541E-01					4.9886E-01				3.3352E-01				0.2050	9.9000	0.2050	9.9000	
43					1.7964E-01					2.8197E-01				4.4459E-01				0.1620	1.1660	0.1620	1.1660	
44					1.7507E-01					2.9247E-01				4.5195E-01				0.1110	0.9900	0.1110	0.9900	
45					1.6996E-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				0.0940	1.1670	0.0940	1.1670	
47					1.7203E-01					2.9040E-01				4.5901E-01				0.1650	2.0860	0.1650	2.0860	
48					1.8314E-01					2.6983E-01				4.6967E-01				0.3390	1.3450	0.3390	1.3450	
49					1.6993E-01					2.9322E-01				4.4190E-01				0.2050	1.4600	0.2050	1.4600	
50					1.6594E-01					2.8046E-01				4.5406E-01				0.1500	1.3750	0.1500	1.3750	
51					1.7800E-01					2.8023E-01				4.5625E-01				0.1070	1.1480	0.1070	1.1480	
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	

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
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
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
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

Handwritten: 7/20/12

Analysis						
SAMPLE_ID	Det#	BEG_DATE	BATCH_ID	ACPM	BCPM	CNT_TIME
458982	37	7/13/2012 15:39	GAB12468	0.183333333	0.591666667	120
3072085080	18	7/13/2012 16:03	GAB12468	0.1	0.325	120
3072085081	15	7/13/2012 16:32	GAB12468	0.116666667	0.45	120
3072085082	21	7/13/2012 16:32	GAB12468	0.075	0.525	120
3072085083	26	7/13/2012 16:33	GAB12468	0.116666667	0.516666667	120
3072085084	28	7/13/2012 16:33	GAB12468	0.141666667	0.341666667	120
3072085085	31	7/13/2012 16:33	GAB12468	0.166666667	0.733333333	120
3072085086	33	7/13/2012 16:33	GAB12468	0.208333333	0.475	120
3072085087	11	7/14/2012 21:39	GAB12468	0.125	0.516666667	120
3072085088	12	7/14/2012 21:39	GAB12468	0.125	0.458333333	120
3072085089	13	7/14/2012 21:40	GAB12468	0.133333333	0.55	120
3072085090	14	7/14/2012 21:40	GAB12468	0.091666667	0.525	120
3072085091	15	7/14/2012 21:40	GAB12468	0.141666667	0.6	120
3072085092	16	7/14/2012 21:40	GAB12468	0.175	0.566666667	120
3072085093	17	7/14/2012 21:40	GAB12468	0.15	0.508333333	120
3072085094	18	7/14/2012 21:40	GAB12468	0.216666667	0.825	120
3072085095	19	7/14/2012 21:40	GAB12468	0.116666667	0.6	120
3072085096	20	7/14/2012 21:40	GAB12468	0.175	0.591666667	120
3072085097	21	7/14/2012 21:40	GAB12468	0.158333333	0.566666667	120
3072085098	22	7/14/2012 21:40	GAB12468	0.25	0.591666667	120
3072085099	23	7/14/2012 21:40	GAB12468	0.108333333	0.533333333	120
LCS12468	25	7/14/2012 21:41	GAB12468	0.6	5.008333333	120
LCSD12468	26	7/14/2012 21:41	GAB12468	0.483333333	4.558333333	120
3072085083	21	7/17/2012 9:27	GAB12468	0.072727273	0.490909091	110
3072085087	22	7/17/2012 9:27	GAB12468	0.258333333	0.625	120
3072085093	29	7/17/2012 9:27	GAB12468	0.163636364	0.509090909	110
3072085087	16	7/19/2012 17:31	GAB12468	0.15	0.433333333	120
3072085088	27	7/19/2012 17:32	GAB12468	0.09	0.44	100
3072085089	33	7/19/2012 17:35	GAB12468	0.228571429	0.685714286	140
3072085091	36	7/19/2012 17:36	GAB12468	0.08	0.41	100
3072085098	38	7/19/2012 17:36	GAB12468	0.184615385	0.476923077	130

Pace Analytical Protean GFPC System Count Data

SAMPLE_ID	Count Start:	DET#	BATCH_ID	Alpha cpm	Beta cpm	Ct. Time (min)
3072085098	7/19/2012 5:36:13 PM	38	GAB12468	0.185	0.4769	130.0
3072085091	7/19/2012 5:36:06 PM	36	GAB12468	0.080	0.4100	100.0
3072085089	7/19/2012 5:35:57 PM	33	GAB12468	0.229	0.6857	140.0
3072085088	7/19/2012 5:32:35 PM	27	GAB12468	0.090	0.4400	100.0
3072085087	7/19/2012 5:31:57 PM	16	GAB12468	0.150	0.4333	120.0
3072085093	7/17/2012 9:27:23 AM	29	GAB12468	0.164	0.5091	110.0
3072085087	7/17/2012 9:27:14 AM	22	GAB12468	0.258	0.6250	120.0
3072085083	7/17/2012 9:27:07 AM	21	GAB12468	0.073	0.4909	110.0
LCSD12468	7/14/2012 9:41:15 PM	26	GAB12468	0.483	4.5583	120.0
LCS12468	7/14/2012 9:41:08 PM	25	GAB12468	0.600	5.0083	120.0
3072085099	7/14/2012 9:40:59 PM	23	GAB12468	0.108	0.5333	120.0
3072085098	7/14/2012 9:40:51 PM	22	GAB12468	0.250	0.5917	120.0
3072085097	7/14/2012 9:40:47 PM	21	GAB12468	0.158	0.5667	120.0
3072085096	7/14/2012 9:40:42 PM	20	GAB12468	0.175	0.5917	120.0
3072085095	7/14/2012 9:40:36 PM	19	GAB12468	0.117	0.6000	120.0
3072085094	7/14/2012 9:40:23 PM	18	GAB12468	0.217	0.8250	120.0

SAMPLE_ID	Count Start:	DET#	BATCH_ID	Alpha cpm	Beta cpm	Ct. Time (min)
3072085093	7/14/2012 9:40:17 PM	17	GAB12468	0.150	0.5083	120.0
3072085092	7/14/2012 9:40:13 PM	16	GAB12468	0.175	0.5667	120.0
3072085091	7/14/2012 9:40:09 PM	15	GAB12468	0.142	0.6000	120.0
3072085090	7/14/2012 9:40:04 PM	14	GAB12468	0.092	0.5250	120.0
3072085089	7/14/2012 9:40:00 PM	13	GAB12468	0.133	0.5500	120.0
3072085088	7/14/2012 9:39:53 PM	12	GAB12468	0.125	0.4583	120.0
3072085087	7/14/2012 9:39:49 PM	11	GAB12468	0.125	0.5167	120.0
3072085086	7/13/2012 4:33:28 PM	33	GAB12468	0.208	0.4750	120.0
3072085085	7/13/2012 4:33:19 PM	31	GAB12468	0.167	0.7333	120.0
3072085084	7/13/2012 4:33:13 PM	28	GAB12468	0.142	0.3417	120.0
3072085083	7/13/2012 4:33:03 PM	26	GAB12468	0.117	0.5167	120.0
3072085082	7/13/2012 4:32:31 PM	21	GAB12468	0.075	0.5250	120.0
3072085081	7/13/2012 4:32:23 PM	15	GAB12468	0.117	0.4500	120.0
3072085080	7/13/2012 4:03:10 PM	18	GAB12468	0.100	0.3250	120.0
458982	7/13/2012 3:39:22 PM	37	GAB12468	0.183	0.5917	120.0

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	37	45895a	GAB12468	120	7/13/12 15:35	BST	WA	WA
	18	307205080			16:03			
	15	081			16:33			
	21	082						
	26	083						
	28	084						
	31	085						
	33	086						
	1011	087			7/14/12 21:40			
	1312	088						
	1413	089						
	1514	090						
	1615	091						
	1716	092						
	1817	093						
	1918	094						
	2019	095						
	2120	096						
	2221	097						
	2322	098						
	2523	099						
	2625	LCS1-12468		90	7/14/12			
	2726	LCS2-12468		90				
	2827	458983	GAB12469	120	7/14/12			

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

Peer Review Doc Date: 7/18/12

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
UAB	12	370120010	UAB12033	90	7/17/12	U	NA	UAB
↓	14	370120012	↓	140	↓	↓	↓	↓
UAB	15	101917004	UAB12033	90	7/19/12 0737	U	NA	Supplies added to Binley
↓	32	307208001	↓	↓	7/10/12 0824	↓	↓	↓
↓	35	307208002	↓	↓	7/10/12 0831	↓	↓	↓
↓	3	307208003	↓	↓	7/10/12 0844	↓	↓	↓
UAB	15	LOS#1-12456	UAB12456	90	7-17-12 0915	WBS	NA	NA
↓	16	LOS#2-12456	↓	↓	↓	↓	↓	↓
↓	17	LOS#3-12458	UAB12458	90	↓	↓	↓	↓
↓	18	LOS#4-12458	↓	↓	↓	↓	↓	↓
↓	19	3072080019	UAB12459	110	7-17-12 0928	WBS	NA	↓
↓	20	458981	UAB12467	120	↓	↓	↓	MDC
↓	21	3072080083	UAB12468	110	↓	↓	↓	MDC
↓	22	↓ 87	↓	100120	↓	↓	↓	MDC
↓	29	3072080093	UAB12468	110	↓	↓	↓	MDC
↓	31	3072080008	UAB12469	120	↓	↓	↓	MDC
↓	33	↓ 010	↓	120	↓	↓	↓	NA
↓	34	3072080011	↓	100	↓	↓	↓	↓
↓	36	↓ 12	↓	130	↓	↓	↓	↓
↓	37	↓ 13	↓	90	↓	↓	↓	↓
↓	38	↓ 14	↓	150	↓	↓	↓	↓
UAB	23	3072080015	UAB12469	100	07-17-12 0949	WBS	NA	NA
↓	27	↓ 10	↓	↓	↓	WBS	↓	↓

- 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
	20	3561330001	GRA 12656	700	7/19/12	B5H	NA	NA
	21	3561358001						
	22	↓ 002						
	23	3561360001						
	25	3561286001						
	26	3562011001						
	29	↓ 002						
	30	↓ 003						
	32	↓ 004						
	33	307317601			15:43			
	34	3073178001			16:39			
	35	3072501001			↓			
	36	3072085087			15:43			
	37	↓ 088						
	38	US 12472						
	39	3072085089						
	34	↓ 041						
	38	↓ 048						
	34	458982						
	51	3072086097						
	52	↓ 98						
	53	↓ 99						
	11	US 12469 (1)	64812469	90	7/19/12 17:36		NA	NA
	16	3072085087	64912468	120			2	
	27	↓ 088		100			↓	
	28	US 12472 (2)	64812472	90			NA	
	33	3072085089	60512468	140			2	
	34	↓ 041		100			↓	
	38	↓ 048		130			↓	
	34	458982	64812468	140			2	NA
	51	3072086097	64812473	300	7/19/12 17:30		NA	NA
	52	↓ 98						
	53	↓ 99						

- 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 Sample Analysis Data

Quality Control Review



Batch RADC/12469 HBN 91039
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

1 458983-BLANK for HBN 91039 [RADC/1246

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

Prep Information

Procedure 9000 I Batch RADC/12469 Prep Date 7/14/2012 21:41 Dilution
 Method EPA 900.0m HBN 91039 Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795666 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 7/14/2012 21:41 Dilution
 Method EPA 900.0m Col ID Hold Date 12/25/2012 23:59 Analyst MBT
 Schedule 2795666 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL
Rad Chemistry	OK				
Gross Alpha	OK	0.354J ± 0.418 (0.848)	pCi/sa 0.354J ± 0.418 (0.848)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					
Gross Beta	OK	-0.027U ± 0.267 (0.643)	pCi/sa -0.027U ± 0.267 (0.643)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					

2 3072085100-2540-SU14-15

Type PS Matrix Wipe Collected % Moisture
 Client RTI WO 3072085 Work ID Fort Monmouth 1207073 Location

Prep Information

Procedure 9000 I Batch RADC/12469 Prep Date 7/18/2012 14:20 Dilution
 Method EPA 900.0m HBN 91039 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2785308 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 14:20 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2785308 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	Hlgh
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.404J ± 0.473 (0.964)	pCi/sa 0.404J ± 0.473 (0.964)			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/12469 HBN 91039
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

2 3072085100-2540-SU14-15

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Beta	OK	0.187U ± 0.324 (0.713)	pCi/sa 0.187U ± 0.324 (0.713)			dpm/sa	

The lab does not hold TNI accreditation for this parameter.

3 3072086001-2540-SU14-25

Type PS Matrix Wipe Collected 6/14/2012 00:01 % Moisture
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

Prep Information

Procedure 9000 I Batch RADC/12469 Prep Date 7/14/2012 21:41 Dilution
 Method EPA 900.0m HBN 91039 Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2785312 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 7/14/2012 21:41 Dilution
 Method EPA 900.0m Col ID Hold Date 12/11/2012 23:59 Analyst MBT
 Schedule 2785312 File CC OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.404J ± 0.430 (0.841)	pCi/sa 0.404J ± 0.430 (0.841)			dpm/sa	

The lab does not hold TNI accreditation for this parameter.

Gross Beta	OK	1.44 ± 0.474 (0.554)	pCi/sa 1.44 ± 0.474 (0.554)			dpm/sa	
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The lab does not hold TNI accreditation for this parameter.

4 3072086002-2540-SU15-1

Type PS Matrix Wipe Collected 6/20/2012 00:01 % Moisture
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

Prep Information

Procedure 9000 I Batch RADC/12469 Prep Date 7/18/2012 16:11 Dilution
 Method EPA 900.0m HBN 91039 Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785315 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/12469 HBN 91039
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

4 3072086002-2540-SU15-1

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/18/2012 16:11 Dilution
 Method EPA 900.0m CoI ID Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785315 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.232U ± 0.281 (0.964)	pCi/sa -0.232U ± 0.281 (0.964)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.058U ± 0.281 (0.713)	pCi/sa -0.058U ± 0.281 (0.713)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

5 3072086003-2540-SU15-3

Type PS Matrix Wipe Collected 6/20/2012 00:01 % Moisture
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

Prep Information

Procedure 9000 I Batch RADC/12469 Prep Date 7/14/2012 21:41 Dilution
 Method EPA 900.0m HBN 91039 Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785317 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 7/14/2012 21:41 Dilution
 Method EPA 900.0m CoI ID Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785317 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.228U ± 0.431 (0.977)	pCi/sa 0.228U ± 0.431 (0.977)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.026U ± 0.255 (0.623)	pCi/sa -0.026U ± 0.255 (0.623)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

6 3072086004-2540-SU15-4

Type PS Matrix Wipe Collected 6/20/2012 00:01 % Moisture
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

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

Quality Control Review



Batch RADC/12469 HBN 91039
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

6 3072086004-2540-SU15-4

Prep Information

Procedure 9000 I Batch RADC/12469 Prep Date 7/14/2012 21:41 Dilution
 Method EPA 900.0m HBN 91039 Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785319 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 7/14/2012 21:41 Dilution
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785319 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.192U ± 0.340 (0.760)	pCi/sa 0.192U ± 0.340 (0.760)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.095U ± 0.256 (0.585)	pCi/sa 0.095U ± 0.256 (0.585)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

7 3072086005-2540-SU15-5

Type PS Matrix Wipe Collected 6/20/2012 00:01 % Moisture
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

Prep Information

Procedure 9000 I Batch RADC/12469 Prep Date 7/18/2012 14:15 Dilution
 Method EPA 900.0m HBN 91039 Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785321 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 14:15 Dilution
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785321 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.410J ± 0.472 (0.962)	pCi/sa 0.410J ± 0.472 (0.962)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.288J ± 0.302 (0.617)	pCi/sa 0.288J ± 0.302 (0.617)			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/12469 HBN 91039
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

7 3072086005-2540-SU15-5

8 3072086006-2540-SU15-6

Type PS Matrix Wipe Collected 6/20/2012 00:01 % Moisture
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

Prep Information

Procedure 9000 I Batch RADC/12469 Prep Date 7/18/2012 14:15 Dilution
 Method EPA 900.0m HBN 91039 Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785323 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 14:15 Dilution
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785323 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.073U ± 0.346 (0.990)	pCi/sa -0.073U ± 0.346 (0.990)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.029U ± 0.263 (0.659)	pCi/sa -0.029U ± 0.263 (0.659)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

9 3072086007-2540-SU15-8

Type PS Matrix Wipe Collected 6/20/2012 00:01 % Moisture
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

Prep Information

Procedure 9000 I Batch RADC/12469 Prep Date 7/18/2012 14:42 Dilution
 Method EPA 900.0m HBN 91039 Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785323 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 14:42 Dilution
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785323 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/12469 HBN 91039
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT



9 3072086007-2540-SU15-8

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Gross Alpha	OK	0.177U ± 0.403 (0.946)	pCi/sa 0.177U ± 0.403 (0.946)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.068U ± 0.268 (0.674)	pCi/sa -0.068U ± 0.268 (0.674)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

10 3072086008-2540-SU15-9

Type PS Client RTI	Matrix Wipe WO 3072086	Collected 6/20/2012 00:01 Work ID Fort Monmouth 1207074	% Moisture Location
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Prep Information

Procedure 9000 I Method EPA 900.0m Schedule 2785327	Batch RADC/12469 HBN 91039 Instru NONE	Prep Date 7/17/2012 09:27 Hold Date 12/17/2012 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 2785327	Instru NONE Col ID File	Run Date 7/17/2012 09:27 Hold Date 12/17/2012 23:59	Dilution Analyst MBT CC OK F
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Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.282U ± 0.445 (0.977)	pCi/sa 0.282U ± 0.445 (0.977)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.506J ± 0.334 (0.623)	pCi/sa 0.506J ± 0.334 (0.623)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

11 3072086009-2540-SU15-11

Type PS Client RTI	Matrix Wipe WO 3072086	Collected 6/20/2012 00:01 Work ID Fort Monmouth 1207074	% Moisture Location
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Prep Information

Procedure 9000 I Method EPA 900.0m Schedule 2785329	Batch RADC/12469 HBN 91039 Instru NONE	Prep Date 7/18/2012 14:16 Hold Date 12/17/2012 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/12469 HBN 91039
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

11 3072086009-2540-SU15-11

Analytical Information

Procedure 9000 I	Instru NONE	Run Date 7/18/2012 14:16	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/17/2012 23:59	Analyst MBT
Schedule 2785329	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.065U ± 0.387 (0.974)	pCi/sa 0.065U ± 0.387 (0.974)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.629J ± 0.362 (0.659)	pCi/sa 0.629J ± 0.362 (0.659)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

12 3072086010-2540-SU15-12

Type PS	Matrix Wipe	Collected 6/20/2012 00:01	% Moisture
Client RTI	WO 3072086	Work ID Fort Monmouth 1207074	Location

Procedure 9000 I	Batch RADC/12469	Prep Date 7/18/2012 14:16	Dilution
Method EPA 900.0m	HBN 91039	Hold Date 12/17/2012 23:59	Analyst MBT
Schedule 2785331	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 14:16	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/17/2012 23:59	Analyst MBT
Schedule 2785331	File		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.064U ± 0.371 (0.962)	pCi/sa 0.064U ± 0.371 (0.962)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.129U ± 0.310 (0.716)	pCi/sa 0.129U ± 0.310 (0.716)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

13 3072086011-2540-SU15-13

Type PS	Matrix Wipe	Collected 6/20/2012 00:01	% Moisture
Client RTI	WO 3072086	Work ID Fort Monmouth 1207074	Location

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

Quality Control Review



Batch RADC/12469 HBN 91039
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

13 3072086011-2540-SU15-13

Prep Information

Procedure 9000 I Batch RADC/12469 Prep Date 7/14/2012 23:23 Dilution
 Method EPA 900.0m HBN 91039 Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785333 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 7/14/2012 23:23 Dilution
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785333 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.035U ± 0.335 (0.870)	pCi/sa 0.035U ± 0.335 (0.870)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.122U ± 0.349 (0.847)	pCi/sa -0.122U ± 0.349 (0.847)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

14 3072086012-2540-SU15-14

Type PS Matrix Wipe Collected 6/20/2012 00:01 % Moisture
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

Prep Information

Procedure 9000 I Batch RADC/12469 Prep Date 7/14/2012 23:23 Dilution
 Method EPA 900.0m HBN 91039 Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785335 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 7/14/2012 23:23 Dilution
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785335 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.148U ± 0.339 (0.788)	pCi/sa 0.148U ± 0.339 (0.788)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.126U ± 0.325 (0.794)	pCi/sa -0.126U ± 0.325 (0.794)		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/12469 HBN 91039
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

14 3072086012-2540-SU15-14

15 3072086013-2540-SU15-17

Type PS Matrix Wipe Collected 6/20/2012 00:01 % Moisture
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

Prep Information

Procedure 9000 I Batch RADC/12469 Prep Date 7/14/2012 23:23 Dilution
 Method EPA 900.0m HBN 91039 Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785337 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 7/14/2012 23:23 Dilution
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785337 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.246U ± 0.205 (0.801)	pCi/sa -0.246U ± 0.205 (0.801)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.035U ± 0.329 (0.795)	pCi/sa -0.035U ± 0.329 (0.795)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

16 3072086014-2540-SU15-18

Type PS Matrix Wipe Collected 6/20/2012 00:01 % Moisture
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

Prep Information

Procedure 9000 I Batch RADC/12469 Prep Date 7/17/2012 09:28 Dilution
 Method EPA 900.0m HBN 91039 Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785339 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 7/17/2012 09:28 Dilution
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785339 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/12469 HBN 91039
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

16 3072086014-2540-SU15-18

Analyte	CC	Posted		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Gross Alpha	OK	0.149U ± 0.397 (0.921)	pCi/sa 0.149U ± 0.397 (0.921)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								
Gross Beta	OK	0.110U ± 0.258 (0.576)	pCi/sa 0.110U ± 0.258 (0.576)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								

17 3072086015-2540-SU15-19

Type PS	Matrix Wipe	Collected 6/20/2012 00:01	% Moisture
Client RTI	WO 3072086	Work ID Fort Monmouth 1207074	Location

Prep Information

Procedure 9000 I	Batch RADC/12469	Prep Date 7/17/2012 09:49	Dilution
Method EPA 900.0m	HBN 91039	Hold Date 12/17/2012 23:59	Analyst MBT
Schedule 2785341	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 7/17/2012 09:49	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/17/2012 23:59	Analyst MBT
Schedule 2785341	File		CC OK F

Analyte	CC	Posted		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Rad Chemistry	OK					dpm/sa		
Gross Alpha	OK	0.307J ± 0.450 (0.971)	pCi/sa 0.307J ± 0.450 (0.971)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								
Gross Beta	OK	0.330J ± 0.351 (0.732)	pCi/sa 0.330J ± 0.351 (0.732)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								

18 3072086016-2540-SU15-19D

Type PS	Matrix Wipe	Collected 6/20/2012 00:01	% Moisture
Client RTI	WO 3072086	Work ID Fort Monmouth 1207074	Location

Prep Information

Procedure 9000 I	Batch RADC/12469	Prep Date 7/17/2012 09:51	Dilution
Method EPA 900.0m	HBN 91039	Hold Date 12/17/2012 23:59	Analyst MBT
Schedule 2785343	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/12469 HBN 91039
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

18 3072086016-2540-SU15-19D

Analytical Information

Procedure 9000 I Instru NONE Run Date 7/17/2012 09:51 Dilution
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785343 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.133U ± 0.387 (0.944)	pCi/sa 0.133U ± 0.387 (0.944)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.401J ± 0.351 (0.710)	pCi/sa 0.401J ± 0.351 (0.710)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

19 3072086017-2540-SU15-20

Type PS Matrix Wipe Collected 6/20/2012 00:01 % Moisture
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

Prep Information

Procedure 9000 I Batch RADC/12469 Prep Date 7/14/2012 23:23 Dilution
 Method EPA 900.0m HBN 91039 Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785345 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 7/14/2012 23:23 Dilution
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785345 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.096U ± 0.357 (0.982)	pCi/sa -0.096U ± 0.357 (0.982)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.259U ± 0.368 (0.810)	pCi/sa 0.259U ± 0.368 (0.810)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

20 3072086018-2540-SU15-21

Type PS Matrix Wipe Collected 6/20/2012 00:01 % Moisture
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

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

Quality Control Review



Batch RADC/12469 HBN 91039
 Rule 9000 I Status RE
 Create Date 6/28/2012 Analyst MBT

20 3072086018-2540-SU15-21

Prep Information

Procedure 9000 I Batch RADC/12469 Prep Date 7/18/2012 14:42 Dilution
 Method EPA 900.0m HBN 91039 Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785347 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 14:42 Dilution
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785347 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.939 ± 0.611 (0.919)	pCi/sa 0.939 ± 0.611 (0.919)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.245J ± 0.333 (0.690)	pCi/sa 0.245J ± 0.333 (0.690)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

21 3072086019-2540-SU15-22

Type PS Matrix Wipe Collected 6/20/2012 00:01 % Moisture
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

Prep Information

Procedure 9000 I Batch RADC/12469 Prep Date 7/14/2012 23:23 Dilution
 Method EPA 900.0m HBN 91039 Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785349 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 7/14/2012 23:23 Dilution
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT
 Schedule 2785349 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.178U ± 0.252 (0.866)	pCi/sa -0.178U ± 0.252 (0.866)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.813 ± 0.426 (0.779)	pCi/sa 0.813 ± 0.426 (0.779)		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/12469	HBN	91039
Rule	9000 I	Status	RE
Create Date	6/28/2012	Analyst	MBT



21 3072086019-2540-SU15-22

** 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 13:08
Batch ID 12469
Assigned Analyst MBT
Earliest Due Date 07/04/2012 07:12
A-code 9000 I 9000W or NJ HBN 91039
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
	458983	BLANK	IP		QCACCOUNT	0.354J	0.418	0.848	-0.027U	0.267	0.643	7/14/12 21:41		
3072085	3072085100	PS	WP	6/14/2012 0:01	RTI	0.404J	0.473	0.964	0.187U	0.324	0.713	7/18/12 14:20		
3072086	3072086001	PS	WP	6/14/2012 0:01	RTI	0.404J	0.430	0.841	1.44	0.474	0.554	7/14/12 21:41		
3072086	3072086002	PS	WP	6/20/2012 0:01	RTI	-0.232U	0.281	0.964	-0.058U	0.281	0.713	7/18/12 16:11		
3072086	3072086003	PS	WP	6/20/2012 0:01	RTI	0.228U	0.431	0.977	-0.026U	0.255	0.623	7/14/12 21:41		
3072086	3072086004	PS	WP	6/20/2012 0:01	RTI	0.192U	0.340	0.760	0.095U	0.256	0.585	7/14/12 21:41		
3072086	3072086005	PS	WP	6/20/2012 0:01	RTI	0.410J	0.472	0.962	0.286J	0.302	0.617	7/18/12 14:15		
3072086	3072086006	PS	WP	6/20/2012 0:01	RTI	-0.073U	0.346	0.990	-0.029U	0.263	0.659	7/18/12 14:15		
3072086	3072086007	PS	WP	6/20/2012 0:01	RTI	0.177U	0.403	0.946	-0.068U	0.268	0.674	7/18/12 14:42		
3072086	3072086008	PS	WP	6/20/2012 0:01	RTI	0.282U	0.445	0.977	0.506J	0.334	0.623	7/17/12 9:27		
3072086	3072086009	PS	WP	6/20/2012 0:01	RTI	0.065U	0.387	0.974	0.629J	0.362	0.659	7/18/12 14:16		
3072086	3072086010	PS	WP	6/20/2012 0:01	RTI	0.064U	0.371	0.962	0.129U	0.310	0.716	7/18/12 14:16		
3072086	3072086011	PS	WP	6/20/2012 0:01	RTI	0.035U	0.335	0.870	-0.122U	0.349	0.847	7/14/12 23:23		
3072086	3072086012	PS	WP	6/20/2012 0:01	RTI	0.148U	0.339	0.788	-0.128U	0.325	0.794	7/14/12 23:23		
3072086	3072086013	PS	WP	6/20/2012 0:01	RTI	-0.248U	0.205	0.801	-0.035U	0.329	0.795	7/14/12 23:23		
3072086	3072086014	PS	WP	6/20/2012 0:01	RTI	0.149U	0.397	0.921	0.110U	0.258	0.576	7/17/12 9:28		
3072086	3072086015	PS	WP	6/20/2012 0:01	RTI	0.307J	0.450	0.971	0.330J	0.351	0.732	7/17/12 9:49		
3072086	3072086016	PS	WP	6/20/2012 0:01	RTI	0.133U	0.387	0.944	0.401J	0.351	0.710	7/17/12 9:51		
3072086	3072086017	PS	WP	6/20/2012 0:01	RTI	-0.096U	0.357	0.982	0.259U	0.368	0.810	7/14/12 23:23		
3072086	3072086018	PS	WP	6/20/2012 0:01	RTI	0.939	0.611	0.919	0.245J	0.333	0.690	7/18/12 14:42		
3072086	3072086019	PS	WP	6/20/2012 0:01	RTI	-0.178U	0.252	0.866	0.813	0.426	0.779	7/14/12 23:23		

Handwritten signature
7/27/2012

* 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.

Handwritten initials

Gross Alpha and Gross Beta Preparation Sheet

Batch: 124609
 Transfer Analyst: NBT
 Prep Date/Time: 7-9-12 12:00
 Matrix: Filter
 Logbook ID: 3-R021-5

Spike Analyst: NA QC ID: a: NA b: NA
 Aliquot Balance ID: NA
 Aliquot Wgt. Date: _____
 Tare Balance ID: _____
 Tare Wgt. Date: _____
 LCS QC Vol (mL): a: _____
 MS/MSD QC Vol (mL): a: _____
 Pipette ID: _____
 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	458983	NA	NA	1.0	NA	NA	NA	NA	NA	
	30720850100									
	3072080001									
	2									
	3									
	4									
	5									
	6									
	7									
	8									
	9									
	10									
	11									
	12									
	13									
	14									
	15									
	16									
	17									
	18									
	19									
	20									
	21									
	22									
	23									
	24									

Batch Comments: Ludox: _____ 8N HNO₃: _____ Conc HNO₃: NBT 7-11-12
 Date Placed in oven / / @ _____ Date Removed / / @ _____
 Peer Review _____ Date: _____

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12469
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
458983	1.00000	S	9.0000	9.0000	0.00	27	7/14/2012 21:41	0.1250	0.4000	120	0.0690	0.3930	1000	dpm
3072085100	1.00000	S	9.0000	9.0000	0.00	14	7/18/2012 14:20	0.1455	0.5455	110	0.0820	0.4390	1000	dpm
3072086001	1.00000	S	9.0000	9.0000	0.00	29	7/14/2012 21:41	0.1250	0.9333	120	0.0630	0.2740	1000	dpm
3072086002	1.00000	S	9.0000	9.0000	0.00	14	7/18/2012 16:11	0.0455	0.4000	110	0.0820	0.4390	1000	dpm
3072086003	1.00000	S	9.0000	9.0000	0.00	31	7/14/2012 21:41	0.1250	0.3667	120	0.0900	0.3660	1000	dpm
3072086004	1.00000	S	9.0000	9.0000	0.00	32	7/14/2012 21:41	0.0833	0.3917	120	0.0530	0.3380	1000	dpm
3072086005	1.00000	S	9.0000	9.0000	0.00	16	7/18/2012 14:15	0.1500	0.4917	120	0.0870	0.3430	1000	dpm
3072086006	1.00000	S	9.0000	9.0000	0.00	17	7/18/2012 14:15	0.0727	0.3545	110	0.0840	0.3710	1000	dpm
3072086007	1.00000	S	9.0000	9.0000	0.00	18	7/18/2012 14:42	0.1000	0.3636	110	0.0730	0.3840	1000	dpm
3072086008	1.00000	S	9.0000	9.0000	0.00	31	7/17/2012 9:27	0.1333	0.6083	120	0.0900	0.3660	1000	dpm
3072086009	1.00000	S	9.0000	9.0000	0.00	19	7/18/2012 14:16	0.1000	0.7250	120	0.0900	0.4330	1000	dpm
3072086010	1.00000	S	9.0000	9.0000	0.00	20	7/18/2012 14:16	0.0800	0.4500	100	0.0700	0.3890	1000	dpm
3072086011	1.00000	S	9.0000	9.0000	0.00	1	7/14/2012 23:23	0.0690	0.7500	130	0.0640	0.8040	1000	dpm
3072086012	1.00000	S	9.0000	9.0000	0.00	2	7/14/2012 23:23	0.0850	0.6500	130	0.0620	0.7010	1000	dpm
3072086013	1.00000	S	9.0000	9.0000	0.00	3	7/14/2012 23:23	0.0230	0.6400	130	0.0600	0.6670	1000	dpm
3072086014	1.00000	S	9.0000	9.0000	0.00	38	7/17/2012 9:28	0.1267	0.4467	150	0.1040	0.3900	1000	dpm
3072086015	1.00000	S	9.0000	9.0000	0.00	23	7/17/2012 9:49	0.1200	0.5800	100	0.0720	0.4150	1000	dpm
3072086016	1.00000	S	9.0000	9.0000	0.00	27	7/17/2012 9:51	0.0900	0.5800	100	0.0690	0.3930	1000	dpm
3072086017	1.00000	S	9.0000	9.0000	0.00	7	7/14/2012 23:23	0.0920	0.8000	130	0.1070	0.6890	1000	dpm
3072086018	1.00000	S	9.0000	9.0000	0.00	21	7/18/2012 14:42	0.2000	0.5500	100	0.0580	0.3810	1000	dpm
3072086019	1.00000	S	9.0000	9.0000	0.00	9	7/14/2012 23:23	0.0310	0.9900	130	0.0550	0.6370	1000	dpm
LCSI2469	1.00000	S	9.0000	9.0000	0.00	11	7/19/2012 14:32	0.5889	5.0333	90	0.1770	0.4410	1000	dpm
LCSD12469	1.00000	S	9.0000	9.0000	0.00	11	7/19/2012 17:31	0.7111	4.8889	90	0.1770	0.4410	1000	dpm

Mu 7/20/12

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12469
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
458983	0.354	0.413	0.418	0.848	0.265	dpm/S	0.056	0.00	0.000000	0.056	15.80%	1
3072085100	0.404	0.467	0.473	0.964	0.302	dpm/S	0.063	0.00	0.000000	0.063	15.72%	1
3072086001	0.404	0.424	0.430	0.841	0.260	dpm/S	0.062	0.00	0.000000	0.062	15.36%	1
3072086002	-0.232	0.277	0.281	0.964	0.302	dpm/S	-0.037	0.00	0.000000	-0.037	15.72%	1
3072086003	0.228	0.429	0.431	0.977	0.311	dpm/S	0.035	0.00	0.000000	0.035	15.35%	1
3072086004	0.192	0.339	0.340	0.760	0.232	dpm/S	0.030	0.00	0.000000	0.030	15.82%	1
3072086005	0.410	0.466	0.472	0.962	0.306	dpm/S	0.063	0.00	0.000000	0.063	15.37%	1
3072086006	-0.073	0.346	0.346	0.990	0.310	dpm/S	-0.011	0.00	0.000000	-0.011	15.47%	1
3072086007	0.177	0.402	0.403	0.946	0.293	dpm/S	0.027	0.00	0.000000	0.027	15.27%	1
3072086008	0.282	0.442	0.445	0.977	0.311	dpm/S	0.043	0.00	0.000000	0.043	15.35%	1
3072086009	0.065	0.387	0.387	0.974	0.311	dpm/S	0.010	0.00	0.000000	0.010	15.39%	1
3072086010	0.064	0.370	0.371	0.962	0.293	dpm/S	0.010	0.00	0.000000	0.010	15.61%	1
3072086011	0.035	0.335	0.335	0.870	0.273	dpm/S	0.005	0.00	0.000000	0.005	14.26%	1
3072086012	0.148	0.338	0.339	0.788	0.247	dpm/S	0.023	0.00	0.000000	0.023	15.52%	1
3072086013	-0.246	0.200	0.205	0.801	0.250	dpm/S	-0.037	0.00	0.000000	-0.037	15.07%	1
3072086014	0.149	0.396	0.397	0.921	0.305	dpm/S	0.023	0.00	0.000000	0.023	15.25%	1
3072086015	0.307	0.447	0.450	0.971	0.297	dpm/S	0.048	0.00	0.000000	0.048	15.64%	1
3072086016	0.133	0.386	0.387	0.944	0.288	dpm/S	0.021	0.00	0.000000	0.021	15.80%	1
3072086017	-0.096	0.356	0.357	0.982	0.320	dpm/S	-0.015	0.00	0.000000	-0.015	15.71%	1
3072086018	0.939	0.588	0.611	0.919	0.275	dpm/S	0.142	0.00	0.000000	0.142	15.13%	1
3072086019	-0.178	0.250	0.252	0.866	0.268	dpm/S	-0.024	0.00	0.000000	-0.024	13.45%	1
LCS12469	2.727	1.064	1.170	1.565	0.506	dpm/S	0.412	0.00	0.000000	0.412	15.10%	1
LCSD12469	3.536	1.166	1.327	1.565	0.506	dpm/S	0.534	0.00	0.000000	0.534	15.10%	1

(M7/20/12)

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12469
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
458983	-0.027	0.267	0.267	0.643	0.223	dpm/S	0.007	0.00	0.018943	-0.012	44.88%	1
3072085100	0.187	0.323	0.324	0.713	0.246	dpm/S	0.106	0.00	0.022773	0.084	44.64%	1
3072086001	1.444	0.398	0.474	0.554	0.189	dpm/S	0.659	0.00	0.021433	0.638	44.19%	1
3072086002	-0.058	0.280	0.281	0.713	0.246	dpm/S	-0.039	0.00	-0.013116	-0.026	44.64%	1
3072086003	-0.026	0.255	0.255	0.623	0.215	dpm/S	0.001	0.00	0.012321	-0.012	44.88%	1
3072086004	0.095	0.256	0.256	0.585	0.201	dpm/S	0.054	0.00	0.010107	0.044	46.02%	1
3072086005	0.288	0.297	0.302	0.617	0.213	dpm/S	0.149	0.00	0.022326	0.126	43.92%	1
3072086006	-0.029	0.263	0.263	0.659	0.226	dpm/S	-0.016	0.00	-0.003716	-0.013	44.69%	1
3072086007	-0.068	0.268	0.268	0.674	0.231	dpm/S	-0.020	0.00	0.009725	-0.030	44.42%	1
3072086008	0.506	0.322	0.334	0.623	0.215	dpm/S	0.242	0.00	0.015255	0.227	44.88%	1
3072086009	0.629	0.344	0.362	0.659	0.229	dpm/S	0.292	0.00	0.003826	0.288	45.78%	1
3072086010	0.129	0.309	0.310	0.716	0.244	dpm/S	0.061	0.00	0.003698	0.057	44.32%	1
3072086011	-0.122	0.348	0.349	0.847	0.302	dpm/S	-0.054	0.00	0.001617	-0.056	45.62%	1
3072086012	-0.126	0.324	0.325	0.794	0.282	dpm/S	-0.051	0.00	0.006300	-0.057	45.63%	1
3072086013	-0.035	0.329	0.329	0.795	0.282	dpm/S	-0.027	0.00	-0.011437	-0.016	44.49%	1
3072086014	0.110	0.257	0.258	0.576	0.204	dpm/S	0.057	0.00	0.007864	0.049	44.28%	1
3072086015	0.330	0.346	0.351	0.732	0.250	dpm/S	0.165	0.00	0.017701	0.147	44.61%	1
3072086016	0.401	0.344	0.351	0.710	0.242	dpm/S	0.187	0.00	0.007103	0.180	44.88%	1
3072086017	0.259	0.365	0.368	0.810	0.288	dpm/S	0.111	0.00	-0.003696	0.115	44.36%	1
3072086018	0.245	0.330	0.333	0.690	0.235	dpm/S	0.169	0.00	0.057476	0.112	45.53%	1
3072086019	0.813	0.401	0.426	0.779	0.276	dpm/S	0.353	0.00	-0.008229	0.361	44.45%	1
LCS12469	9.764	1.026	2.026	0.784	0.266	dpm/S	4.592	0.00	0.166004	4.426	45.34%	1
LCSD12469	9.336	1.012	1.953	0.784	0.266	dpm/S	4.448	0.00	0.215263	4.233	45.34%	1

mbt

Quality Control Sample Performance Assessment

RCDU Upload

Analyst: MBT
Date: 7/20/2012
Worklist: 12469
Matrix: Filter

Method: EPA 900.0m
SOP: PGH-R-001
MB Sample ID: 458983



Method Blank Assessment		1.96 Sig Unc.		MDC	Critical Value	Flag	Assessment
Analyte	Activity	0.3540	0.4180	0.8490	0.28500		
Gross Alpha		-0.0270	0.2670	0.6430	0.22300		
Gross Beta							

Laboratory Control Sample Assessment			
	LCS	LCS D	LCS D
Analyte:	Gross Alpha	Gross Beta	
Count Date:	7/19/12 14:32	7/19/12 14:32	7/19/12 17:31
Spike I.D.:	12-018-F4	12-014-F4	12-014-F1
Spike Concentration (DPM/Sample):	2.353	9.798	9.798
Volume Used (mL):	1.000	1.000	1.000
Aliquot Volume (L, g, F):	1.000	1.000	1.000
Target Conc. (DPM/Sample, g, F):	2.353	9.798	9.798
1.96 Sigma Uncertainty (Calculated):	0.138	0.192	0.192
Result (DPM/Sample, g, F):	2.727	9.764	9.336
1.96 Sigma Unc:	1.170	1.327	1.953
% Recovery:	115.90%	150.28%	95.65%
Assessment:	Pass	High**	Pass
Upper % Recovery Limits:	119.00%	119.00%	130.00%
Lower % Recovery Limits:	62.00%	62.00%	79.00%

Duplicate Sample Assessment	
LCS/LCSD Y or N:	Y
Analyte:	Gross Alpha
Sample I.D.:	LCS12469
Duplicate Sample I.D.:	LCS12469
Sample Result (DPM/Sample, g, F):	2.7270
1.96 Sigma Unc:	1.1700
Duplicate Result (DPM/Sample, g, F):	3.5360
Duplicate Sample 1.96 Sigma Unc:	1.3270
Either results below MDC?	No
Relative Percent Difference:	25.83%
Assessment:	Pass
% RPD Limit:	35.00%

Sample Matrix Spike Control Assessment	
Analyte:	
Sample Collection Date:	
Sample I.D.:	
Sample MS I.D.:	
Sample MSD 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):	
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	

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

Comments:

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12469
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%

Det	Alpha Efficiency : $ax^4 + bx^3 + cx^2 + dx + e$				Alpha-to-Beta Crossstalk : $ax^4 + bx^3 + cx^2 + dx + e$				Beta Efficiency : $ax^4 + bx^3 + cx^2 + dx + e$				Beta-to-Alpha Cross-Talk : $ax + b$				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	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
2					1.5924E-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	0.6890	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					3.4288E-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					3.5889E-01					4.4635E-01			0.0690	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					1.5385E-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	0.0940	0.3710
18					1.5273E-01					3.6020E-01					4.4422E-01			0.0630	0.3820	0.0730	0.3840
19					1.5393E-01					3.8255E-01					4.5782E-01			0.0770	0.4570	0.0900	0.4330
20					1.5610E-01					3.6978E-01					4.4321E-01			0.0970	0.3820	0.0700	0.3890
21					1.5100E-01					4.0476E-01					4.5533E-01			0.0780	0.3780	0.0580	0.3810
22					1.5360E-01					3.9282E-01					4.3554E-01			0.0570	0.4180	0.1140	0.4060
23					1.5639E-01					3.6878E-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					3.3743E-01					4.5458E-01			0.1490	0.4370	0.0970	0.4050
27					1.5803E-01					3.3826E-01					4.4683E-01			0.0740	0.2880	0.0890	0.3930

Amelia

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

Test Code: Alpha Beta
Matrix: IP
Batch ID: 12469
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	Alpha Efficiency			Beta Efficiency			Alpha to Beta Cross-Talk			Beta to Alpha Cross-Talk			BKG 1 Date: 6/3/2012		BKG 2 Date: 7/13/2012		
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	
28					1.5536E-01					3.4323E-01				0.0810	0.3330	0.1500	0.3480
29					1.5363E-01					4.4186E-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				0.0950	0.3670	0.0900	0.3660
32					1.5823E-01					4.4881E-01				0.0540	0.4120	0.0530	0.3380
33					1.6147E-01					4.6019E-01				0.0900	0.3870	0.1200	0.4100
34					1.6117E-01					4.5824E-01				0.0750	0.4040	0.1250	0.4460
35					#N/A					#N/A				0.1970	0.3930	0.2070	0.3640
36					1.4953E-01					3.6059E-01				0.0930	0.4070	0.0670	0.3320
37					1.5991E-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					4.5734E-01				0.0780	12.4760	0.0780	12.4760
40					1.8176E-01					4.5470E-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					3.3529E-01				0.2050	9.9000	0.2050	9.9000
43					1.7364E-01					4.4459E-01				0.1620	1.1560	0.1620	1.1560
44					1.7507E-01					2.9247E-01				0.1110	0.9900	0.1110	0.9900
45					1.6896E-01					2.6541E-01				0.1410	1.7460	0.1410	1.7460
46					1.6416E-01					4.3550E-01				0.2350	0.9640	0.2350	0.9640
47					1.7203E-01					4.4758E-01				0.0940	1.1670	0.0940	1.1670
48					1.8314E-01					4.5901E-01				0.1650	2.0860	0.1650	2.0860
49					1.6993E-01					4.6967E-01				0.3330	1.3450	0.3330	1.3450
50					1.6594E-01					4.4190E-01				0.2050	1.4600	0.2050	1.4600
51					1.7880E-01					4.5406E-01				0.1500	1.3750	0.1500	1.3750
52					1.7970E-01					4.5625E-01				0.1070	1.1480	0.1070	1.1480
53					1.7760E-01					4.7119E-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%	

7/16/12
PAC

Pace Analytical Services
Gross Alpha and Gross Beta
Analysis

SAMPLE_ID	Det#	BEG_DATE	BATCH_ID	ACPM	BCPM	CNT_TIME
458983	27	7/14/2012 21:41	GAB12469	0.125	0.4	120
3072085100	28	7/14/2012 21:41	GAB12469	0.175	0.575	120
3072086001	29	7/14/2012 21:41	GAB12469	0.125	0.933333333	120
3072086002	30	7/14/2012 21:41	GAB12469	0.283333333	0.591666667	120
3072086003	31	7/14/2012 21:41	GAB12469	0.125	0.366666667	120
3072086004	32	7/14/2012 21:41	GAB12469	0.083333333	0.391666667	120
3072086005	33	7/14/2012 21:41	GAB12469	0.158333333	0.558333333	120
3072086006	34	7/14/2012 21:41	GAB12469	0.191666667	0.458333333	120
3072086007	35	7/14/2012 21:42	GAB12469	0.175	6.616666667	120
3072086008	36	7/14/2012 21:42	GAB12469	0.05	0.3	120
3072086009	37	7/14/2012 21:42	GAB12469	0.35	0.425	120
3072086010	38	7/14/2012 21:42	GAB12469	0.15	0.375	120
3072086008	31	7/17/2012 9:27	GAB12469	0.133333333	0.608333333	120
3072086010	33	7/17/2012 9:27	GAB12469	0.225	0.475	120
3072086014	38	7/17/2012 9:28	GAB12469	0.126666667	0.446666667	150
3072086015	23	7/17/2012 9:49	GAB12469	0.12	0.58	100
3072086016	27	7/17/2012 9:51	GAB12469	0.09	0.58	100
3072086018	34	7/17/2012 10:11	GAB12469	0.141666667	0.5	120
3072085100	14	7/18/2012 14:20	GAB12469	0.145454545	0.545454545	110
3072086005	16	7/18/2012 14:15	GAB12469	0.15	0.491666667	120
3072086006	17	7/18/2012 14:15	GAB12469	0.072727273	0.354545455	110
3072086007	18	7/18/2012 14:42	GAB12469	0.1	0.363636364	110
3072086009	19	7/18/2012 14:16	GAB12469	0.1	0.725	120
3072086010	20	7/18/2012 14:16	GAB12469	0.08	0.45	100
3072086018	21	7/18/2012 14:42	GAB12469	0.2	0.55	100
3072086002	14	7/18/2012 16:11	GAB12469	0.045454545	0.4	110
LCS12469	11	7/19/2012 14:32	GAB12469	0.588888889	5.033333333	90
LCSD12469	11	7/19/2012 17:31	GAB12469	0.711111111	4.888888889	90
3072086011	1	7/14/2012 23:23	GAB12469	0.069	0.75	130
3072086012	2	7/14/2012 23:23	GAB12469	0.085	0.65	130
3072086013	3	7/14/2012 23:23	GAB12469	0.023	0.64	130
3072086017	7	7/14/2012 23:23	GAB12469	0.092	0.8	130
3072086019	9	7/14/2012 23:23	GAB12469	0.031	0.99	130

R
7/20/12

Sample Measurement
C:\UMS\GAB12469.SDT

Sample Measurement Parameters:

Comment: GAB12470

User: BSH

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 1

Start Time: 07/14/2012 23:23:03

Elapsed Time: 130:00

Guard: 808.8 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	12486 3072086011	0.069 (±33.3%)	0.0039	0.0020	0.75 (±10.1%)	0.0112	0.0055
	2	12877 3072086012	0.085 (±30.2%)	0.0047	0.0024	0.65 (±10.9%)	0.0105	0.0051
	3	12486 3072086013	0.023 (±57.7%)	0.0054	0.0027	0.64 (±11.0%)	0.0107	0.0053
	4	12877 3072086014	0.12 (±25.8%)	0.0047	0.0024	0.64 (±11.0%)	0.0112	0.0055
7/20/12	5	12911 3072086015	0.054 (±37.8%)	0.0047	0.0024	6.346 (±3.48%)	0.0202	0.0099
	6	12911 3072086016	0.062 (±35.4%)	0.0054	0.0027	0.76 (±10.1%)	0.0298	0.0148
	7	12486 3072086017	0.092 (±28.9%)	0.0054	0.0027	0.80 (±9.81%)	0.0112	0.0055
	8	12877 3072086018	0.031 (±50.0%)	0.0039	0.0020	0.87 (±9.41%)	0.0102	0.0050
	9	12486 3072086019	0.031 (±50.0%)	0.0054	0.0027	0.99 (±8.80%)	0.0114	0.0056
	10	12911 458984	0.062 (±35.4%)	undef.	undef.	0.84 (±9.58%)	0.0118	0.0058

Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LCSD12469	7/19/2012 5:31:36 PM	11	GAB12469	0.711	4.8889	90.0
LCS12469	7/19/2012 2:32:29 PM	11	GAB12469	0.589	5.0333	90.0
3072086002	7/18/2012 4:11:58 PM	14	GAB12469	0.045	0.4000	110.0
3072086018	7/18/2012 2:42:37 PM	21	GAB12469	0.200	0.5500	100.0
3072086007	7/18/2012 2:42:23 PM	18	GAB12469	0.100	0.3636	110.0
3072085100	7/18/2012 2:20:02 PM	14	GAB12469	0.145	0.5455	110.0
3072086010	7/18/2012 2:16:13 PM	20	GAB12469	0.080	0.4500	100.0
3072086009	7/18/2012 2:16:05 PM	19	GAB12469	0.100	0.7250	120.0
3072086006	7/18/2012 2:15:55 PM	17	GAB12469	0.073	0.3545	110.0
3072086005	7/18/2012 2:15:47 PM	16	GAB12469	0.150	0.4917	120.0
3072086018	7/17/2012 10:11:58 AM	34	GAB12469	0.142	0.5000	120.0
3072086016	7/17/2012 9:51:09 AM	27	GAB12469	0.090	0.5800	100.0
3072086015	7/17/2012 9:49:48 AM	23	GAB12469	0.120	0.5800	100.0
3072086014	7/17/2012 9:28:07 AM	38	GAB12469	0.127	0.4467	150.0
3072086010	7/17/2012 9:27:40 AM	33	GAB12469	0.225	0.4750	120.0
3072086008	7/17/2012 9:27:34 AM	31	GAB12469	0.133	0.6083	120.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
3072086010	7/14/2012 9:42:16 PM	38	GAB12469	0.150	0.3750	120.0
3072086009	7/14/2012 9:42:10 PM	37	GAB12469	0.350	0.4250	120.0
3072086008	7/14/2012 9:42:04 PM	36	GAB12469	0.050	0.3000	120.0
3072086007	7/14/2012 9:42:00 PM	35	GAB12469	0.175	6.6167	120.0
3072086006	7/14/2012 9:41:54 PM	34	GAB12469	0.192	0.4583	120.0
3072086005	7/14/2012 9:41:50 PM	33	GAB12469	0.158	0.5583	120.0
3072086004	7/14/2012 9:41:46 PM	32	GAB12469	0.083	0.3917	120.0
3072086003	7/14/2012 9:41:43 PM	31	GAB12469	0.125	0.3667	120.0
3072086002	7/14/2012 9:41:37 PM	30	GAB12469	0.283	0.5917	120.0
3072086001	7/14/2012 9:41:33 PM	29	GAB12469	0.125	0.9333	120.0
3072085100	7/14/2012 9:41:29 PM	28	GAB12469	0.175	0.5750	120.0
458983	7/14/2012 9:41:24 PM	27	GAB12469	0.125	0.4000	120.0

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	37	458982	GAB12468	120	7/13/12 15:35	BST	WA	NA
	18	3072085080			16:03			
	15	081			16:33			
	21	082						
	26	083						
	28	084						
	31	085						
	33	086						
	1011	087			7/14/12 21:40			
	1312	088						
	1413	089						
	1514	090						
	1615	091						
	1716	092						
	1817	093						
	1918	094						
	2019	095						
	2120	096						
	2221	097						
	2322	098						
	2523	099						
	2625	LCS1-12468		90	7/14/12			
	2726	LCS2-12468		90				
	2827	458983	GAB12469	120	7/14/12			

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- 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	2428	3072085100	GAB12469	120	7/14/12 21:42	B5H	WA	WA
	3029	30720866001						
	3130	602						
	3231	003						
	3332	004						
	3433	005						
	3534	006						
	3635	607						
	3736	608						
	3837	609						
	3938	010			7/14/12 23:20			B5H 7-14-12
	1239	011			7/14/12 23:20	B5H		
	2340	012						
	3441	013						
	4542	014						
	5643	015						
	6744	016						
	7845	017						
	8946	018						
	910	019						
	10	458984	GAB12470	120				
	11	3072086020			7/14/12 23:49			
	12	021						
	13	022						

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- 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
WAB	12	35610120010	LAB12033	90	7/13/12	WAB	WAB	WAB
J	14	3561012005	J	140	J	J	J	J
GAB	15	1019817001	GAB12037	90	7/9/12 0737	G	GAB	Sample added to Pankg.
J	14	460288	J	J	7/10/12 0834	J	J	J
J	32	3072088001	J	J	7/10/12 0831	J	J	J
J	35	3072088001	J	J	7/10/12 0844	J	J	J
GAB	15	LOS#1-12456	GAB12456	90	7-17-12 0915	WABT	WAB	WAB
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	30720880019	GAB12459	110	7-17-12 0928	WABT	WAB	WAB
J	20	458981	GAB12467	120	J	J	J	MDC
J	21	3072088083	GAB12468	110	J	J	J	MDC
J	22	J 87	J	100120	J	J	J	MDC
J	24	3072088093	GAB12468	110	J	J	J	MDC
J	31	3072088008	GAB12469	120	J	J	J	MDC
J	33	J 010	J	120	J	J	J	WAB
J	34	30720880011	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
WAB	23	30720880015	GAB12469	100	07-17-12 0949	WABT	WAB	WAB
J	27	J 10	J	J	J	WABT	J	J

- 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
GAS	34	3072080018	GAS 12469	120	7/17/12 1012	AW	2	
	36	043	12471	130				
	37	048		130				
GAS	12	458981	GAS 12467	140	7-17-12 1041	WBT	2	MDC
	13	3072080045	GAS 12471	120				
GAS	43	3072080109	GAS 12474	300	7/17/12- 1130	AW	124	mt
	44	110						
	45	111						
	46	112						
	47	113						
	48	114						
	49	115						
	50	116						
	51	117						
	52	118						
	53	119						

- 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
	20	3561330061	GRA 12656	700	7/19/12 15:37	BSH	NA	NA
	21	3561358001						
	22	↓ 002						
	23	3561360001						
	25	3561286001						
	26	3562011001						
	29	↓ 002						
	30	↓ 003						
	32	↓ 004			15:43			
	33	3073177601			16:34			
	34	3073178001			↓			
	35	3072501001			15:43			
Gas	11	USN2469 (1)	GAB12469	90	7/19/12 17:36	JL	NA	NA
	16	3072085087	GAB12468	120			2	
	27	↓ 088	↓	100			↓	
	28	US12472 (2)	GAB12472	90			NA	
	33	3072085089	GAB12468	140			2	
	36	↓ 091	↓	100			↓	
	38	↓ 098	↓	130			↓	
	34	458982	GAB12468	140		JL	2	NA
	51	3072086097	GAB12473	300	7/19/12 17:30	JL	NA	NA
	52	↓ 98	↓				↓	
	53	↓ 99	↓				↓	

- 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
Om 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

Aut/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: 12-028
 Parent Source: 81003 493
 Parent Conc: 3833.13 Bq/g
 Reference Date: 11/3/2009 12:00

Nuclide: Th-230
Calibration Solution

Std Conc.: 4719.33 dpm/g
 Prepared By: SLC
 Prep Date: 6/14/12
 Expiration Date: 6/14/17

Balance ID: 88914
 Diluent: 1.0 N HNO₃ + DI (0.5 N HNO₃)
 Diluent IDs: DL12-1111

Conversions: 60 dpm = 1 dps
 1 Bq = 1 dps
 2.22 dpm = 1 pCi

Dilution Description: CANNOT BE USED TO PREPARE GROSS ALPHA SPIKES

diluted 1.0722 g of 81003-493 to 52.2516 g w/ 0.5 N HNO₃ + DI water

Eckert & Ziegler
 Analytics Atlanta, GA 30318 USA
 404-352-8677

Th-230 4.893g
 SRS: 81003-493 Activity: 0.52 μ Ci
 Date: 11/05/09 12:00 EST Exp: XXXXXX

PO#: PI-12089, Item 8
 5.02201 g 0.5M HNO₃ solution
 QA: MM



Dilution Calculations:

$$\frac{1.0722 \text{ g}}{3833.13 \text{ Bq/g}} \times \frac{60 \text{ dpm}}{\text{Bq}} = \frac{\text{---}}{52.2516 \text{ g}}$$

$$= 4719.33 \text{ dpm/g}$$

Vial initial
 18.8665
 17.7943

Container Tare Weight: 37.4418
 Container + Standard Final Weight: 89.6934

Balance ID: _____

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	74.870	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

Jun-12

Gross Beta Calibration for Filters and Smears

Method: GAB Filter
 Analyst(s): JLK
 Date: 6/29/2012
 Cal. Isotope SrY-90
 Cal Source ID: 81005-493
 Source Conc. (dpm/g): 87076.6
 Source Ref. Date: 11/5/2009
 Source Half-Life (years): 28.802

Detector ID	Source Name	SrY-90 Mass (g)	Source dpm	Count Date/Time	Source Decay Days	Source Decay Factor	Source Corrected DPM	Source Beta CPM	Beta Eff. cpm/dpm	Det Beta BKG	Counts	Count Time (Min)
1	GBF-20120629-N1	0.0396	3448.2	7/2/2012 10:21	969.93	0.9377	3233.34	1476.000	0.4562	0.804	10508	7.05
2	GBF-20120629-N2	0.0393	3422.1	7/2/2012 10:21	969.93	0.9377	3208.85	1465.000	0.4563	0.701	10517	7.15
3	GBF-20120629-N3	0.0402	3500.5	7/2/2012 10:21	969.93	0.9377	3282.33	1461.000	0.4449	0.667	10504	12.02
4	GBF-20120629-N4	0.0395	3439.5	7/2/2012 10:21	969.93	0.9377	3225.18	1402.900	0.4345	0.605	10514	9.69
7	GBF-20120629-N1	0.0396	3448.2	7/2/2012 10:44	969.95	0.9377	3233.34	1435.000	0.4436	0.689	10516	7.24
8	GBF-20120629-N5	0.0400	3483.1	7/2/2012 10:21	969.93	0.9377	3266.00	1403.000	0.4294	0.631	10509	7.19
9	GBF-20120629-N6	0.0396	3448.2	7/2/2012 10:21	969.93	0.9377	3233.34	1438.000	0.4445	0.637	10511	7.39
11	GBF-20120629-N1	0.0396	3448.2	7/3/2012 9:29	970.90	0.9376	3233.14	1466.200	0.4533	0.469	10514	7.26
12	GBF-20120629-N2	0.0393	3422.1	7/3/2012 9:29	970.90	0.9376	3208.64	1470.900	0.4583	0.378	10506	6.97
13	GBF-20120629-N3	0.0402	3500.5	7/11/2012 14:19	979.10	0.9371	3280.34	1280.700	0.3903	0.333	10520	7.18
14	GBF-20120629-N1	0.0396	3448.2	7/3/2012 10:42	970.95	0.9376	3233.13	1443.500	0.4464	0.380	10510	7.05
15	GBF-20120629-N4	0.0395	3439.5	7/2/2012 11:11	969.97	0.9377	3225.17	1440.800	0.4466	0.495	10502	7.11
16	GBF-20120629-N2	0.0393	3422.1	7/2/2012 10:43	969.95	0.9377	3208.84	1409.700	0.4392	0.391	10517	6.9
17	GBF-20120629-N3	0.0402	3500.5	7/2/2012 10:43	969.95	0.9377	3282.33	1467.300	0.4469	0.386	10517	6.9
18	GBF-20120629-N6	0.0396	3448.2	7/3/2012 9:30	970.90	0.9376	3233.14	1436.600	0.4442	0.382	10517	6.9
19	GBF-20120629-N4	0.0395	3439.5	7/2/2012 10:45	969.95	0.9377	3225.17	1477.000	0.4578	0.457	10517	6.9
20	GBF-20120629-N5	0.0400	3483.1	7/2/2012 10:45	969.95	0.9377	3266.00	1447.900	0.4432	0.382	10517	6.9
21	GBF-20120629-N4	0.0395	3439.5	7/3/2012 9:31	970.90	0.9376	3224.97	1468.800	0.4553	0.378	10517	6.9
22	GBF-20120629-N5	0.0400	3483.1	7/3/2012 9:31	970.90	0.9376	3265.79	1422.800	0.4355	0.418	10517	6.9
23	GBF-20120629-N6	0.0396	3448.2	7/2/2012 10:45	969.95	0.9377	3233.34	1442.900	0.4461	0.457	10517	6.9
25	GBF-20120629-N1	0.0396	3448.2	7/2/2012 11:01	969.96	0.9377	3233.34	1467.300	0.4537	0.411	10517	6.9
26	GBF-20120629-N2	0.0393	3422.1	7/2/2012 11:00	969.96	0.9377	3208.84	1459.100	0.4546	0.437	10517	6.9
27	GBF-20120629-N3	0.0402	3500.5	7/2/2012 11:00	969.96	0.9376	3282.12	1473.400	0.4488	0.288	10517	6.9
28	GBF-20120629-N5	0.0400	3483.1	7/2/2012 11:12	969.97	0.9377	3266.00	1428.400	0.4373	0.333	10517	6.9
29	GBF-20120629-N6	0.0396	3448.2	7/2/2012 11:12	969.97	0.9377	3233.34	1429.000	0.4419	0.322	10517	6.9
30	GBF-20120629-N1	0.0396	3448.2	7/3/2012 9:52	970.91	0.9376	3233.13	1446.800	0.4474	0.409	10517	6.9
31	GBF-20120629-N3	0.0402	3500.5	7/2/2012 11:00	969.96	0.9377	3282.33	1473.500	0.4488	0.367	10517	6.9
32	GBF-20120629-N2	0.0393	3422.1	7/2/2012 9:52	970.91	0.9376	3208.64	1477.000	0.4602	0.412	10517	6.9
33	GBF-20120629-N4	0.0395	3439.5	7/2/2012 11:00	969.96	0.9377	3225.17	1478.300	0.4582	0.387	10517	6.9
34	GBF-20120629-N5	0.0400	3483.1	7/2/2012 11:00	969.96	0.9377	3266.00	1459.900	0.4469	0.404	10517	6.9
36	GBF-20120629-N4	0.0395	3439.5	7/2/2012 9:16	969.89	0.9377	3225.19	1458.300	0.4520	0.407	10517	6.9
37	GBF-20120629-N4	0.0395	3439.5	7/2/2012 9:29	969.90	0.9377	3225.19	1441.800	0.4469	0.319	10517	6.9
38	GBF-20120629-N6	0.0396	3448.2	7/2/2012 10:59	969.96	0.9377	3233.34	1432.100	0.4428	0.399	10517	6.9
39	GBF-20120629-N1	0.0396	3448.2	7/9/2012 14:00	977.08	0.9372	3231.81	1490.496	0.4573	12.476	10508	7.05
40	GBF-20120629-N2	0.0393	3422.1	7/9/2012 14:00	977.08	0.9372	3207.33	1470.909	0.4547	12.552	10517	7.15
41	GBF-20120629-N3	0.0402	3500.5	7/9/2012 14:00	977.08	0.9372	3280.78	873.877	0.1546	366.810	10504	12.02
42	GBF-20120629-N4	0.0395	3439.5	7/9/2012 14:00	977.08	0.9372	3223.65	1085.036	0.3335	9.900	10514	9.69
43	GBF-20120629-N5	0.0400	3483.1	7/9/2012 14:00	977.08	0.9372	3264.45	1452.486	0.4446	1.156	10516	7.24
44	GBF-20120629-N6	0.0396	3448.2	7/9/2012 14:00	977.08	0.9372	3231.81	1461.613	0.4520	0.990	10509	7.19
45	GBF-20120629-N5	0.0400	3483.1	7/9/2012 14:31	977.10	0.9372	3264.45	1423.410	0.4355	1.746	10519	7.39
46	GBF-20120629-N6	0.0396	3448.2	7/9/2012 14:31	977.10	0.9372	3231.80	1447.363	0.4476	0.984	10508	7.26
47	GBF-20120629-N1	0.0396	3448.2	7/9/2012 14:31	977.10	0.9372	3231.80	1484.605	0.4590	1.167	10511	7.08
48	GBF-20120629-N2	0.0393	3422.1	7/9/2012 14:31	977.10	0.9372	3207.32	1508.465	0.4697	2.086	10514	6.97
49	GBF-20120629-N3	0.0402	3500.5	7/9/2012 14:31	977.10	0.9372	3280.77	1451.105	0.4419	1.345	10506	7.24
50	GBF-20120629-N4	0.0395	3439.5	7/9/2012 14:31	977.10	0.9372	3223.64	1465.181	0.4541	1.460	10520	7.18
51	GBF-20120629-N5	0.0400	3483.1	7/9/2012 14:40	977.11	0.9372	3264.45	1490.780	0.4563	1.375	10510	7.05
52	GBF-20120629-N6	0.0396	3448.2	7/9/2012 14:40	977.11	0.9372	3231.80	1477.075	0.4567	1.148	10502	7.11
53	GBF-20120629-N1	0.0396	3448.2	7/9/2012 14:40	977.11	0.9372	3231.80	1524.203	0.4712	1.397	10517	6.9

7/27/12

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%

Filter

Cycle 1 of 1

Start Time: 07/06/2012 14:51:00

Elapsed Time: 150:00

Guard: 821.5 cpm

Order

	<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 ($\pm 25.8\%$)	0.0037	0.0020	0.862 ($\pm 7.43\%$)	0.0107	0.0053
2	12787	20120629N5	73.84 ($\pm 0.803\%$)	0.0045	0.0023	20.91 ($\pm 1.51\%$)	0.0100	0.0050
3	12478	3072554002	0.048 ($\pm 31.6\%$)	0.0051	0.0026	0.633 ($\pm 8.67\%$)	0.0103	0.0051
4	12787	3072554003	0.110 ($\pm 20.9\%$)	0.0045	0.0023	0.657 ($\pm 8.51\%$)	0.0107	0.0053
5	12821	E	0.062 ($\pm 27.7\%$)	0.0045	0.0023	5.705 ($\pm 2.89\%$)	0.0194	0.0096
6	12821	E	0.033 ($\pm 37.8\%$)	0.0051	0.0026	35.65 ($\pm 1.16\%$)	0.0287	0.0142
7	12478	3072512001	0.124 ($\pm 19.6\%$)	0.0051	0.0026	0.743 ($\pm 8.01\%$)	0.0107	0.0053
8	12787	20120629N6	67.13 ($\pm 0.842\%$)	0.0037	0.0020	21.37 ($\pm 1.49\%$)	0.0098	0.0049
9	12478	3072512002	0.038 ($\pm 35.4\%$)	0.0051	0.0026	0.867 ($\pm 7.41\%$)	0.0109	0.0054
10	12821	E	0.057 ($\pm 28.9\%$)	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 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-GA Cal 20120629-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

Peer Review SEL

Date: 7/2/12

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
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			

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- 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	W0 12252						
	15	W0P ↓						
	16	307234100100						
	17	460307	6AB12534					
	19	W0 13524						
	22	W0 1						
	24	307234702100						

- 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
6B	52	52-6870020614-N6	68cd E	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	42-6870020614-N5	68F 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						
	17	-N08		23	7/11/12 1020			
	18	-N08		23	1112			
	19	-N10		23	1127			
	20	-N09		23	1032			
	21	-N03		23	7/11/12 1020			
	22	-N04			1112			
	23	-N06		23	1106			
	24	-N07		23	1102			
	25	-N08		23	1050-1050			
	26	-N01		20	7/11/12			
	27	-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	50-CAF2-12455						
GAF	43	43-CAF3-12455	12455	300	7/10/12	AL	N06	
	44	44-CAF4-12455						
	45	45-CAF5-12455						
	46	46-CAF6-12455						
	47	47-CAF7-12455						

- 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	CAF Cal	23	7/11/12 1539	DL	NA	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	CAF-20120629-N3	CAF Cal	10	7/11/12 01470	DL	NA	NA
AF	13	CAF-20120629-N3	CAF Cal	150	1436			
NS	32	4626148	N1	180	DC 7/11/12 1800	DL	NA	NA
	35	307298001		1				

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- 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
GAF	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 1.25ml of 1.0M HNO₃ to 250ml w/ DI water)

JAL 4/25/12

Dilution Calculations:

$$0.0655g \left| \frac{3741.9175 Bq}{g} \right| \frac{60 dpm}{Bq} \left| \frac{pCi}{2.22 dpm} \right| \frac{1}{250.0 ml} = 26.497 pCi/ml$$

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

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: 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	
	<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: 11/17/2009 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	
	<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: 01/29/2010 10:56:26 Elapsed Time: 1000:00
 Guard: 863.5 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
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	3023779002	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 signature
4/12/10

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	
	<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: 04/10/2010 20:07:57 Elapsed Time: 1000:00
 Guard: 845.8 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
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

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: 06/06/2010 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

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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	
	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: 08/22/2010 13:53:46 Elapsed Time: 1000:00
 Guard: 838.3 cpm

	Alpha (cpm)	Cat	Beta (cpm)	Cat
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

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: 01/27/2011 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

Handwritten signature

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

Handwritten signature

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

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Y 2/11/11

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 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	
	<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: 05/08/2011 8:26:39	Elapsed Time: 1000:00
	Guard: 855.1 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
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

Handwritten: 2/24 6/7/11

Background Measurement
C:\UMS\UTL0001\LB70911.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: 07/09/2011 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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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

Handwritten signature

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*

Background Measurement
 C:\UMS\UTL0001\LB090311.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: 09/03/2011 18:19:24 Elapsed Time: 1000:00
 Guard: 835.4 cpm

	Alpha (cpm)	Cat	Beta (cpm)	Cat
1	0.0580 (±13.1%)	1	0.8580 (±3.41%)	1
2	0.0720 (±11.8%)	1	0.6130 (±4.04%)	1
3	0.0590 (±13.0%)	1	0.6160 (±4.03%)	1
4	0.0800 (±11.2%)	1	0.6520 (±3.92%)	1
5	0.0610 (±12.8%)	1	1.9770 (±2.25%)	2
6	0.0560 (±13.4%)	1		3
7	0.1310 (±8.74%)	1	0.8780 (±3.37%)	1
8	0.0580 (±13.1%)	1	0.6350 (±3.97%)	1
9	0.0650 (±12.4%)	1	0.6080 (±4.06%)	1
10	0.0660 (±12.3%)	1	0.9010 (±3.33%)	1

JLH 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 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

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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

Handwritten signature

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	
	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: 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

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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

Background Measurement
C:\UMS\UTL0001\LB42212.BDT

Background Measurement Parameters:

User: EHH 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: 04/22/2012 10:13:46

Elapsed Time: 1000:00

Guard: 867.1 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0600 (±12.9%)	1	0.8380 (±3.45%)	1
2	0.0510 (±14.0%)	1	0.5960 (±4.10%)	1
3	0.0640 (±12.5%)	1	0.6380 (±3.96%)	1
4	0.0800 (±11.2%)	1	0.6120 (±4.04%)	1
5	0.0330 (±17.4%)	1	3.0770 (±1.80%)	3
6	0.0580 (±13.1%)	1		3
7	0.1030 (±9.85%)	1	0.6380 (±3.96%)	1
8	0.0560 (±13.4%)	1	0.5750 (±4.17%)	1
9	0.0570 (±13.2%)	1	0.5750 (±4.17%)	1
10	0.0700 (±12.0%)	1	0.8550 (±3.42%)	1

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

Background Measurement
C:\UMS\UTL0001\LB60312.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: 06/03/2012 16:41:16

Elapsed Time: 1000:00

Guard: 846.7 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0640 (±12.5%)	1	0.8040 (±3.53%)	1
2	0.0620 (±12.7%)	1	0.7010 (±3.78%)	1
3	0.0600 (±12.9%)	1	0.6670 (±3.87%)	1
4	0.1120 (±9.45%)	1	0.6050 (±4.07%)	1
5	0.0520 (±13.9%)	1	5.1640 (±1.39%)	3
6	0.0510 (±14.0%)	1		3
7	0.1070 (±9.67%)	1	0.6890 (±3.81%)	1
8	0.0960 (±10.2%)	1	0.6310 (±3.98%)	1
9	0.0550 (±13.5%)	1	0.6370 (±3.96%)	1
10	0.0590 (±13.0%)	1	0.7940 (±3.55%)	1

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