



## **RTI Laboratories, Inc.**

Client Ref.: Fort Monmouth 1207074

Pace-Pittsburgh Project No. 3072086

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 3072086**

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 thirty (130) of the samples received were logged for radiochemical analyses under Pace Analytical Project number 3072086 with corresponding samples IDs of 3072086001 through 3072086130. 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 3072086**

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

The gross alpha LCSDs associated with samples 3072086001 through 3072086019 and 3072086120 through 3072086130 were high and outside of Pace's default acceptance criteria for LCS control. Results for these samples have been reported based on the observation that the gross alpha result for each sample was less than the required MDC of 1.0 dpm/filter. Likewise, the gross alpha LCS and LCSD associated with samples 30720860080 through 3072086099 each were high and outside of Pace's default acceptance criteria for LCS control. Results for these samples have been reported based on the observation that the gross alpha result for each sample was less than the required MDC of 1.0 dpm/filter.

Additionally, the gross alpha LCSDs associated with samples 3072086040 through 3072086059, 3072086060 through 3072086079, and 3072086100 through 3072086119 were high and outside of Pace's default acceptance criteria for LCS control. Excluding samples 3072086043, 3072086049, 3072086053, 3072086056, 3072086071, 3072086073, and 3072086111 results for these samples have been reported based on the observation that the gross alpha result for each sample was less than the required MDC of 1.0 dpm/filter. Of the listed samples with observed gross alpha concentrations greater than 1 dpm/filter, the maximum result was calculated to be 2.60 dpm/filter. Results for samples 3072086043, 3072086049, 3072086053, 3072086056, 3072086071, 3072086073, and 3072086111 have been reported with the narrative notation that the reported results may be biased high.

Lastly, the gross alpha MB associated with samples 3072086020 through 3072086039 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.

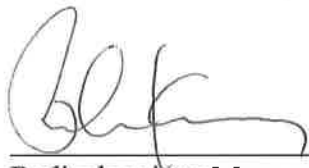
## Case Narrative for Pace Analytical Job Number 3072086

### General Comments

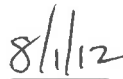
Please note that analytical results, as well as the CSU (Combined Standard Uncertainty – a.k.a. TPU) are reported at the 1.96 sigma level for all sample analyses.

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 1207074  
Pace Project No.: 3072086

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 1207074

Pace Project No.: 3072086

### 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 1207074

Pace Project No.: 3072086

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3072086001	2540-SU14-25	Wipe	06/14/12 00:01	06/25/12 10:15
3072086002	2540-SU15-1	Wipe	06/20/12 00:01	06/25/12 10:15
3072086003	2540-SU15-3	Wipe	06/20/12 00:01	06/25/12 10:15
3072086004	2540-SU15-4	Wipe	06/20/12 00:01	06/25/12 10:15
3072086005	2540-SU15-5	Wipe	06/20/12 00:01	06/25/12 10:15
3072086006	2540-SU15-6	Wipe	06/20/12 00:01	06/25/12 10:15
3072086007	2540-SU15-8	Wipe	06/20/12 00:01	06/25/12 10:15
3072086008	2540-SU15-9	Wipe	06/20/12 00:01	06/25/12 10:15
3072086009	2540-SU15-11	Wipe	06/20/12 00:01	06/25/12 10:15
3072086010	2540-SU15-12	Wipe	06/20/12 00:01	06/25/12 10:15
3072086011	2540-SU15-13	Wipe	06/20/12 00:01	06/25/12 10:15
3072086012	2540-SU15-14	Wipe	06/20/12 00:01	06/25/12 10:15
3072086013	2540-SU15-17	Wipe	06/20/12 00:01	06/25/12 10:15
3072086014	2540-SU15-18	Wipe	06/20/12 00:01	06/25/12 10:15
3072086015	2540-SU15-19	Wipe	06/20/12 00:01	06/25/12 10:15
3072086016	2540-SU15-19D	Wipe	06/20/12 00:01	06/25/12 10:15
3072086017	2540-SU15-20	Wipe	06/20/12 00:01	06/25/12 10:15
3072086018	2540-SU15-21	Wipe	06/20/12 00:01	06/25/12 10:15
3072086019	2540-SU15-22	Wipe	06/20/12 00:01	06/25/12 10:15
3072086020	2540-SU15-23	Wipe	06/20/12 00:01	06/25/12 10:15
3072086021	2540-SU15-24	Wipe	06/20/12 00:01	06/25/12 10:15
3072086022	2540-SU15-25	Wipe	06/20/12 00:01	06/25/12 10:15
3072086023	2540-SU15-26	Wipe	06/20/12 00:01	06/25/12 10:15
3072086024	2540-SU15-27	Wipe	06/20/12 00:01	06/25/12 10:15
3072086025	2540-SU15-28	Wipe	06/20/12 00:01	06/25/12 10:15
3072086026	2540-SU15-29	Wipe	06/20/12 00:01	06/25/12 10:15
3072086027	2540-SU15-30	Wipe	06/20/12 00:01	06/25/12 10:15
3072086028	2540-SU1-BIAS-19	Wipe	06/19/12 00:01	06/25/12 10:15
3072086029	2540-SU2-BIAS-8	Wipe	06/19/12 00:01	06/25/12 10:15
3072086030	2540-SU3-BIAS-23	Wipe	06/19/12 00:01	06/25/12 10:15
3072086031	2540-SU4-BIAS-24	Wipe	06/19/12 00:01	06/25/12 10:15
3072086032	2540-SU5-BIAS-24	Wipe	06/19/12 00:01	06/25/12 10:15
3072086033	2540-SU6-BIAS-2	Wipe	06/19/12 00:01	06/25/12 10:15
3072086034	2540-SU14-BIAS-25	Wipe	06/19/12 00:01	06/25/12 10:15
3072086035	2541-SU2-BIAS-25W	Wipe	06/19/12 00:01	06/25/12 10:15
3072086036	2541-SU2-BIAS-30	Wipe	06/19/12 00:01	06/25/12 10:15
3072086037	2541-SU1-2	Wipe	06/18/12 00:01	06/25/12 10:15

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3072086038	2541-SU1-3	Wipe	06/18/12 00:01	06/25/12 10:15
3072086039	2541-SU1-4	Wipe	06/18/12 00:01	06/25/12 10:15
3072086040	2541-SU1-5	Wipe	06/18/12 00:01	06/25/12 10:15
3072086041	2541-SU1-6	Wipe	06/18/12 00:01	06/25/12 10:15
3072086042	2541-SU1-7	Wipe	06/18/12 00:01	06/25/12 10:15
3072086043	2541-SU1-8	Wipe	06/18/12 00:01	06/25/12 10:15
3072086044	2541-SU1-9	Wipe	06/18/12 00:01	06/25/12 10:15
3072086045	2541-SU1-10	Wipe	06/18/12 00:01	06/25/12 10:15
3072086046	2541-SU1-11	Wipe	06/18/12 00:01	06/25/12 10:15
3072086047	2541-SU1-12	Wipe	06/18/12 00:01	06/25/12 10:15
3072086048	2541-SU1-13	Wipe	06/18/12 00:01	06/25/12 10:15
3072086049	2541-SU1-14	Wipe	06/18/12 00:01	06/25/12 10:15
3072086050	2541-SU1-15	Wipe	06/18/12 00:01	06/25/12 10:15
3072086051	2541-SU1-16	Wipe	06/18/12 00:01	06/25/12 10:15
3072086052	2541-SU1-17	Wipe	06/18/12 00:01	06/25/12 10:15
3072086053	2541-SU1-18	Wipe	06/18/12 00:01	06/25/12 10:15
3072086054	2541-SU1-19	Wipe	06/18/12 00:01	06/25/12 10:15
3072086055	2541-SU1-20	Wipe	06/18/12 00:01	06/25/12 10:15
3072086056	2541-SU1-20D	Wipe	06/18/12 00:01	06/25/12 10:15
3072086057	2541-SU1-21	Wipe	06/18/12 00:01	06/25/12 10:15
3072086058	2541-SU1-22	Wipe	06/18/12 00:01	06/25/12 10:15
3072086059	2541-SU1-23	Wipe	06/18/12 00:01	06/25/12 10:15
3072086060	2541-SU1-24	Wipe	06/18/12 00:01	06/25/12 10:15
3072086061	2541-SU1-25	Wipe	06/18/12 00:01	06/25/12 10:15
3072086062	2541-SU1-26	Wipe	06/18/12 00:01	06/25/12 10:15
3072086063	2541-SU1-27	Wipe	06/18/12 00:01	06/25/12 10:15
3072086064	2541-SU1-28	Wipe	06/18/12 00:01	06/25/12 10:15
3072086065	2541-SU1-28D	Wipe	06/18/12 00:01	06/25/12 10:15
3072086066	2541-SU1-29	Wipe	06/18/12 00:01	06/25/12 10:15
3072086067	2541-SU1-30	Wipe	06/18/12 00:01	06/25/12 10:15
3072086068	2541-SU2-18	Wipe	06/18/12 00:01	06/25/12 10:15
3072086069	275-8	Wipe	06/15/12 00:01	06/25/12 10:15
3072086070	275-10	Wipe	06/15/12 00:01	06/25/12 10:15
3072086071	275-11	Wipe	06/15/12 00:01	06/25/12 10:15
3072086072	275-30	Wipe	06/15/12 00:01	06/25/12 10:15
3072086073	292-2	Wipe	06/15/12 00:01	06/25/12 10:15
3072086074	292-6	Wipe	06/15/12 00:01	06/25/12 10:15

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### SAMPLE SUMMARY

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3072086075	292-8	Wipe	06/15/12 00:01	06/25/12 10:15
3072086076	292-11	Wipe	06/15/12 00:01	06/25/12 10:15
3072086077	292-19	Wipe	06/15/12 00:01	06/25/12 10:15
3072086078	292-21	Wipe	06/15/12 00:01	06/25/12 10:15
3072086079	292-22	Wipe	06/15/12 00:01	06/25/12 10:15
3072086080	292-23	Wipe	06/15/12 00:01	06/25/12 10:15
3072086081	292-26	Wipe	06/15/12 00:01	06/25/12 10:15
3072086082	292-26D	Wipe	06/15/12 00:01	06/25/12 10:15
3072086083	283(Squires Hall)-7	Wipe	06/15/12 00:01	06/25/12 10:15
3072086084	283-11	Wipe	06/15/12 00:01	06/25/12 10:15
3072086085	283-12	Wipe	06/15/12 00:01	06/25/12 10:15
3072086086	283-14	Wipe	06/15/12 00:01	06/25/12 10:15
3072086087	283-16	Wipe	06/15/12 00:01	06/25/12 10:15
3072086088	283-18	Wipe	06/15/12 00:01	06/25/12 10:15
3072086089	283-20	Wipe	06/15/12 00:01	06/25/12 10:15
3072086090	283-20D	Wipe	06/15/12 00:01	06/25/12 10:15
3072086091	283-26	Wipe	06/15/12 00:01	06/25/12 10:15
3072086092	283-27	Wipe	06/15/12 00:01	06/25/12 10:15
3072086093	283-28	Wipe	06/15/12 00:01	06/25/12 10:15
3072086094	283-29	Wipe	06/15/12 00:01	06/25/12 10:15
3072086095	283-30	Wipe	06/15/12 00:01	06/25/12 10:15
3072086096	283-SINK-A	Wipe	06/15/12 00:01	06/25/12 10:15
3072086097	283-SINK-B-2ND FLOOR	Wipe	06/15/12 00:01	06/25/12 10:15
3072086098	2540-SU10-DRAIN	Wipe	06/20/12 00:01	06/25/12 10:15
3072086099	292-CABINET-1	Wipe	06/19/12 00:01	06/25/12 10:15
3072086100	292-CABINET-2	Wipe	06/19/12 00:01	06/25/12 10:15
3072086101	292-CABINET-3	Wipe	06/19/12 00:01	06/25/12 10:15
3072086102	283-BASEMENT	Wipe	06/19/12 00:01	06/25/12 10:15
3072086103	283-WW-DRAIN	Wipe	06/19/12 00:01	06/25/12 10:15
3072086104	283-WW-FLOOR	Wipe	06/19/12 00:01	06/25/12 10:15
3072086105	283-WW-SINK FLOOR	Wipe	06/19/12 00:01	06/25/12 10:15
3072086106	283-2ND FLOOR-BROOM SINK	Wipe	06/19/12 00:01	06/25/12 10:15
3072086107	283-2ND FLOOR-BROOM FLOOR	Wipe	06/19/12 00:01	06/25/12 10:15
3072086108	283-2ND FLOOR WW	Wipe	06/19/12 00:01	06/25/12 10:15
3072086109	283-1ST FLOOR BACK FLOOR	Wipe	06/19/12 00:01	06/25/12 10:15
3072086110	283-SUMP	Wipe	06/19/12 00:01	06/25/12 10:15
3072086111	283-BOILER SUMP	Wipe	06/19/12 00:01	06/25/12 10:15

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### SAMPLE SUMMARY

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3072086112	283-WHALL1STFLOOR-DRAIN	Wipe	06/20/12 00:01	06/25/12 10:15
3072086113	283-WW2NDFLOOR-DRAIN	Wipe	06/20/12 00:01	06/25/12 10:15
3072086114	283-RM102-FD	Wipe	06/21/12 00:01	06/25/12 10:15
3072086115	283-214A-FD	Wipe	06/21/12 00:01	06/25/12 10:15
3072086116	2540-SU10-BIAS	Wipe	06/21/12 00:01	06/25/12 10:15
3072086117	2540-SU11-BIAS	Wipe	06/21/12 00:01	06/25/12 10:15
3072086118	2541-Floor-BIAS	Wipe	06/21/12 00:01	06/25/12 10:15
3072086119	SU12-BIAS-2	Wipe	06/21/12 00:01	06/25/12 10:15
3072086120	SU6-BIAS-1	Wipe	06/21/12 00:01	06/25/12 10:15
3072086121	SU09-BIAS-2	Wipe	06/21/12 00:01	06/25/12 10:15
3072086122	SU-07-BIAS1	Wipe	06/22/12 00:01	06/25/12 10:15
3072086123	SU-13-BIAS1	Wipe	06/22/12 00:01	06/25/12 10:15
3072086124	SU-12-BIAS1	Wipe	06/22/12 00:01	06/25/12 10:15
3072086125	SU-09-BIAS1	Wipe	06/22/12 00:01	06/25/12 10:15
3072086126	SU-08-BIAS1	Wipe	06/22/12 00:01	06/25/12 10:15
3072086127	SU-08-BIAS2	Wipe	06/22/12 00:01	06/25/12 10:15
3072086128	SU-08-BIAS3	Wipe	06/22/12 00:01	06/25/12 10:15
3072086129	283-1st FLOOR-BACK-RESIDUE	Wipe	06/22/12 00:01	06/25/12 10:15
3072086130	SU-15-BIAS1	Wipe	06/22/12 00:01	06/25/12 10:15

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3072086001	2540-SU14-25	EPA 900.0m	MBT	2	PASI-PA
3072086002	2540-SU15-1	EPA 900.0m	MBT	2	PASI-PA
3072086003	2540-SU15-3	EPA 900.0m	MBT	2	PASI-PA
3072086004	2540-SU15-4	EPA 900.0m	MBT	2	PASI-PA
3072086005	2540-SU15-5	EPA 900.0m	MBT	2	PASI-PA
3072086006	2540-SU15-6	EPA 900.0m	MBT	2	PASI-PA
3072086007	2540-SU15-8	EPA 900.0m	MBT	2	PASI-PA
3072086008	2540-SU15-9	EPA 900.0m	MBT	2	PASI-PA
3072086009	2540-SU15-11	EPA 900.0m	MBT	2	PASI-PA
3072086010	2540-SU15-12	EPA 900.0m	MBT	2	PASI-PA
3072086011	2540-SU15-13	EPA 900.0m	MBT	2	PASI-PA
3072086012	2540-SU15-14	EPA 900.0m	MBT	2	PASI-PA
3072086013	2540-SU15-17	EPA 900.0m	MBT	2	PASI-PA
3072086014	2540-SU15-18	EPA 900.0m	MBT	2	PASI-PA
3072086015	2540-SU15-19	EPA 900.0m	MBT	2	PASI-PA
3072086016	2540-SU15-19D	EPA 900.0m	MBT	2	PASI-PA
3072086017	2540-SU15-20	EPA 900.0m	MBT	2	PASI-PA
3072086018	2540-SU15-21	EPA 900.0m	MBT	2	PASI-PA
3072086019	2540-SU15-22	EPA 900.0m	MBT	2	PASI-PA
3072086020	2540-SU15-23	EPA 900.0m	MBT	2	PASI-PA
3072086021	2540-SU15-24	EPA 900.0m	MBT	2	PASI-PA
3072086022	2540-SU15-25	EPA 900.0m	MBT	2	PASI-PA
3072086023	2540-SU15-26	EPA 900.0m	MBT	2	PASI-PA
3072086024	2540-SU15-27	EPA 900.0m	MBT	2	PASI-PA
3072086025	2540-SU15-28	EPA 900.0m	MBT	2	PASI-PA
3072086026	2540-SU15-29	EPA 900.0m	MBT	2	PASI-PA
3072086027	2540-SU15-30	EPA 900.0m	MBT	2	PASI-PA
3072086028	2540-SU1-BIAS-19	EPA 900.0m	MBT	2	PASI-PA
3072086029	2540-SU2-BIAS-8	EPA 900.0m	MBT	2	PASI-PA
3072086030	2540-SU3-BIAS-23	EPA 900.0m	MBT	2	PASI-PA
3072086031	2540-SU4-BIAS-24	EPA 900.0m	MBT	2	PASI-PA
3072086032	2540-SU5-BIAS-24	EPA 900.0m	MBT	2	PASI-PA
3072086033	2540-SU6-BIAS-2	EPA 900.0m	MBT	2	PASI-PA
3072086034	2540-SU14-BIAS-25	EPA 900.0m	MBT	2	PASI-PA
3072086035	2541-SU2-BIAS-25W	EPA 900.0m	MBT	2	PASI-PA
3072086036	2541-SU2-BIAS-30	EPA 900.0m	MBT	2	PASI-PA
3072086037	2541-SU1-2	EPA 900.0m	MBT	2	PASI-PA

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### SAMPLE ANALYTE COUNT

Project: Fort Monmouth 1207074  
Pace Project No.: 3072086

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3072086038	2541-SU1-3	EPA 900.0m	MBT	2	PASI-PA
3072086039	2541-SU1-4	EPA 900.0m	MBT	2	PASI-PA
3072086040	2541-SU1-5	EPA 900.0m	MBT	2	PASI-PA
3072086041	2541-SU1-6	EPA 900.0m	MBT	2	PASI-PA
3072086042	2541-SU1-7	EPA 900.0m	MBT	2	PASI-PA
3072086043	2541-SU1-8	EPA 900.0m	MBT	2	PASI-PA
3072086044	2541-SU1-9	EPA 900.0m	MBT	2	PASI-PA
3072086045	2541-SU1-10	EPA 900.0m	MBT	2	PASI-PA
3072086046	2541-SU1-11	EPA 900.0m	MBT	2	PASI-PA
3072086047	2541-SU1-12	EPA 900.0m	MBT	2	PASI-PA
3072086048	2541-SU1-13	EPA 900.0m	MBT	2	PASI-PA
3072086049	2541-SU1-14	EPA 900.0m	MBT	2	PASI-PA
3072086050	2541-SU1-15	EPA 900.0m	MBT	2	PASI-PA
3072086051	2541-SU1-16	EPA 900.0m	MBT	2	PASI-PA
3072086052	2541-SU1-17	EPA 900.0m	MBT	2	PASI-PA
3072086053	2541-SU1-18	EPA 900.0m	MBT	2	PASI-PA
3072086054	2541-SU1-19	EPA 900.0m	MBT	2	PASI-PA
3072086055	2541-SU1-20	EPA 900.0m	MBT	2	PASI-PA
3072086056	2541-SU1-20D	EPA 900.0m	MBT	2	PASI-PA
3072086057	2541-SU1-21	EPA 900.0m	MBT	2	PASI-PA
3072086058	2541-SU1-22	EPA 900.0m	MBT	2	PASI-PA
3072086059	2541-SU1-23	EPA 900.0m	MBT	2	PASI-PA
3072086060	2541-SU1-24	EPA 900.0m	MBT	2	PASI-PA
3072086061	2541-SU1-25	EPA 900.0m	MBT	2	PASI-PA
3072086062	2541-SU1-26	EPA 900.0m	MBT	2	PASI-PA
3072086063	2541-SU1-27	EPA 900.0m	MBT	2	PASI-PA
3072086064	2541-SU1-28	EPA 900.0m	MBT	2	PASI-PA
3072086065	2541-SU1-28D	EPA 900.0m	MBT	2	PASI-PA
3072086066	2541-SU1-29	EPA 900.0m	MBT	2	PASI-PA
3072086067	2541-SU1-30	EPA 900.0m	MBT	2	PASI-PA
3072086068	2541-SU2-18	EPA 900.0m	MBT	2	PASI-PA
3072086069	275-8	EPA 900.0m	MBT	2	PASI-PA
3072086070	275-10	EPA 900.0m	MBT	2	PASI-PA
3072086071	275-11	EPA 900.0m	MBT	2	PASI-PA
3072086072	275-30	EPA 900.0m	MBT	2	PASI-PA
3072086073	292-2	EPA 900.0m	MBT	2	PASI-PA
3072086074	292-6	EPA 900.0m	MBT	2	PASI-PA

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### SAMPLE ANALYTE COUNT

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3072086075	292-8	EPA 900.0m	MBT	2	PASI-PA
3072086076	292-11	EPA 900.0m	MBT	2	PASI-PA
3072086077	292-19	EPA 900.0m	MBT	2	PASI-PA
3072086078	292-21	EPA 900.0m	MBT	2	PASI-PA
3072086079	292-22	EPA 900.0m	MBT	2	PASI-PA
3072086080	292-23	EPA 900.0m	MBT	2	PASI-PA
3072086081	292-26	EPA 900.0m	MBT	2	PASI-PA
3072086082	292-26D	EPA 900.0m	MBT	2	PASI-PA
3072086083	283(Squires Hall)-7	EPA 900.0m	MBT	2	PASI-PA
3072086084	283-11	EPA 900.0m	MBT	2	PASI-PA
3072086085	283-12	EPA 900.0m	MBT	2	PASI-PA
3072086086	283-14	EPA 900.0m	MBT	2	PASI-PA
3072086087	283-16	EPA 900.0m	MBT	2	PASI-PA
3072086088	283-18	EPA 900.0m	MBT	2	PASI-PA
3072086089	283-20	EPA 900.0m	MBT	2	PASI-PA
3072086090	283-20D	EPA 900.0m	MBT	2	PASI-PA
3072086091	283-26	EPA 900.0m	MBT	2	PASI-PA
3072086092	283-27	EPA 900.0m	MBT	2	PASI-PA
3072086093	283-28	EPA 900.0m	MBT	2	PASI-PA
3072086094	283-29	EPA 900.0m	MBT	2	PASI-PA
3072086095	283-30	EPA 900.0m	MBT	2	PASI-PA
3072086096	283-SINK-A	EPA 900.0m	MBT	2	PASI-PA
3072086097	283-SINK-B-2ND FLOOR	EPA 900.0m	MBT	2	PASI-PA
3072086098	2540-SU10-DRAIN	EPA 900.0m	MBT	2	PASI-PA
3072086099	292-CABINET-1	EPA 900.0m	MBT	2	PASI-PA
3072086100	292-CABINET-2	EPA 900.0m	MBT	2	PASI-PA
3072086101	292-CABINET-3	EPA 900.0m	MBT	2	PASI-PA
3072086102	283-BASEMENT	EPA 900.0m	MBT	2	PASI-PA
3072086103	283-WW-DRAIN	EPA 900.0m	MBT	2	PASI-PA
3072086104	283-WW-FLOOR	EPA 900.0m	MBT	2	PASI-PA
3072086105	283-WW-SINK FLOOR	EPA 900.0m	MBT	2	PASI-PA
3072086106	283-2ND FLOOR-BROOM SINK	EPA 900.0m	MBT	2	PASI-PA
3072086107	283-2ND FLOOR-BROOM FLOOR	EPA 900.0m	MBT	2	PASI-PA
3072086108	283-2ND FLOOR WW	EPA 900.0m	MBT	2	PASI-PA
3072086109	283-1ST FLOOR BACK FLOOR	EPA 900.0m	MBT	2	PASI-PA
3072086110	283-SUMP	EPA 900.0m	MBT	2	PASI-PA
3072086111	283-BOILER SUMP	EPA 900.0m	MBT	2	PASI-PA

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### SAMPLE ANALYTE COUNT

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3072086112	283-WHALL1STFLOOR-DRAIN	EPA 900.0m	MBT	2	PASI-PA
3072086113	283-WW2NDFLOOR-DRAIN	EPA 900.0m	MBT	2	PASI-PA
3072086114	283-RM102-FD	EPA 900.0m	MBT	2	PASI-PA
3072086115	283-214A-FD	EPA 900.0m	MBT	2	PASI-PA
3072086116	2540-SU10-BIAS	EPA 900.0m	MBT	2	PASI-PA
3072086117	2540-SU11-BIAS	EPA 900.0m	MBT	2	PASI-PA
3072086118	2541-Floor-BIAS	EPA 900.0m	MBT	2	PASI-PA
3072086119	SU12-BIAS-2	EPA 900.0m	MBT	2	PASI-PA
3072086120	SU6-BIAS-1	EPA 900.0m	MBT	2	PASI-PA
3072086121	SU09-BIAS-2	EPA 900.0m	MBT	2	PASI-PA
3072086122	SU-07-BIAS1	EPA 900.0m	MBT	2	PASI-PA
3072086123	SU-13-BIAS1	EPA 900.0m	MBT	2	PASI-PA
3072086124	SU-12-BIAS1	EPA 900.0m	MBT	2	PASI-PA
3072086125	SU-09-BIAS1	EPA 900.0m	MBT	2	PASI-PA
3072086126	SU-08-BIAS1	EPA 900.0m	MBT	2	PASI-PA
3072086127	SU-08-BIAS2	EPA 900.0m	MBT	2	PASI-PA
3072086128	SU-08-BIAS3	EPA 900.0m	MBT	2	PASI-PA
3072086129	283-1st FLOOR-BACK-RESIDUE	EPA 900.0m	MBT	2	PASI-PA
3072086130	SU-15-BIAS1	EPA 900.0m	MBT	2	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

Sample: 2540-SU14-25		Lab ID: 3072086001	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	<b>0.404J ± 0.430 (0.841)</b>	dpm/sample	07/14/12 21:41	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>1.44 ± 0.474 (0.554)</b>	dpm/sample	07/14/12 21:41	12587-47-2	N2

Sample: 2540-SU15-1		Lab ID: 3072086002	Collected: 06/20/12 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	<b>-0.232U ± 0.281 (0.964)</b>	dpm/sample	07/18/12 16:11	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.058U ± 0.281 (0.713)</b>	dpm/sample	07/18/12 16:11	12587-47-2	N2

Sample: 2540-SU15-3		Lab ID: 3072086003	Collected: 06/20/12 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	<b>0.228U ± 0.431 (0.977)</b>	dpm/sample	07/14/12 21:41	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.026U ± 0.255 (0.623)</b>	dpm/sample	07/14/12 21:41	12587-47-2	N2

Sample: 2540-SU15-4		Lab ID: 3072086004	Collected: 06/20/12 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	<b>0.192U ± 0.340 (0.760)</b>	dpm/sample	07/14/12 21:41	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.095U ± 0.256 (0.585)</b>	dpm/sample	07/14/12 21:41	12587-47-2	N2

Sample: 2540-SU15-5		Lab ID: 3072086005	Collected: 06/20/12 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	<b>0.410J ± 0.472 (0.962)</b>	dpm/sample	07/18/12 14:15	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.288J ± 0.302 (0.617)</b>	dpm/sample	07/18/12 14:15	12587-47-2	N2

Sample: 2540-SU15-6		Lab ID: 3072086006	Collected: 06/20/12 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	<b>-0.073U ± 0.346 (0.990)</b>	dpm/sample	07/18/12 14:15	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.029U ± 0.263 (0.659)</b>	dpm/sample	07/18/12 14:15	12587-47-2	N2



### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

<b>Sample: 2540-SU15-8</b>		<b>Lab ID: 3072086007</b>	Collected: 06/20/12 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	<b>0.177U ± 0.403 (0.946)</b>	dpm/sample	07/18/12 14:42	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.068U ± 0.268 (0.674)</b>	dpm/sample	07/18/12 14:42	12587-47-2	N2

<b>Sample: 2540-SU15-9</b>		<b>Lab ID: 3072086008</b>	Collected: 06/20/12 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	<b>0.282U ± 0.445 (0.977)</b>	dpm/sample	07/17/12 09:27	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.506J ± 0.334 (0.623)</b>	dpm/sample	07/17/12 09:27	12587-47-2	N2

<b>Sample: 2540-SU15-11</b>		<b>Lab ID: 3072086009</b>	Collected: 06/20/12 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	<b>0.065U ± 0.387 (0.974)</b>	dpm/sample	07/18/12 14:16	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.629J ± 0.362 (0.659)</b>	dpm/sample	07/18/12 14:16	12587-47-2	N2

<b>Sample: 2540-SU15-12</b>		<b>Lab ID: 3072086010</b>	Collected: 06/20/12 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	<b>0.064U ± 0.371 (0.962)</b>	dpm/sample	07/18/12 14:16	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.129U ± 0.310 (0.716)</b>	dpm/sample	07/18/12 14:16	12587-47-2	N2

<b>Sample: 2540-SU15-13</b>		<b>Lab ID: 3072086011</b>	Collected: 06/20/12 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	<b>0.035U ± 0.335 (0.870)</b>	dpm/sample	07/14/12 23:23	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.122U ± 0.349 (0.847)</b>	dpm/sample	07/14/12 23:23	12587-47-2	N2

<b>Sample: 2540-SU15-14</b>		<b>Lab ID: 3072086012</b>	Collected: 06/20/12 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	<b>0.148U ± 0.339 (0.788)</b>	dpm/sample	07/14/12 23:23	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.126U ± 0.325 (0.794)</b>	dpm/sample	07/14/12 23:23	12587-47-2	N2

### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

Sample: 2540-SU15-17		Lab ID: 3072086013	Collected: 06/20/12 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	<b>-0.246U ± 0.205 (0.801)</b>	dpm/sample	07/14/12 23:23	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.035U ± 0.329 (0.795)</b>	dpm/sample	07/14/12 23:23	12587-47-2	N2

Sample: 2540-SU15-18		Lab ID: 3072086014	Collected: 06/20/12 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	<b>0.149U ± 0.397 (0.921)</b>	dpm/sample	07/17/12 09:28	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.110U ± 0.258 (0.576)</b>	dpm/sample	07/17/12 09:28	12587-47-2	N2

Sample: 2540-SU15-19		Lab ID: 3072086015	Collected: 06/20/12 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	<b>0.307J ± 0.450 (0.971)</b>	dpm/sample	07/17/12 09:49	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.330J ± 0.351 (0.732)</b>	dpm/sample	07/17/12 09:49	12587-47-2	N2

Sample: 2540-SU15-19D		Lab ID: 3072086016	Collected: 06/20/12 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	<b>0.133U ± 0.387 (0.944)</b>	dpm/sample	07/17/12 09:51	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.401J ± 0.351 (0.710)</b>	dpm/sample	07/17/12 09:51	12587-47-2	N2

Sample: 2540-SU15-20		Lab ID: 3072086017	Collected: 06/20/12 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	<b>-0.096U ± 0.357 (0.982)</b>	dpm/sample	07/14/12 23:23	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.259U ± 0.368 (0.810)</b>	dpm/sample	07/14/12 23:23	12587-47-2	N2

Sample: 2540-SU15-21		Lab ID: 3072086018	Collected: 06/20/12 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	<b>0.939 ± 0.611 (0.919)</b>	dpm/sample	07/18/12 14:42	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.245J ± 0.333 (0.690)</b>	dpm/sample	07/18/12 14:42	12587-47-2	N2

### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

Sample: 2540-SU15-22		Lab ID: 3072086019	Collected: 06/20/12 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	<b>-0.178U ± 0.252 (0.866)</b>	dpm/sample	07/14/12 23:23	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.813 ± 0.426 (0.779)</b>	dpm/sample	07/14/12 23:23	12587-47-2	N2

Sample: 2540-SU15-23		Lab ID: 3072086020	Collected: 06/20/12 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	<b>0.125UB ± 0.408 (0.983)</b>	dpm/sample	07/18/12 14:10	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.268J ± 0.304 (0.644)</b>	dpm/sample	07/18/12 14:10	12587-47-2	N2

Sample: 2540-SU15-24		Lab ID: 3072086021	Collected: 06/20/12 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	<b>0.006UB ± 0.344 (0.944)</b>	dpm/sample	07/18/12 14:02	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.149U ± 0.310 (0.710)</b>	dpm/sample	07/18/12 14:02	12587-47-2	N2

Sample: 2540-SU15-25		Lab ID: 3072086022	Collected: 06/20/12 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	<b>0.176UB ± 0.397 (0.936)</b>	dpm/sample	07/18/12 13:28	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.377J ± 0.314 (0.612)</b>	dpm/sample	07/18/12 13:28	12587-47-2	N2

Sample: 2540-SU15-26		Lab ID: 3072086023	Collected: 06/20/12 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	<b>-0.045UB ± 0.332 (0.917)</b>	dpm/sample	07/14/12 23:47	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.142U ± 0.299 (0.681)</b>	dpm/sample	07/14/12 23:47	12587-47-2	N2

Sample: 2540-SU15-27		Lab ID: 3072086024	Collected: 06/20/12 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	<b>0.879JB ± 0.587 (0.977)</b>	dpm/sample	07/18/12 15:05	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.174U ± 0.293 (0.623)</b>	dpm/sample	07/18/12 15:05	12587-47-2	N2

### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

Sample: 2540-SU15-28		Lab ID: 3072086025	Collected: 06/20/12 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	<b>0.464JB ± 0.486 (0.962)</b>	dpm/sample	07/14/12 23:47	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.186U ± 0.287 (0.617)</b>	dpm/sample	07/14/12 23:47	12587-47-2	N2

Sample: 2540-SU15-29		Lab ID: 3072086026	Collected: 06/20/12 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	<b>0.265UB ± 0.428 (0.941)</b>	dpm/sample	07/14/12 23:47	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.408J ± 0.321 (0.629)</b>	dpm/sample	07/14/12 23:47	12587-47-2	N2

Sample: 2540-SU15-30		Lab ID: 3072086027	Collected: 06/20/12 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	<b>0.013UB ± 0.339 (0.899)</b>	dpm/sample	07/14/12 23:47	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.097U ± 0.251 (0.643)</b>	dpm/sample	07/14/12 23:47	12587-47-2	N2

Sample: 2540-SU1-BIAS-19		Lab ID: 3072086028	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	<b>0.390JB ± 0.471 (0.974)</b>	dpm/sample	07/14/12 23:47	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.351J ± 0.326 (0.659)</b>	dpm/sample	07/14/12 23:47	12587-47-2	N2

Sample: 2540-SU2-BIAS-8		Lab ID: 3072086029	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	<b>0.619JB ± 0.492 (0.864)</b>	dpm/sample	07/14/12 23:47	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.508J ± 0.349 (0.648)</b>	dpm/sample	07/14/12 23:47	12587-47-2	N2

Sample: 2540-SU3-BIAS-23		Lab ID: 3072086030	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	<b>0.608JB ± 0.481 (0.825)</b>	dpm/sample	07/14/12 23:47	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.253J ± 0.302 (0.625)</b>	dpm/sample	07/14/12 23:47	12587-47-2	N2

### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074  
Pace Project No.: 3072086

**Sample: 2540-SU4-BIAS-24**      **Lab ID: 3072086031**      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	<b>-0.114UB ± 0.313 (0.986)</b>	dpm/sample	07/18/12 14:02	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.363J ± 0.320 (0.653)</b>	dpm/sample	07/18/12 14:02	12587-47-2	N2

**Sample: 2540-SU5-BIAS-24**      **Lab ID: 3072086032**      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	<b>0.392JB ± 0.437 (0.873)</b>	dpm/sample	07/14/12 23:47	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.047U ± 0.274 (0.664)</b>	dpm/sample	07/14/12 23:47	12587-47-2	N2

**Sample: 2540-SU6-BIAS-2**      **Lab ID: 3072086033**      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	<b>0.125UB ± 0.417 (0.999)</b>	dpm/sample	07/18/12 13:29	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.062U ± 0.252 (0.622)</b>	dpm/sample	07/18/12 13:29	12587-47-2	N2

**Sample: 2540-SU14-BIAS-25**      **Lab ID: 3072086034**      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	<b>0.072UB ± 0.394 (0.983)</b>	dpm/sample	07/14/12 23:47	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.732 ± 0.374 (0.644)</b>	dpm/sample	07/14/12 23:47	12587-47-2	N2

**Sample: 2541-SU2-BIAS-25W**      **Lab ID: 3072086035**      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	<b>0.302JB ± 0.404 (0.848)</b>	dpm/sample	07/14/12 23:47	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.035U ± 0.274 (0.643)</b>	dpm/sample	07/14/12 23:47	12587-47-2	N2

**Sample: 2541-SU2-BIAS-30**      **Lab ID: 3072086036**      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	<b>0.684JB ± 0.482 (0.883)</b>	dpm/sample	07/18/12 14:02	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.024U ± 0.214 (0.476)</b>	dpm/sample	07/18/12 14:02	12587-47-2	N2

## ANALYTICAL RESULTS

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

<b>Sample: 2541-SU1-2</b>		<b>Lab ID: 3072086037</b>	Collected: 06/18/12 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	<b>0.566JB ± 0.473 (0.841)</b>	dpm/sample	07/14/12 23:48	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.217J ± 0.269 (0.554)</b>	dpm/sample	07/14/12 23:48	12587-47-2	N2

<b>Sample: 2541-SU1-3</b>		<b>Lab ID: 3072086038</b>	Collected: 06/18/12 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	<b>0.570JB ± 0.505 (0.993)</b>	dpm/sample	07/18/12 13:28	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.208J ± 0.247 (0.503)</b>	dpm/sample	07/18/12 13:28	12587-47-2	N2

<b>Sample: 2541-SU1-4</b>		<b>Lab ID: 3072086039</b>	Collected: 06/18/12 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	<b>0.662JB ± 0.538 (0.977)</b>	dpm/sample	07/14/12 23:48	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.386J ± 0.321 (0.623)</b>	dpm/sample	07/14/12 23:48	12587-47-2	N2

<b>Sample: 2541-SU1-5</b>		<b>Lab ID: 3072086040</b>	Collected: 06/18/12 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	<b>0.528J ± 0.482 (0.946)</b>	dpm/sample	07/18/12 14:02	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.942 ± 0.314 (0.434)</b>	dpm/sample	07/18/12 14:02	12587-47-2	N2

<b>Sample: 2541-SU1-6</b>		<b>Lab ID: 3072086041</b>	Collected: 06/18/12 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	<b>0.464J ± 0.486 (0.962)</b>	dpm/sample	07/18/12 16:27	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.148U ± 0.282 (0.617)</b>	dpm/sample	07/18/12 16:27	12587-47-2	N2

<b>Sample: 2541-SU1-7</b>		<b>Lab ID: 3072086042</b>	Collected: 06/18/12 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	<b>0.515J ± 0.511 (0.990)</b>	dpm/sample	07/18/12 16:07	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.352J ± 0.329 (0.659)</b>	dpm/sample	07/18/12 16:07	12587-47-2	N2

### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

<b>Sample: 2541-SU1-8</b>		<b>Lab ID: 3072086043</b>	Collected: 06/18/12 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	<b>1.10 ± 0.596 (0.845)</b>	dpm/sample	07/17/12 10:12	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.837 ± 0.374 (0.566)</b>	dpm/sample	07/17/12 10:12	12587-47-2	N2

<b>Sample: 2541-SU1-9</b>		<b>Lab ID: 3072086044</b>	Collected: 06/18/12 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	<b>-0.061U ± 0.328 (0.946)</b>	dpm/sample	07/18/12 16:51	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.412J ± 0.336 (0.674)</b>	dpm/sample	07/18/12 16:51	12587-47-2	N2

<b>Sample: 2541-SU1-10</b>		<b>Lab ID: 3072086045</b>	Collected: 06/18/12 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	<b>0.390J ± 0.471 (0.974)</b>	dpm/sample	07/18/12 16:27	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.460J ± 0.341 (0.659)</b>	dpm/sample	07/18/12 16:27	12587-47-2	N2

<b>Sample: 2541-SU1-11</b>		<b>Lab ID: 3072086046</b>	Collected: 06/18/12 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	<b>0.463J ± 0.456 (0.870)</b>	dpm/sample	07/15/12 12:32	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.484J ± 0.413 (0.847)</b>	dpm/sample	07/15/12 12:32	12587-47-2	N2

<b>Sample: 2541-SU1-12</b>		<b>Lab ID: 3072086047</b>	Collected: 06/18/12 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	<b>0.045U ± 0.307 (0.788)</b>	dpm/sample	07/15/12 12:32	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.147U ± 0.351 (0.794)</b>	dpm/sample	07/15/12 12:32	12587-47-2	N2

<b>Sample: 2541-SU1-13</b>		<b>Lab ID: 3072086048</b>	Collected: 06/18/12 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	<b>0.995 ± 0.561 (0.801)</b>	dpm/sample	07/15/12 12:32	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>1.13 ± 0.485 (0.795)</b>	dpm/sample	07/15/12 12:32	12587-47-2	N2

### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

Sample: 2541-SU1-14		Lab ID: 3072086049	Collected: 06/18/12 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	<b>1.15 ± 0.661 (0.944)</b>	dpm/sample	07/18/12 12:11	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.860 ± 0.437 (0.710)</b>	dpm/sample	07/18/12 12:11	12587-47-2	N2

Sample: 2541-SU1-15		Lab ID: 3072086050	Collected: 06/18/12 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	<b>0.111U ± 0.412 (0.982)</b>	dpm/sample	07/18/12 06:41	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.726 ± 0.364 (0.632)</b>	dpm/sample	07/18/12 06:41	12587-47-2	N2

Sample: 2541-SU1-16		Lab ID: 3072086051	Collected: 06/18/12 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	<b>0.448J ± 0.488 (0.962)</b>	dpm/sample	07/18/12 16:02	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.576J ± 0.386 (0.716)</b>	dpm/sample	07/18/12 16:02	12587-47-2	N2

Sample: 2541-SU1-17		Lab ID: 3072086052	Collected: 06/18/12 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	<b>-0.096U ± 0.357 (0.982)</b>	dpm/sample	07/15/12 12:32	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.281U ± 0.371 (0.810)</b>	dpm/sample	07/15/12 12:32	12587-47-2	N2

Sample: 2541-SU1-18		Lab ID: 3072086053	Collected: 06/18/12 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	<b>1.14 ± 0.661 (0.919)</b>	dpm/sample	07/18/12 16:27	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.548J ± 0.383 (0.690)</b>	dpm/sample	07/18/12 16:27	12587-47-2	N2

Sample: 2541-SU1-19		Lab ID: 3072086054	Collected: 06/18/12 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	<b>0.409J ± 0.443 (0.866)</b>	dpm/sample	07/15/12 12:32	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>1.76 ± 0.571 (0.779)</b>	dpm/sample	07/15/12 12:32	12587-47-2	N2



### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

<b>Sample: 2541-SU1-20</b>		<b>Lab ID: 3072086055</b>	Collected: 06/18/12 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	<b>0.662J ± 0.538 (0.977)</b>	dpm/sample	07/18/12 06:41	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.832 ± 0.390 (0.623)</b>	dpm/sample	07/18/12 06:41	12587-47-2	N2

<b>Sample: 2541-SU1-20D</b>		<b>Lab ID: 3072086056</b>	Collected: 06/18/12 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	<b>1.46 ± 0.742 (0.971)</b>	dpm/sample	07/18/12 16:02	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.406J ± 0.380 (0.732)</b>	dpm/sample	07/18/12 16:02	12587-47-2	N2

<b>Sample: 2541-SU1-21</b>		<b>Lab ID: 3072086057</b>	Collected: 06/18/12 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	<b>0.639J ± 0.534 (0.944)</b>	dpm/sample	07/18/12 15:54	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.118U ± 0.315 (0.710)</b>	dpm/sample	07/18/12 15:54	12587-47-2	N2

<b>Sample: 2541-SU1-22</b>		<b>Lab ID: 3072086058</b>	Collected: 06/18/12 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	<b>0.631J ± 0.532 (0.936)</b>	dpm/sample	07/18/12 17:15	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.232J ± 0.296 (0.612)</b>	dpm/sample	07/18/12 17:15	12587-47-2	N2

<b>Sample: 2541-SU1-23</b>		<b>Lab ID: 3072086059</b>	Collected: 06/18/12 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	<b>0.433J ± 0.462 (0.917)</b>	dpm/sample	07/15/12 12:26	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.157U ± 0.308 (0.681)</b>	dpm/sample	07/15/12 12:26	12587-47-2	N2

<b>Sample: 2541-SU1-24</b>		<b>Lab ID: 3072086060</b>	Collected: 06/18/12 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	<b>0.247U ± 0.431 (0.962)</b>	dpm/sample	07/15/12 12:26	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.839 ± 0.387 (0.617)</b>	dpm/sample	07/15/12 12:26	12587-47-2	N2

### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

**Sample: 2541-SU1-25**      **Lab ID: 3072086061**      Collected: 06/18/12 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	<b>0.319J ± 0.442 (0.941)</b>	dpm/sample	07/15/12 12:26	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.849 ± 0.391 (0.629)</b>	dpm/sample	07/15/12 12:26	12587-47-2	N2

**Sample: 2541-SU1-26**      **Lab ID: 3072086062**      Collected: 06/18/12 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	<b>0.777J ± 0.543 (0.899)</b>	dpm/sample	07/15/12 12:26	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.671 ± 0.374 (0.643)</b>	dpm/sample	07/15/12 12:26	12587-47-2	N2

**Sample: 2541-SU1-27**      **Lab ID: 3072086063**      Collected: 06/18/12 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	<b>0.336J ± 0.458 (0.974)</b>	dpm/sample	07/15/12 12:26	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.340J ± 0.323 (0.659)</b>	dpm/sample	07/15/12 12:26	12587-47-2	N2

**Sample: 2541-SU1-28**      **Lab ID: 3072086064**      Collected: 06/18/12 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	<b>0.673J ± 0.505 (0.864)</b>	dpm/sample	07/15/12 12:26	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.031U ± 0.282 (0.648)</b>	dpm/sample	07/15/12 12:26	12587-47-2	N2

**Sample: 2541-SU1-28D**      **Lab ID: 3072086065**      Collected: 06/18/12 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	<b>0.939 ± 0.564 (0.825)</b>	dpm/sample	07/15/12 12:26	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.336J ± 0.319 (0.625)</b>	dpm/sample	07/15/12 12:26	12587-47-2	N2

**Sample: 2541-SU1-29**      **Lab ID: 3072086066**      Collected: 06/18/12 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	<b>0.064U ± 0.371 (0.962)</b>	dpm/sample	07/18/12 21:35	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.197U ± 0.321 (0.716)</b>	dpm/sample	07/18/12 21:35	12587-47-2	N2

### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

<b>Sample: 2541-SU1-30</b>		<b>Lab ID: 3072086067</b>	Collected: 06/18/12 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	<b>0.392J ± 0.437 (0.873)</b>	dpm/sample	07/15/12 12:26	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.252J ± 0.314 (0.664)</b>	dpm/sample	07/15/12 12:26	12587-47-2	N2

<b>Sample: 2541-SU2-18</b>		<b>Lab ID: 3072086068</b>	Collected: 06/18/12 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	<b>-0.181U ± 0.285 (0.986)</b>	dpm/sample	07/18/12 06:43	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.039U ± 0.265 (0.653)</b>	dpm/sample	07/18/12 06:43	12587-47-2	N2

<b>Sample: 275-8</b>		<b>Lab ID: 3072086069</b>	Collected: 06/15/12 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	<b>0.629J ± 0.533 (0.999)</b>	dpm/sample	07/18/12 06:42	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.087U ± 0.257 (0.622)</b>	dpm/sample	07/18/12 06:42	12587-47-2	N2

<b>Sample: 275-10</b>		<b>Lab ID: 3072086070</b>	Collected: 06/15/12 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	<b>0.407J ± 0.432 (0.848)</b>	dpm/sample	07/15/12 12:27	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.181U ± 0.248 (0.643)</b>	dpm/sample	07/15/12 12:27	12587-47-2	N2

<b>Sample: 275-11</b>		<b>Lab ID: 3072086071</b>	Collected: 06/15/12 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	<b>1.27 ± 0.693 (0.919)</b>	dpm/sample	07/18/12 21:35	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.085U ± 0.292 (0.690)</b>	dpm/sample	07/18/12 21:35	12587-47-2	N2

<b>Sample: 275-30</b>		<b>Lab ID: 3072086072</b>	Collected: 06/15/12 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	<b>0.187U ± 0.368 (0.841)</b>	dpm/sample	07/15/12 12:27	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.225J ± 0.264 (0.554)</b>	dpm/sample	07/15/12 12:27	12587-47-2	N2

### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

<b>Sample: 292-2</b>		<b>Lab ID: 3072086073</b>	Collected: 06/15/12 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	<b>2.03 ± 0.870 (0.971)</b>	dpm/sample	07/18/12 21:36	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.286J ± 0.372 (0.732)</b>	dpm/sample	07/18/12 21:36	12587-47-2	N2

<b>Sample: 292-6</b>		<b>Lab ID: 3072086074</b>	Collected: 06/15/12 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	<b>0.228U ± 0.431 (0.977)</b>	dpm/sample	07/15/12 12:27	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.420J ± 0.320 (0.623)</b>	dpm/sample	07/15/12 12:27	12587-47-2	N2

<b>Sample: 292-8</b>		<b>Lab ID: 3072086075</b>	Collected: 06/15/12 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	<b>0.034U ± 0.288 (0.760)</b>	dpm/sample	07/15/12 12:27	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.105U ± 0.225 (0.585)</b>	dpm/sample	07/15/12 12:27	12587-47-2	N2

<b>Sample: 292-11</b>		<b>Lab ID: 3072086076</b>	Collected: 06/15/12 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	<b>0.892J ± 0.599 (0.944)</b>	dpm/sample	07/18/12 21:37	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.068U ± 0.293 (0.710)</b>	dpm/sample	07/18/12 21:37	12587-47-2	N2

<b>Sample: 292-19</b>		<b>Lab ID: 3072086077</b>	Collected: 06/15/12 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	<b>0.436J ± 0.477 (0.936)</b>	dpm/sample	07/18/12 21:37	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.165U ± 0.281 (0.612)</b>	dpm/sample	07/18/12 21:37	12587-47-2	N2

<b>Sample: 292-21</b>		<b>Lab ID: 3072086078</b>	Collected: 06/15/12 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	<b>0.154U ± 0.409 (0.986)</b>	dpm/sample	07/18/12 21:38	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.663 ± 0.375 (0.653)</b>	dpm/sample	07/18/12 21:38	12587-47-2	N2

### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

<b>Sample: 292-22</b>		<b>Lab ID: 3072086079</b>	Collected: 06/15/12 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	<b>0.221U ± 0.395 (0.886)</b>	dpm/sample	07/15/12 12:27	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.308J ± 0.292 (0.591)</b>	dpm/sample	07/15/12 12:27	12587-47-2	N2

<b>Sample: 292-23</b>		<b>Lab ID: 3072086080</b>	Collected: 06/15/12 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	<b>0.264J ± 0.320 (0.645)</b>	dpm/sample	07/18/12 15:29	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.828U ± 0.397 (0.845)</b>	dpm/sample	07/18/12 15:29	12587-47-2	N2

<b>Sample: 292-26</b>		<b>Lab ID: 3072086081</b>	Collected: 06/15/12 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	<b>-0.665U ± 0.395 (0.965)</b>	dpm/sample	07/18/12 15:30	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.479J ± 0.366 (0.725)</b>	dpm/sample	07/18/12 15:30	12587-47-2	N2

<b>Sample: 292-26D</b>		<b>Lab ID: 3072086082</b>	Collected: 06/15/12 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	<b>-0.050U ± 0.347 (0.787)</b>	dpm/sample	07/18/12 15:30	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.299J ± 0.359 (0.734)</b>	dpm/sample	07/18/12 15:30	12587-47-2	N2

<b>Sample: 283(Squires Hall)-7</b>		<b>Lab ID: 3072086083</b>	Collected: 06/15/12 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	<b>-0.112U ± 0.266 (0.632)</b>	dpm/sample	07/18/12 17:17	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.191U ± 0.341 (0.710)</b>	dpm/sample	07/18/12 17:17	12587-47-2	N2

<b>Sample: 283-11</b>		<b>Lab ID: 3072086084</b>	Collected: 06/15/12 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	<b>0.518J ± 0.317 (0.539)</b>	dpm/sample	07/18/12 17:17	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.011U ± 0.306 (0.650)</b>	dpm/sample	07/18/12 17:17	12587-47-2	N2

### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074  
Pace Project No.: 3072086

Sample: 283-12		Lab ID: 3072086085	Collected: 06/15/12 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	<b>0.354J ± 0.293 (0.545)</b>	dpm/sample	07/18/12 17:17	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.139U ± 0.332 (0.693)</b>	dpm/sample	07/18/12 17:17	12587-47-2	N2

Sample: 283-14		Lab ID: 3072086086	Collected: 06/15/12 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	<b>0.008U ± 0.300 (0.674)</b>	dpm/sample	07/19/12 11:46	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.059U ± 0.309 (0.670)</b>	dpm/sample	07/19/12 11:46	12587-47-2	N2

Sample: 283-16		Lab ID: 3072086087	Collected: 06/15/12 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	<b>0.318J ± 0.295 (0.563)</b>	dpm/sample	07/19/12 11:46	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.347J ± 0.309 (0.611)</b>	dpm/sample	07/19/12 11:46	12587-47-2	N2

Sample: 283-18		Lab ID: 3072086088	Collected: 06/15/12 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	<b>0.428J ± 0.347 (0.650)</b>	dpm/sample	07/19/12 11:46	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.333U ± 0.385 (0.835)</b>	dpm/sample	07/19/12 11:46	12587-47-2	N2

Sample: 283-20		Lab ID: 3072086089	Collected: 06/15/12 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	<b>0.408J ± 0.426 (0.844)</b>	dpm/sample	07/19/12 11:46	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.023U ± 0.287 (0.615)</b>	dpm/sample	07/19/12 11:46	12587-47-2	N2

Sample: 283-20D		Lab ID: 3072086090	Collected: 06/15/12 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	<b>0.016U ± 0.232 (0.531)</b>	dpm/sample	07/19/12 11:46	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.506J ± 0.338 (0.652)</b>	dpm/sample	07/19/12 11:46	12587-47-2	N2

### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

Parameters		Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha		EPA 900.0m	<b>-0.082U ± 0.276 (0.645)</b>	dpm/sample	07/19/12 11:46	12587-46-1	N2
Gross Beta		EPA 900.0m	<b>-0.835U ± 0.396 (0.845)</b>	dpm/sample	07/19/12 11:46	12587-47-2	N2

Parameters		Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha		EPA 900.0m	<b>-0.920U ± 0.387 (0.965)</b>	dpm/sample	07/19/12 11:46	12587-46-1	N2
Gross Beta		EPA 900.0m	<b>0.289J ± 0.350 (0.725)</b>	dpm/sample	07/19/12 11:46	12587-47-2	N2

Parameters		Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha		EPA 900.0m	<b>-0.271U ± 0.325 (0.787)</b>	dpm/sample	07/19/12 11:46	12587-46-1	N2
Gross Beta		EPA 900.0m	<b>-0.112U ± 0.338 (0.734)</b>	dpm/sample	07/19/12 11:46	12587-47-2	N2

Parameters		Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha		EPA 900.0m	<b>-0.186U ± 0.257 (0.632)</b>	dpm/sample	07/19/12 11:46	12587-46-1	N2
Gross Beta		EPA 900.0m	<b>0.462J ± 0.359 (0.710)</b>	dpm/sample	07/19/12 11:46	12587-47-2	N2

Parameters		Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha		EPA 900.0m	<b>0.276J ± 0.278 (0.539)</b>	dpm/sample	07/19/12 11:46	12587-46-1	N2
Gross Beta		EPA 900.0m	<b>-0.122U ± 0.299 (0.650)</b>	dpm/sample	07/19/12 11:46	12587-47-2	N2

Parameters		Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha		EPA 900.0m	<b>0.148U ± 0.260 (0.545)</b>	dpm/sample	07/19/12 11:46	12587-46-1	N2
Gross Beta		EPA 900.0m	<b>0.161U ± 0.332 (0.693)</b>	dpm/sample	07/19/12 11:46	12587-47-2	N2

### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

**Sample: 283-SINK-B-2ND FLOOR**      **Lab ID: 3072086097**      Collected: 06/15/12 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	<b>-0.037U ± 0.275 (0.632)</b>	dpm/sample	07/19/12 17:29	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.183U ± 0.341 (0.710)</b>	dpm/sample	07/19/12 17:29	12587-47-2	N2

**Sample: 2540-SU10-DRAIN**      **Lab ID: 3072086098**      Collected: 06/20/12 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	<b>0.147U ± 0.257 (0.539)</b>	dpm/sample	07/19/12 17:29	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.134U ± 0.311 (0.650)</b>	dpm/sample	07/19/12 17:29	12587-47-2	N2

**Sample: 292-CABINET-1**      **Lab ID: 3072086099**      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	<b>0.092U ± 0.251 (0.545)</b>	dpm/sample	07/19/12 17:29	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.400J ± 0.348 (0.693)</b>	dpm/sample	07/19/12 17:29	12587-47-2	N2

**Sample: 292-CABINET-2**      **Lab ID: 3072086100**      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	<b>-0.130U ± 0.263 (0.632)</b>	dpm/sample	07/18/12 10:23	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.149U ± 0.338 (0.710)</b>	dpm/sample	07/18/12 10:23	12587-47-2	N2

**Sample: 292-CABINET-3**      **Lab ID: 3072086101**      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	<b>0.647 ± 0.339 (0.539)</b>	dpm/sample	07/18/12 10:23	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>2.43 ± 0.592 (0.650)</b>	dpm/sample	07/18/12 10:23	12587-47-2	N2

**Sample: 283-BASEMENT**      **Lab ID: 3072086102**      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	<b>0.246U ± 0.406 (0.844)</b>	dpm/sample	07/18/12 12:46	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.069U ± 0.291 (0.615)</b>	dpm/sample	07/18/12 12:46	12587-47-2	N2



### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

Sample: 283-WW-DRAIN		Lab ID: 3072086103	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	<b>0.862 ± 0.414 (0.650)</b>	dpm/sample	07/18/12 12:46	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.217U ± 0.389 (0.835)</b>	dpm/sample	07/18/12 12:46	12587-47-2	N2

Sample: 283-WW-FLOOR		Lab ID: 3072086104	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	<b>0.070U ± 0.256 (0.563)</b>	dpm/sample	07/18/12 12:46	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.346J ± 0.307 (0.611)</b>	dpm/sample	07/18/12 12:46	12587-47-2	N2

Sample: 283-WW-SINK FLOOR		Lab ID: 3072086105	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	<b>0.238U ± 0.330 (0.674)</b>	dpm/sample	07/18/12 12:46	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>1.14 ± 0.415 (0.670)</b>	dpm/sample	07/18/12 12:46	12587-47-2	N2

Sample: 283-2ND FLOOR-BROOM SINK		Lab ID: 3072086106	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	<b>-0.155U ± 0.268 (0.645)</b>	dpm/sample	07/18/12 10:23	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.536U ± 0.389 (0.845)</b>	dpm/sample	07/18/12 10:23	12587-47-2	N2

Sample: 283-2ND FLOOR-BROOM FLOOR		Lab ID: 3072086107	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	<b>-0.626U ± 0.397 (0.965)</b>	dpm/sample	07/18/12 10:23	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.061U ± 0.333 (0.725)</b>	dpm/sample	07/18/12 10:23	12587-47-2	N2

Sample: 283-2ND FLOOR WW		Lab ID: 3072086108	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	<b>-0.171U ± 0.334 (0.787)</b>	dpm/sample	07/18/12 10:23	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.047U ± 0.345 (0.734)</b>	dpm/sample	07/18/12 10:23	12587-47-2	N2

Date: 07/24/2012 04:13 PM

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074  
Pace Project No.: 3072086

<b>Sample: 283-1ST FLOOR BACK FLOOR</b>		<b>Lab ID: 3072086109</b>	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	<b>0.372J ± 0.348 (0.674)</b>	dpm/sample	07/17/12 11:19	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.103U ± 0.319 (0.670)</b>	dpm/sample	07/17/12 11:19	12587-47-2	N2

<b>Sample: 283-SUMP</b>		<b>Lab ID: 3072086110</b>	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	<b>0.242J ± 0.283 (0.563)</b>	dpm/sample	07/17/12 11:19	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.695 ± 0.342 (0.611)</b>	dpm/sample	07/17/12 11:19	12587-47-2	N2

<b>Sample: 283-BOILER SUMP</b>		<b>Lab ID: 3072086111</b>	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	<b>2.60 ± 0.704 (0.650)</b>	dpm/sample	07/17/12 11:19	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>1.11 ± 0.483 (0.835)</b>	dpm/sample	07/17/12 11:19	12587-47-2	N2

<b>Sample: 283-WHALL1STFLOOR-DRAIN</b>		<b>Lab ID: 3072086112</b>	Collected: 06/20/12 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	<b>0.205U ± 0.402 (0.844)</b>	dpm/sample	07/17/12 11:19	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.021U ± 0.288 (0.615)</b>	dpm/sample	07/17/12 11:19	12587-47-2	N2

<b>Sample: 283-WW2NDFLOOR-DRAIN</b>		<b>Lab ID: 3072086113</b>	Collected: 06/20/12 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	<b>-0.004U ± 0.229 (0.531)</b>	dpm/sample	07/17/12 11:19	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.058U ± 0.306 (0.652)</b>	dpm/sample	07/17/12 11:19	12587-47-2	N2

<b>Sample: 283-RM102-FD</b>		<b>Lab ID: 3072086114</b>	Collected: 06/21/12 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	<b>0.319J ± 0.328 (0.645)</b>	dpm/sample	07/17/12 11:19	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.039U ± 0.397 (0.845)</b>	dpm/sample	07/17/12 11:19	12587-47-2	N2

### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

<b>Sample: 283-214A-FD</b>		<b>Lab ID: 3072086115</b>	Collected: 06/21/12 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	<b>-0.998U ± 0.386 (0.965)</b>	dpm/sample	07/17/12 11:19	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>1.82 ± 0.520 (0.725)</b>	dpm/sample	07/17/12 11:19	12587-47-2	N2

<b>Sample: 2540-SU10-BIAS</b>		<b>Lab ID: 3072086116</b>	Collected: 06/21/12 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	<b>-0.131U ± 0.338 (0.787)</b>	dpm/sample	07/17/12 11:19	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.292J ± 0.358 (0.734)</b>	dpm/sample	07/17/12 11:19	12587-47-2	N2

<b>Sample: 2540-SU11-BIAS</b>		<b>Lab ID: 3072086117</b>	Collected: 06/21/12 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	<b>0.056U ± 0.287 (0.632)</b>	dpm/sample	07/17/12 11:19	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.282J ± 0.347 (0.710)</b>	dpm/sample	07/17/12 11:19	12587-47-2	N2

<b>Sample: 2541-Floor-BIAS</b>		<b>Lab ID: 3072086118</b>	Collected: 06/21/12 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	<b>0.555 ± 0.323 (0.539)</b>	dpm/sample	07/17/12 11:19	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.540J ± 0.343 (0.650)</b>	dpm/sample	07/17/12 11:19	12587-47-2	N2

<b>Sample: SU12-BIAS-2</b>		<b>Lab ID: 3072086119</b>	Collected: 06/21/12 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	<b>0.429J ± 0.305 (0.545)</b>	dpm/sample	07/17/12 11:19	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.775 ± 0.382 (0.693)</b>	dpm/sample	07/17/12 11:19	12587-47-2	N2

<b>Sample: SU6-BIAS-1</b>		<b>Lab ID: 3072086120</b>	Collected: 06/21/12 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	<b>0.756 ± 0.366 (0.563)</b>	dpm/sample	07/14/12 20:49	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>1.87 ± 0.498 (0.611)</b>	dpm/sample	07/14/12 20:49	12587-47-2	N2

### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

<b>Sample: SU09-BIAS-2</b>		<b>Lab ID: 3072086121</b>	Collected: 06/21/12 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	<b>0.172U ± 0.310 (0.650)</b>	dpm/sample	07/14/12 20:49	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.544U ± 0.384 (0.835)</b>	dpm/sample	07/14/12 20:49	12587-47-2	N2

<b>Sample: SU-07-BIAS1</b>		<b>Lab ID: 3072086122</b>	Collected: 06/22/12 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	<b>0.043U ± 0.384 (0.844)</b>	dpm/sample	07/14/12 20:49	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.128U ± 0.293 (0.615)</b>	dpm/sample	07/14/12 20:49	12587-47-2	N2

<b>Sample: SU-13-BIAS1</b>		<b>Lab ID: 3072086123</b>	Collected: 06/22/12 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	<b>0.229J ± 0.268 (0.531)</b>	dpm/sample	07/14/12 20:49	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.214U ± 0.317 (0.652)</b>	dpm/sample	07/14/12 20:49	12587-47-2	N2

<b>Sample: SU-12-BIAS1</b>		<b>Lab ID: 3072086124</b>	Collected: 06/22/12 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	<b>0.209U ± 0.313 (0.645)</b>	dpm/sample	07/14/12 20:49	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>-0.106U ± 0.394 (0.845)</b>	dpm/sample	07/14/12 20:49	12587-47-2	N2

<b>Sample: SU-09-BIAS1</b>		<b>Lab ID: 3072086125</b>	Collected: 06/22/12 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	<b>-0.979U ± 0.386 (0.965)</b>	dpm/sample	07/14/12 20:49	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.265U ± 0.348 (0.725)</b>	dpm/sample	07/14/12 20:49	12587-47-2	N2

<b>Sample: SU-08-BIAS1</b>		<b>Lab ID: 3072086126</b>	Collected: 06/22/12 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	<b>-0.131U ± 0.338 (0.787)</b>	dpm/sample	07/14/12 20:49	12587-46-1	N2
Gross Beta	EPA 900.0m	<b>0.021U ± 0.344 (0.734)</b>	dpm/sample	07/14/12 20:49	12587-47-2	N2

### ANALYTICAL RESULTS

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

Parameters		Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha		EPA 900.0m	<b>0.037U ± 0.284 (0.632)</b>	dpm/sample	07/14/12 20:49	12587-46-1	N2
Gross Beta		EPA 900.0m	<b>0.175U ± 0.341 (0.710)</b>	dpm/sample	07/14/12 20:49	12587-47-2	N2

Parameters		Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha		EPA 900.0m	<b>0.239U ± 0.272 (0.539)</b>	dpm/sample	07/14/12 20:49	12587-46-1	N2
Gross Beta		EPA 900.0m	<b>0.160U ± 0.313 (0.650)</b>	dpm/sample	07/14/12 20:49	12587-47-2	N2

Parameters		Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha		EPA 900.0m	<b>-0.039U ± 0.231 (0.545)</b>	dpm/sample	07/14/12 20:49	12587-46-1	N2
Gross Beta		EPA 900.0m	<b>0.152U ± 0.331 (0.693)</b>	dpm/sample	07/14/12 20:49	12587-47-2	N2

Parameters		Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha		EPA 900.0m	<b>-0.081U ± 0.217 (0.531)</b>	dpm/sample	07/18/12 10:20	12587-46-1	N2
Gross Beta		EPA 900.0m	<b>0.219U ± 0.316 (0.652)</b>	dpm/sample	07/18/12 10:20	12587-47-2	N2

**QUALITY CONTROL DATA**

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

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: 3072086001, 3072086002, 3072086003, 3072086004, 3072086005, 3072086006, 3072086007, 3072086008, 3072086009, 3072086010, 3072086011, 3072086012, 3072086013, 3072086014, 3072086015, 3072086016, 3072086017, 3072086018, 3072086019

METHOD BLANK: 458983

Matrix: Impact Plate

Associated Lab Samples: 3072086001, 3072086002, 3072086003, 3072086004, 3072086005, 3072086006, 3072086007, 3072086008, 3072086009, 3072086010, 3072086011, 3072086012, 3072086013, 3072086014, 3072086015, 3072086016, 3072086017, 3072086018, 3072086019

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

### QUALITY CONTROL DATA

Project: Fort Monmouth 1207074  
Pace Project No.: 3072086

QC Batch: RADC/12470      Analysis Method: EPA 900.0m  
QC Batch Method: EPA 900.0m      Analysis Description: 900.0 Gross Alpha/Beta  
Associated Lab Samples: 3072086020, 3072086021, 3072086022, 3072086023, 3072086024, 3072086025, 3072086026, 3072086027,  
3072086028, 3072086029, 3072086030, 3072086031, 3072086032, 3072086033, 3072086034, 3072086035,  
3072086036, 3072086037, 3072086038, 3072086039

METHOD BLANK: 458984      Matrix: Impact Plate  
Associated Lab Samples: 3072086020, 3072086021, 3072086022, 3072086023, 3072086024, 3072086025, 3072086026, 3072086027,  
3072086028, 3072086029, 3072086030, 3072086031, 3072086032, 3072086033, 3072086034, 3072086035,  
3072086036, 3072086037, 3072086038, 3072086039

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Gross Alpha	1.33B ± 0.713 (0.971)	dpm/sample	07/18/12 14:16	N2
Gross Beta	0.400J ± 0.377 (0.732)	dpm/sample	07/18/12 14:16	N2

### QUALITY CONTROL DATA

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

QC Batch: RADC/12471

Analysis Method: EPA 900.0m

QC Batch Method: EPA 900.0m

Analysis Description: 900.0 Gross Alpha/Beta

Associated Lab Samples: 3072086040, 3072086041, 3072086042, 3072086043, 3072086044, 3072086045, 3072086046, 3072086047, 3072086048, 3072086049, 3072086050, 3072086051, 3072086052, 3072086053, 3072086054, 3072086055, 3072086056, 3072086057, 3072086058, 3072086059

METHOD BLANK: 458986

Matrix: Impact Plate

Associated Lab Samples: 3072086040, 3072086041, 3072086042, 3072086043, 3072086044, 3072086045, 3072086046, 3072086047, 3072086048, 3072086049, 3072086050, 3072086051, 3072086052, 3072086053, 3072086054, 3072086055, 3072086056, 3072086057, 3072086058, 3072086059

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Gross Alpha	0.034U ± 0.288 (0.760)	dpm/sample	07/14/12 23:50	N2
Gross Beta	-0.105U ± 0.225 (0.585)	dpm/sample	07/14/12 23:50	N2



### QUALITY CONTROL DATA

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

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QC Batch:	RADC/12472	Analysis Method:	EPA 900.0m
QC Batch Method:	EPA 900.0m	Analysis Description:	900.0 Gross Alpha/Beta
Associated Lab Samples:	3072086060, 3072086061, 3072086062, 3072086063, 3072086064, 3072086065, 3072086066, 3072086067, 3072086068, 3072086069, 3072086070, 3072086071, 3072086072, 3072086073, 3072086074, 3072086075, 3072086076, 3072086077, 3072086078, 3072086079		

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METHOD BLANK:	458987	Matrix:	Impact Plate
Associated Lab Samples:	3072086060, 3072086061, 3072086062, 3072086063, 3072086064, 3072086065, 3072086066, 3072086067, 3072086068, 3072086069, 3072086070, 3072086071, 3072086072, 3072086073, 3072086074, 3072086075, 3072086076, 3072086077, 3072086078, 3072086079		

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Gross Alpha	-0.181U ± 0.285 (0.986)	dpm/sample	07/18/12 15:53	N2
Gross Beta	0.216U ± 0.294 (0.653)	dpm/sample	07/18/12 15:53	N2

### QUALITY CONTROL DATA

Project: Fort Monmouth 1207074  
Pace Project No.: 3072086

---

QC Batch: RADC/12473 Analysis Method: EPA 900.0m  
QC Batch Method: EPA 900.0m Analysis Description: 900.0 Gross Alpha/Beta  
Associated Lab Samples: 3072086080, 3072086081, 3072086082, 3072086083, 3072086084, 3072086085, 3072086086, 3072086087, 3072086088, 3072086089, 3072086090, 3072086091, 3072086092, 3072086093, 3072086094, 3072086095, 3072086096, 3072086097, 3072086098, 3072086099

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METHOD BLANK: 458988 Matrix: Impact Plate  
Associated Lab Samples: 3072086080, 3072086081, 3072086082, 3072086083, 3072086084, 3072086085, 3072086086, 3072086087, 3072086088, 3072086089, 3072086090, 3072086091, 3072086092, 3072086093, 3072086094, 3072086095, 3072086096, 3072086097, 3072086098, 3072086099

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Gross Alpha	-0.043U ± 0.223 (0.531)	dpm/sample	07/18/12 15:29	N2
Gross Beta	0.069U ± 0.307 (0.652)	dpm/sample	07/18/12 15:29	N2

### QUALITY CONTROL DATA

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

---

QC Batch: RADC/12474 Analysis Method: EPA 900.0m  
 QC Batch Method: EPA 900.0m Analysis Description: 900.0 Gross Alpha/Beta  
 Associated Lab Samples: 3072086100, 3072086101, 3072086102, 3072086103, 3072086104, 3072086105, 3072086106, 3072086107, 3072086108, 3072086109, 3072086110, 3072086111, 3072086112, 3072086113, 3072086114, 3072086115, 3072086116, 3072086117, 3072086118, 3072086119

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METHOD BLANK: 458989 Matrix: Impact Plate  
 Associated Lab Samples: 3072086100, 3072086101, 3072086102, 3072086103, 3072086104, 3072086105, 3072086106, 3072086107, 3072086108, 3072086109, 3072086110, 3072086111, 3072086112, 3072086113, 3072086114, 3072086115, 3072086116, 3072086117, 3072086118, 3072086119

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Gross Alpha	-0.021U ± 0.234 (0.545)	dpm/sample	07/18/12 10:23	N2
Gross Beta	-0.098U ± 0.320 (0.693)	dpm/sample	07/18/12 10:23	N2

### QUALITY CONTROL DATA

Project: Fort Monmouth 1207074

Pace Project No.: 3072086

---

QC Batch:	RADC/12475	Analysis Method:	EPA 900.0m
QC Batch Method:	EPA 900.0m	Analysis Description:	900.0 Gross Alpha/Beta
Associated Lab Samples:	3072086120, 3072086121, 3072086122, 3072086123, 3072086124, 3072086125, 3072086126, 3072086127, 3072086128, 3072086129, 3072086130		

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METHOD BLANK:	458990	Matrix:	Impact Plate
Associated Lab Samples:	3072086120, 3072086121, 3072086122, 3072086123, 3072086124, 3072086125, 3072086126, 3072086127, 3072086128, 3072086129, 3072086130		

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Gross Alpha	-0.223U ± 0.273 (0.674)	dpm/sample	07/14/12 20:49	N2
Gross Beta	0.168U ± 0.320 (0.670)	dpm/sample	07/14/12 20:49	N2

## QUALIFIERS

Project: Fort Monmouth 1207074  
Pace Project No.: 3072086

### 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:** 3072086

**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.

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

**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) WATER (WT) WASTE WATER (WW) PRODUCT (P) SOIL/SOLID (SL) OIL (OL) WIPE (WP) AIR (AR) OTHER (OT) TISSUE (TS)	Required Client Information	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB G=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives Unpreserved H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Methanol Other	Analysis Test Y/N	Gross Alpha/Beta Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
					COMPOSITE START	COMPOSITE END/DIAB							
286		2540-SU9-77	WP G	G	NA	NA	08/19/12	NA	1	X			
287		2540-SU9-78	WP G	G	NA	NA	08/19/12	NA	1	X			
288		2540-SU9-79	WP G	G	NA	NA	08/19/12	NA	1	X			
289		2540-SU9-80	WP G	G	NA	NA	08/19/12	NA	1	X			
290		2540-SU9-81-HOODVENT	WP G	G	NA	NA	08/19/12	NA	1	X			
291		2540-SU9-82-HOODBASE	WP G	G	NA	NA	08/19/12	NA	1	X			
292		2540-SU12-20	WP G	G	NA	NA	08/14/12	NA	1	X			
293		2540-SU14-1	WP G	G	NA	NA	08/14/12	NA	1	X			
294		2540-SU14-2	WP G	G	NA	NA	08/14/12	NA	1	X			
295		2540-SU14-3	WP G	G	NA	NA	08/14/12	NA	1	X			
296		2540-SU14-4	WP G	G	NA	NA	08/14/12	NA	1	X			
297		2540-SU14-5	WP G	G	NA	NA	08/14/12	NA	1	X			
298		2540-SU14-6	WP G	G	NA	NA	08/14/12	NA	1	X			
299		2540-SU14-7	WP G	G	NA	NA	08/14/12	NA	1	X			
300		2540-SU14-8	WP G	G	NA	NA	08/14/12	NA	1	X			
301		2540-SU14-15	WP G	G	NA	NA	08/14/12	NA	1	X			
302		2540-SU14-25	WP G	G	NA	NA	08/14/12	NA	1	X			
303		2540-SU15-1	WP G	G	NA	NA	06/20/12	NA	1	X			
304		2540-SU15-3	WP G	G	NA	NA	06/20/12	NA	1	X			
305		2540-SU15-4	WP G	G	NA	NA	06/20/12	NA	1	X			
306		2540-SU15-5	WP G	G	NA	NA	06/20/12	NA	1	X			
307		2540-SU15-6	WP G	G	NA	NA	06/20/12	NA	1	X			

30720576  
Pace Project No./ Lab I.D.

001  
002  
003  
004  
005  
006

Hand pace 6/25/12 1015



# CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 15 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: 443-253-0916 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: Cain Ferris  
 Pace Profile #:

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER  NRC  
 Site Location: NJ  
 STATE:

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER WATER WASTE WATER PRODUCT SOIL/SOLID OIL WIPE AIR OTHER TISSUE	Client Information MATRIX CODE DW WT WW P SL CL WP WR AR OT TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.	
					COMPOSITE START	COMPOSITE ENDING			DATE	TIME	DATE	TIME	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>					HCl
308			WP	G	NA	NA	06/20/12	NA	1	X									0057	3072086
309			WP	G	NA	NA	06/20/12	NA	1	X									0058	
310			WP	G	NA	NA	06/20/12	NA	1	X									0059	
311			WP	G	NA	NA	06/20/12	NA	1	X									0060	
312			WP	G	NA	NA	06/20/12	NA	1	X									0061	
313			WP	G	NA	NA	06/20/12	NA	1	X									0062	
314			WP	G	NA	NA	06/20/12	NA	1	X									0063	
315			WP	G	NA	NA	06/20/12	NA	1	X									0064	
316			WP	G	NA	NA	06/20/12	NA	1	X									0065	
317			WP	G	NA	NA	06/20/12	NA	1	X									0066	
318			WP	G	NA	NA	06/20/12	NA	1	X									0067	
319			WP	G	NA	NA	06/20/12	NA	1	X									0068	
320			WP	G	NA	NA	06/20/12	NA	1	X									0069	
321			WP	G	NA	NA	06/20/12	NA	1	X									0070	
322			WP	G	NA	NA	06/20/12	NA	1	X									0071	
323			WP	G	NA	NA	06/20/12	NA	1	X									0072	
324			WP	G	NA	NA	06/20/12	NA	1	X									0073	
325			WP	G	NA	NA	06/20/12	NA	1	X									0074	
326			WP	G	NA	NA	06/20/12	NA	1	X									0075	
327			WP	G	NA	NA	06/20/12	NA	1	X									0076	
328			WP	G	NA	NA	06/20/12	NA	1	X									0077	
329			WP	G	NA	NA	06/19/12	NA	1	X									0078	

Next page 1/25/12 6:15





# CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: **16** of

## Section A Required Client Information:

Company: **US Army Corps of Engineers**  
 Address: **10 South Howard Street**  
 Baltimore, MD  
 Email To: **david.j.watters@usace.army.mil**  
 Phone: **443-253-0916** Fax: **note**  
 Requested Due Date/TAT: **ASAP**

## Section B Required Project Information:

Report To: **David Watters**  
 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 STATE: **NJ**

ITEM #	Section D Required Client Information	Valid Matrix Codes	COLLECTED		SAMPLE TYPE (G-RAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	Preservatives										Analysis Test ↑	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/DRAW				DATE	TIME	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other	Gross Alpha/Beta			
330	2540-SU2-BIAS-8	DRINKING WATER	NA	NA	G	WP	1	X										029	3072 0376	
331	2540-SU3-BIAS-23	WATER	NA	NA	G	WP	1	X										030		
332	2540-SU4-BIAS-24	WASTE WATER PRODUCT	NA	NA	G	WP	1	X										031		
333	2540-SU5-BIAS-24	SOIL/SOLID	NA	NA	G	WP	1	X										032		
334	2540-SU6-BIAS-2	OIL	NA	NA	G	WP	1	X										033		
335	2540-SU14-BIAS-25	WPE	NA	NA	G	WP	1	X										034		
336	2541-SU2-BIAS-25W	AIR	NA	NA	G	WP	1	X										035		
337	2541-SU2-BIAS-30	OTHER TISSUE	NA	NA	G	WP	1	X										036		
338	2541-SU1-2		NA	NA	G	WP	1	X										037		
339	2541-SU1-3		NA	NA	G	WP	1	X										038		
340	2541-SU1-4		NA	NA	G	WP	1	X										039		
341	2541-SU1-5		NA	NA	G	WP	1	X										040		
342	2541-SU1-6		NA	NA	G	WP	1	X										041		
343	2541-SU1-7		NA	NA	G	WP	1	X										042		
344	2541-SU1-8		NA	NA	G	WP	1	X										043		
345	2541-SU1-9		NA	NA	G	WP	1	X										044		
346	2541-SU1-10		NA	NA	G	WP	1	X										045		
347	2541-SU1-11		NA	NA	G	WP	1	X										046		
348	2541-SU1-12		NA	NA	G	WP	1	X										047		
349	2541-SU1-13		NA	NA	G	WP	1	X										048		
350	2541-SU1-14		NA	NA	G	WP	1	X										049		
351	2541-SU1-15		NA	NA	G	WP	1	X										050		

Must be 6/12/18 per 1018



# CHAIN-OF-CUSTODY / Analytical Request Document

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Page: **17** of **20**

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

<b>REGULATORY AGENCY</b>	
<input type="checkbox"/> NPDES	<input type="checkbox"/> GROUND WATER
<input type="checkbox"/> UST	<input type="checkbox"/> RCRA
<input type="checkbox"/> DRINKING WATER	<input type="checkbox"/> OTHER
<input type="checkbox"/> NRC	
Site Location	NJ
STATE:	

#	ITEM	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WATER WW WASTE WATER WP PRODUCT P SOLID SL OIL OL WIPE WP AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Methanol Other	Analysis Test Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
					COMPOSITE START	COMPOSITE END/GRAB							
352			WP G	G	NA	06/18/12	NA	1	X				051
353			WP G	G	NA	06/18/12	NA	1	X				052
354			WP G	G	NA	06/18/12	NA	1	X				053
355			WP G	G	NA	06/18/12	NA	1	X				054
356			WP G	G	NA	06/18/12	NA	1	X				055
357			WP G	G	NA	06/18/12	NA	1	X				056
358			WP G	G	NA	06/18/12	NA	1	X				057
359			WP G	G	NA	06/18/12	NA	1	X				058
360			WP G	G	NA	06/18/12	NA	1	X				059
361			WP G	G	NA	06/18/12	NA	1	X				060
362			WP G	G	NA	06/18/12	NA	1	X				061
363			WP G	G	NA	06/18/12	NA	1	X				062
364			WP G	G	NA	06/18/12	NA	1	X				063
365			WP G	G	NA	06/18/12	NA	1	X				064
366			WP G	G	NA	06/18/12	NA	1	X				065
367			WP G	G	NA	06/18/12	NA	1	X				066
368			WP G	G	NA	06/18/12	NA	1	X				067
369			WP G	G	NA	06/18/12	NA	1	X				068
370			WP G	G	NA	06/15/12	NA	1	X				069
371			WP G	G	NA	06/15/12	NA	1	X				070
372			WP G	G	NA	06/15/12	NA	1	X				071
373			WP G	G	NA	06/15/12	NA	1	X				072

M.A. Pace 6/25/12 10:15



CHAIN-OF-CUSTODY / Analytical Request Document

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Section B

Required Project Information:

Report To: David Walters

Copy To: Alan Warminski

Baltimore, MD

mail To: david.j.walters@usace.army.mil

Phone: 443-253-0916 Fax: none

Requested Due Date/TAT: ASAP

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

STATE: NJ

Section D Required Client Information

Valid Matrix Codes

MATRIX CODE

DRINKING WATER DW

WATER WT

WASTE WATER WW

PRODUCT P

SOLID SL

OIL OL

WIPE WP

AIR AR

OTHER OT

TISSUE TS

**SAMPLE ID**

(A-Z, 0-9 / -)

Sample IDs MUST BE UNIQUE

ITEM #	MATRIX CODE	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test	Gross Alpha/Beta	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
			COMPOSITE START	COMPOSITE END/GRAB							
374	292-2	WP G	NA	NA	NA	1	Unpreserved	X			073
375	292-6	WP G	NA	NA	NA	1	Unpreserved	X			074
376	292-8	WP G	NA	NA	NA	1	Unpreserved	X			075
377	292-11	WP G	NA	NA	NA	1	Unpreserved	X			076
378	292-19	WP G	NA	NA	NA	1	Unpreserved	X			077
379	292-21	WP G	NA	NA	NA	1	Unpreserved	X			078
380	292-22	WP G	NA	NA	NA	1	Unpreserved	X			079
381	292-23	WP G	NA	NA	NA	1	Unpreserved	X			080
382	292-26	WP G	NA	NA	NA	1	Unpreserved	X			081
383	292-26D	WP G	NA	NA	NA	1	Unpreserved	X			082
384	283(Squires Hall) -7	WP G	NA	NA	NA	1	Unpreserved	X			083
385	283-11	WP G	NA	NA	NA	1	Unpreserved	X			084
386	283-12	WP G	NA	NA	NA	1	Unpreserved	X			085
387	283-14	WP G	NA	NA	NA	1	Unpreserved	X			086
388	283-16	WP G	NA	NA	NA	1	Unpreserved	X			087
389	283-18	WP G	NA	NA	NA	1	Unpreserved	X			088
390	283-20	WP G	NA	NA	NA	1	Unpreserved	X			089
391	283-20D	WP G	NA	NA	NA	1	Unpreserved	X			090
392	283-26	WP G	NA	NA	NA	1	Unpreserved	X			091
393	283-27	WP G	NA	NA	NA	1	Unpreserved	X			092
394	283-28	WP G	NA	NA	NA	1	Unpreserved	X			093
395	283-29	WP G	NA	NA	NA	1	Unpreserved	X			094

3072086 Pace Project No./ Lab I.D.

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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.



Page: 19 of 20

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

ITEM #	Section D Required Client Information	Valid Matrix Codes MATRIX CODE DW DRINKING WATER WT WASTE WATER WW WASTE WATER P PRODUCT SL SOIL/SOLID OL OIL WP WIPE AR AIR OT OTHER TS TISSUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES							Analysis Test Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
					COMPOSITE START	COMPOSITE END/GRAB			DATE	TIME	DATE	TIME	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl				
396		283-30	WP G	G	NA	NA	06/15/12	NA	1	X							X	095	
397		283-SINK-A	WP G	G	NA	NA	06/15/12	NA	1	X							X	096	
398		283-SINK-B-2ND FLOOR	WP G	G	NA	NA	06/15/12	NA	1	X							X	097	
399		2540-SU10-DRAIN	WP G	G	NA	NA	06/20/12	NA	1	X							X	098	
400		292-CABINET-1	WP G	G	NA	NA	06/19/12	NA	1	X							X	099	
401		292-CABINET-2	WP G	G	NA	NA	06/19/12	NA	1	X							X	100	
402		292-CABINET-3	WP G	G	NA	NA	06/19/12	NA	1	X							X	101	
403		283-BASEMENT	WP G	G	NA	NA	06/19/12	NA	1	X							X	102	
404		283-WW-DRAIN	WP G	G	NA	NA	06/19/12	NA	1	X							X	103	
405		283-WW-FLOOR	WP G	G	NA	NA	06/19/12	NA	1	X							X	104	
406		283-WW-SINK FLOOR	WP G	G	NA	NA	06/19/12	NA	1	X							X	105	
407		283-2ND FLOOR-BROOM SINK	WP G	G	NA	NA	06/19/12	NA	1	X							X	106	
408		283-2ND FLOOR-BROOM FLOOR	WP G	G	NA	NA	06/19/12	NA	1	X							X	107	
409		283-2ND FLOOR WW	WP G	G	NA	NA	06/19/12	NA	1	X							X	108	
410		283-1ST FLOOR BACK FLOOR	WP G	G	NA	NA	06/19/12	NA	1	X							X	109	
411		283-SUMP	WP G	G	NA	NA	06/19/12	NA	1	X							X	110	
412		283-BOILER SUMP	WP G	G	NA	NA	06/19/12	NA	1	X							X	111	
413		283-WHALL1STFLOOR-DRAIN	WP G	G	NA	NA	06/20/12	NA	1	X							X	112	
414		283-WW2NDFLOOR-DRAIN	WP G	G	NA	NA	06/20/12	NA	1	X							X	113	
415		283-RM102-FD	WP G	G	NA	NA	06/21/12	NA	1	X							X	114	
416		283-214A-FD	WP G	G	NA	NA	06/21/12	NA	1	X							X	115	
417		2540-SU10-BIAS	WP G	G	NA	NA	06/21/12	NA	1	X							X	116	

*Handwritten signature and date:* 6/25/12 1615





# CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	US Army Corps of Engineers	Report To:	David Wattiers	Attention:	
Address:	10 South Howard Street Baltimore, MD	Copy To:	Alan Warminski	Address:	
Email To:	David.j.wattiers@usace.army.mil	Purchase Order No.:		Site Location:	
Phone:	443-263-0916	Project Name:	Fort Monmouth Rad Survey	State:	NJ
Requested Due Date/TAT:	ASAP	Project Number:		Preservative:	
				Reference:	
				Pace Project Manager:	Carlin Ferris
				Pace Profile #:	

Page: 1 of 1

ITEM #	Section D Required Client Information	Valid Matrix Codes	MATRIX CODE	COLLECTED		DATE	TIME	SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	Preservatives	Requested Analysis Filtered (Y/N)	Temp in °C	Received on	Sealed Cooler	Samples intact
				COMPOSITE START	COMPOSITE END/GRAB											
1			SU-07-BIAS1	NA	NA	06/22/12	15:00	NA	NA	1	X		122			
2			SU-13-BIAS1	NA	NA	06/22/12	15:00	NA	NA	1	X		123			
3			SU-12-BIAS1	NA	NA	06/22/12	15:00	NA	NA	1	X		124			
4			SU-09-BIAS1	NA	NA	06/22/12	15:00	NA	NA	1	X		125			
5			SU-08-BIAS1	NA	NA	06/22/12	15:00	NA	NA	1	X		126			
6			SU-08-BIAS2	NA	NA	06/22/12	15:00	NA	NA	1	X		127			
7			SU-08-BIAS3	NA	NA	06/22/12	15:00	NA	NA	1	X		128			
8			283-1st FLOOR-BACK RESIDUE	NA	NA	06/22/12	15:00	NA	NA	1	X		129			
9			SU-15-BIAS1	NA	NA	06/22/12	15:00	NA	NA	1	X		130			
ADDITIONAL COMMENTS: 283-1st Floor Back Residue Relinquished by: John Beckman / USACE Date: 6/22/12 Time: 15:00 Accepted by: John Beckman / USACE Date: 6/22/12 Time: 15:00 Residual Chlorine (Y/N): Pace Project No./ Lab I.D.: 3072086																



Sample Condition Upon Receipt

Client Name: RTI Project # 3572086

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: 8259286535773

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

Optional
Proj. Due Date:
Proj. Name:

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

Date and Initials of person examining contents: <u>WEL/25/12</u>
--

Temp should be above freezing to 6°C

Comments:

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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input 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 type="checkbox"/> No <input checked="" 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>WP</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, W-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed <u>WEL</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:

Charles Sandoz

Date: 6/10/12

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e out of hold, incorrect preservative, out of temp, incorrect containers)



Project Number: 3572086

Client Name: RTI

Item No.	Matrix Code	Glass 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 / swep/ smear/ filter	Radchem Nalgene (125 / 250 / 500 / 1L)	Radchem Nalgene (1/2 gal / 1 gal.)	Cubtrainer (500 ml / 4L)	Ziploc	Other	Other
100	SM																							
0310	SM																							



# **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

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 Col 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 Col 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

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

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

## Prep Information

<b>Procedure</b> 9000 I	<b>Batch</b> RADC/12469	<b>Prep Date</b> 7/18/2012 14:16	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>HBN</b> 91039	<b>Hold Date</b> 12/17/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785331	<b>Instru</b> NONE		<b>CC</b> OK F

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

## Analytical Information

<b>Procedure</b> 9000 I	<b>Instru</b> NONE	<b>Run Date</b> 7/18/2012 14:16	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>Col ID</b>	<b>Hold Date</b> 12/17/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785331	<b>File</b>		<b>CC</b> 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

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

\*\* 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 Location  
 1207074

### 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 Monmonth 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 Monmonth 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

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



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21 3072086019-2540-SU15-22

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

Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Creation Date 06/28/2012 13:08  
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	MCL Exceedance *	
													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		

\* 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*  
7/27/2012

*Handwritten initials*  
PAC

# 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  
 LCS QC Vol (mL): a: NA  
 MS/MSD QC Vol (mL): a: NA  
 Pipette ID: NA  
 Aliquot Balance ID: NA  
 Aliquot Wgt. Date: NA  
 Tare Balance ID: NA  
 Tare Wgt. Date: NA  
 Gross Balance ID: NA  
 Gross Wgt. Date: NA

Bottle ID	Sample No.	Analyst Initials	Analyst Initials	Analyst Initials	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
	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 HNO<sub>3</sub>: Conc HNO<sub>3</sub>: 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



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			0.0590	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			0.0510	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					4.4883E-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	a	b	c	d	e	a	b	a	b	Alpha Bkg	Beta Bkg
28															0.0810	0.3330
29															0.0840	0.3220
30															0.0720	0.4080
31															0.0950	0.3670
32															0.0540	0.4120
33															0.0900	0.3870
34															0.0750	0.4040
35															0.1970	0.3930
36															0.0930	0.4070
37															0.0420	0.3180
38															0.1100	0.3990
39															0.0780	0.4760
40															0.2530	12.5520
41															2.7170	366.8100
42															0.2050	9.9000
43															0.1620	1.1560
44															0.1110	0.9900
45															0.1410	1.7460
46															0.2350	0.9640
47															0.0940	1.1670
48															0.1650	2.0860
49															0.3330	1.3450
50															0.2050	1.4600
51															0.1500	1.3750
52															0.1070	1.1480
53															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  
P2

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

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
GAB	2428	3072085100	GAB12469	120	7/14/12 21:42	BSH	NA	NA
	3029	30720866001						
	3130	602						
	3231	003						
	3332	004						
	3433	005						
	3534	006						
	3635	607						
	3736	608						
	3837	609						
	<del>3938</del>	<del>010</del>			23:20			BSH 7-14-12
	1239	011			7/14/12 23:20	BSH		
	2340	012						
	3441	013						
	4542	014						
	5643	015						
	6744	016						
	7845	017						
	8946	018						
	9047	019						
	1048	458984	GAB12470	120				
	1149	3072086020			7/14/12 23:49			
	1250	021						
	1351	022						

- Legend:
1. Detector daily check failure
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  4. Sample was re-prepped
  5. Other noted comments

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

Logbook ID 25-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
WAB	12	356101200100	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	WAB	Sample added to Runlog.
J	16	460288	J	J	7/10/12 0834	J	J	J
J	17	3072088001	J	J	7/10/12 0831	J	J	J
J	18	3072088004	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
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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	3072080018	GAB 12469	120	7/17/12 1012	AW	2	
	36	043	12471	130				
	37	048		130				
GAB	12	458981	GAB 12467	140	7-17-12 1041	WBT	2	MDC
	13	3072080045	GAB 12471	120				
GAB	43	3072080109	GAB 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						
	33	3073177601			15:43			
	34	3073178001			16:34			
	35	3072501001			↓ 15:43			
Gas	11	USN2469 (1)	GAS12469	90	7/19/12 17:36	JS	NA	NA
	16	3072085087	GAS 12468	120			2	
	27	↓ 088	↓	100			↓	
	28	US12472 (2)	GAS12472	90			NA	
	33	3072085089	GAS 12468	140			2	
	36	↓ 091	↓	100			↓	
	38	↓ 098	↓	130			↓	
	34	458982	GAS12468	140		JS	2	NA
	51	3072086097	GAS12473	300	7/19/12 17:30	JS	NA	NA
	52	↓ 98	↓				↓	
	53	↓ 99	↓				↓	

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- Legend:
- 1. Detector daily check failure
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# **Gross Alpha and Beta Sample Analysis Data**

# Quality Control Review



Batch RADC/12470 HBN 91040  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 1 458984-BLANK for HBN 91040 [RADC/1247

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

### Prep Information

Procedure 9000 I Batch RADC/12470 Prep Date 7/18/2012 14:16 Dilution  
 Method EPA 900.0m HBN 91040 Hold Date 12/25/2012 23:59 Analyst MBT  
 Schedule 2795667 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 12/25/2012 23:59 Analyst MBT  
 Schedule 2795667 File CC OK F

Analyte	CC	Posted		MDL	RDL
		Result	Result		
Rad Chemistry	OK				
Gross Alpha	OK	1.33B ± 0.713 (0.971)	pCi/sa 1.33B ± 0.713 (0.971)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					
Gross Beta	OK	0.400J ± 0.377 (0.732)	pCi/sa 0.400J ± 0.377 (0.732)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					

## 2 3072086020-2540-SU15-23

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/12470 Prep Date 7/18/2012 14:10 Dilution  
 Method EPA 900.0m HBN 91040 Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785351 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 14:10 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785351 File CC OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK						dpm/sa
Gross Alpha	OK	0.125UB ± 0.408 (0.983)	pCi/sa 0.125UB ± 0.408 (0.983)				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/12470 HBN 91040  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 2 3072086020-2540-SU15-23

Analyte	CC	Posted Result		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Gross Beta	OK	0.268J ± 0.304 (0.644)	pCi/sa 0.268J ± 0.304 (0.644)			dpm/sa		

The lab does not hold TNI accreditation for this parameter.

## 3 3072086021-2540-SU15-24

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/12470 Prep Date 7/18/2012 14:02 Dilution  
 Method EPA 900.0m HBN 91040 Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785353 Instru NONE CC OK F

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

### Analytical Information

Analyte	CC	Posted Result		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Rad Chemistry	OK					dpm/sa		
Gross Alpha	OK	0.006UB ± 0.344 (0.944)	pCi/sa 0.006UB ± 0.344 (0.944)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								
Gross Beta	OK	0.149U ± 0.310 (0.710)	pCi/sa 0.149U ± 0.310 (0.710)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								

## 4 3072086022-2540-SU15-25

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/12470 Prep Date 7/18/2012 13:28 Dilution  
 Method EPA 900.0m HBN 91040 Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785353 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/12470 HBN 91040  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 4 3072086022-2540-SU15-25

### Analytical Information

Procedure 9000 I Instru NONE Run Date 7/18/2012 13:28 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785355 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.176UB ± 0.397 (0.936)	pCi/sa 0.176UB ± 0.397 (0.936)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.377J ± 0.314 (0.612)	pCi/sa 0.377J ± 0.314 (0.612)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

## 5 3072086023-2540-SU15-26

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/12470 Prep Date 7/14/2012 23:47 Dilution  
 Method EPA 900.0m HBN 91040 Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785357 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 23:47 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785357 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.045UB ± 0.332 (0.917)	pCi/sa -0.045UB ± 0.332 (0.917)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.142U ± 0.299 (0.681)	pCi/sa 0.142U ± 0.299 (0.681)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

## 6 3072086024-2540-SU15-27

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/12470 HBN 91040  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

**6 3072086024-2540-SU15-27**

## Prep Information

Procedure 9000 I Batch RADC/12470 Prep Date 7/18/2012 15:05 Dilution  
 Method EPA 900.0m HBN 91040 Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785359 Instru NONE CC OK F

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

## Analytical Information

Procedure 9000 I Instru NONE Run Date 7/18/2012 15:05 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785359 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.879JB ± 0.587 (0.977)	pCi/sa 0.879JB ± 0.587 (0.977)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.174U ± 0.293 (0.623)	pCi/sa 0.174U ± 0.293 (0.623)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

**7 3072086025-2540-SU15-28**

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

## Prep Information

Procedure 9000 I Batch RADC/12470 Prep Date 7/14/2012 23:47 Dilution  
 Method EPA 900.0m HBN 91040 Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785361 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 23:47 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785361 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.464JB ± 0.486 (0.962)	pCi/sa 0.464JB ± 0.486 (0.962)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.186U ± 0.287 (0.617)	pCi/sa 0.186U ± 0.287 (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/12470 HBN 91040  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 7 3072086025-2540-SU15-28

## 8 3072086026-2540-SU15-29

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/12470 Prep Date 7/14/2012 23:47 Dilution  
 Method EPA 900.0m HBN 91040 Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785363 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 23:47 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785363 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.265UB ± 0.428 (0.941)	pCi/sa 0.265UB ± 0.428 (0.941)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.408J ± 0.321 (0.629)	pCi/sa 0.408J ± 0.321 (0.629)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 9 3072086027-2540-SU15-30

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/12470 Prep Date 7/14/2012 23:47 Dilution  
 Method EPA 900.0m HBN 91040 Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785365 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 23:47 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785365 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Req. 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/12470 HBN 91040  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 9 3072086027-2540-SU15-30

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Alpha	OK	0.013UB ± 0.339 (0.899)	pCi/sa 0.013UB ± 0.339 (0.899)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.097U ± 0.251 (0.643)	pCi/sa -0.097U ± 0.251 (0.643)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

## 10 3072086028-2540-SU1-BIAS-19

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12470 Prep Date 7/14/2012 23:47 Dilution  
 Method EPA 900.0m HBN 91040 Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785367 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 23:47 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785367 File CC OK F

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.390JB ± 0.471 (0.974)	pCi/sa 0.390JB ± 0.471 (0.974)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.351J ± 0.326 (0.659)	pCi/sa 0.351J ± 0.326 (0.659)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

## 11 3072086029-2540-SU2-BIAS-8

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12470 Prep Date 7/14/2012 23:47 Dilution  
 Method EPA 900.0m HBN 91040 Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785373 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/12470 HBN 91040  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 11 3072086029-2540-SU2-BIAS-8

### Analytical Information

<b>Procedure</b> 9000 I	<b>Instru</b> NONE	<b>Run Date</b> 7/14/2012 23:47	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>Col ID</b>	<b>Hold Date</b> 12/16/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785373	<b>File</b>		<b>CC</b> OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.619JB ± 0.492 (0.864)	pCi/sa 0.619JB ± 0.492 (0.864)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.508J ± 0.349 (0.648)	pCi/sa 0.508J ± 0.349 (0.648)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

## 12 3072086030-2540-SU3-BIAS-23

<b>Type</b> PS	<b>Matrix</b> Wipe	<b>Collected</b> 6/19/2012 00:01	<b>% Moisture</b>
<b>Client</b> RTI	<b>WO</b> 3072086	<b>Work ID</b> Fort Monmouth 1207074	<b>Location</b>

### Prep Information

<b>Procedure</b> 9000 I	<b>Batch</b> RADC/12470	<b>Prep Date</b> 7/14/2012 23:47	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>HBN</b> 91040	<b>Hold Date</b> 12/16/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785375	<b>Instru</b> NONE		<b>CC</b> OK F

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

### Analytical Information

<b>Procedure</b> 9000 I	<b>Instru</b> NONE	<b>Run Date</b> 7/14/2012 23:47	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>Col ID</b>	<b>Hold Date</b> 12/16/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785375	<b>File</b>		<b>CC</b> OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.608JB ± 0.481 (0.825)	pCi/sa 0.608JB ± 0.481 (0.825)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.253J ± 0.302 (0.625)	pCi/sa 0.253J ± 0.302 (0.625)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

## 13 3072086031-2540-SU4-BIAS-24

<b>Type</b> PS	<b>Matrix</b> Wipe	<b>Collected</b> 6/19/2012 00:01	<b>% Moisture</b>
<b>Client</b> RTI	<b>WO</b> 3072086	<b>Work ID</b> Fort Monmouth 1207074	<b>Location</b>

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



# Quality Control Review



Batch RADC/12470 HBN 91040  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 13 3072086031-2540-SU4-BIAS-24

### Prep Information

Procedure 9000 I Batch RADC/12470 Prep Date 7/18/2012 14:02 Dilution  
 Method EPA 900.0m HBN 91040 Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785377 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 14:02 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785377 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.114UB ± 0.313 (0.986)	pCi/sa -0.114UB ± 0.313 (0.986)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.363J ± 0.320 (0.653)	pCi/sa 0.363J ± 0.320 (0.653)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 14 3072086032-2540-SU5-BIAS-24

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12470 Prep Date 7/14/2012 23:47 Dilution  
 Method EPA 900.0m HBN 91040 Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785379 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 23:47 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785379 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.392JB ± 0.437 (0.873)	pCi/sa 0.392JB ± 0.437 (0.873)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.047U ± 0.274 (0.664)	pCi/sa -0.047U ± 0.274 (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/12470 HBN 91040  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 14 3072086032-2540-SU5-BIAS-24

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12470 Prep Date 7/18/2012 13:29 Dilution  
 Method EPA 900.0m HBN 91040 Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785381 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 13:29 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785381 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.125UB ± 0.417 (0.999)	pCi/sa 0.125UB ± 0.417 (0.999)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.062U ± 0.252 (0.622)	pCi/sa -0.062U ± 0.252 (0.622)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 16 3072086034-2540-SU14-BIAS-25

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12470 Prep Date 7/14/2012 23:47 Dilution  
 Method EPA 900.0m HBN 91040 Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785383 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 23:47 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785383 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/12470 HBN 91040  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 16 3072086034-2540-SU14-BIAS-25

Analyte	CC	Posted Result		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Gross Alpha	OK	0.072UB ± 0.394 (0.983)	pCi/sa 0.072UB ± 0.394 (0.983)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								
Gross Beta	OK	0.732 ± 0.374 (0.644)	pCi/sa 0.732 ± 0.374 (0.644)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								

## 17 3072086035-2541-SU2-BIAS-25W

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072086	Work ID Fort Monmouth 1207074	Location

### Prep Information

Procedure 9000 I	Batch RADC/12470	Prep Date 7/14/2012 23:47	Dilution
Method EPA 900.0m	HBN 91040	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785385	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 23:47	Dilution
Method EPA 900.0m	CoI ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785385	File		CC OK F

Analyte	CC	Posted Result		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Rad Chemistry	OK					dpm/sa		
Gross Alpha	OK	0.302JB ± 0.404 (0.848)	pCi/sa 0.302JB ± 0.404 (0.848)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								
Gross Beta	OK	0.035U ± 0.274 (0.643)	pCi/sa 0.035U ± 0.274 (0.643)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								

## 18 3072086036-2541-SU2-BIAS-30

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072086	Work ID Fort Monmouth 1207074	Location

### Prep Information

Procedure 9000 I	Batch RADC/12470	Prep Date 7/18/2012 14:02	Dilution
Method EPA 900.0m	HBN 91040	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785387	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/12470 HBN 91040  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 18 3072086036-2541-SU2-BIAS-30

### Analytical Information

Procedure 9000 I Instru NONE Run Date 7/18/2012 14:02 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785387 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.684JB ± 0.482 (0.883)	pCi/sa 0.684JB ± 0.482 (0.883)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.024U ± 0.214 (0.476)	pCi/sa -0.024U ± 0.214 (0.476)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 19 3072086037-2541-SU1-2

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12470 Prep Date 7/14/2012 23:48 Dilution  
 Method EPA 900.0m HBN 91040 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785389 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 23:48 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785389 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.566JB ± 0.473 (0.841)	pCi/sa 0.566JB ± 0.473 (0.841)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.217J ± 0.269 (0.554)	pCi/sa 0.217J ± 0.269 (0.554)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 20 3072086038-2541-SU1-3

Type PS Matrix Wipe Collected 6/18/2012 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/12470 HBN 91040  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

**20 3072086038-2541-SU1-3**

## Prep Information

Procedure 9000 I Batch RADC/12470 Prep Date 7/18/2012 13:28 Dilution  
 Method EPA 900.0m HBN 91040 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785391 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 13:28 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785391 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.570JB ± 0.505 (0.993)	pCi/sa 0.570JB ± 0.505 (0.993)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.208J ± 0.247 (0.503)	pCi/sa 0.208J ± 0.247 (0.503)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

**21 3072086039-2541-SU1-4**

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

## Prep Information

Procedure 9000 I Batch RADC/12470 Prep Date 7/14/2012 23:48 Dilution  
 Method EPA 900.0m HBN 91040 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785393 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 23:48 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785393 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.662JB ± 0.538 (0.977)	pCi/sa 0.662JB ± 0.538 (0.977)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.386J ± 0.321 (0.623)	pCi/sa 0.386J ± 0.321 (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

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Batch	RADC/12470	HBN	91040
Rule	9000 I	Status	RE
Create Date	6/28/2012	Analyst	MBT



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21	3072086039-2541-SU1-4
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\*\* Indicates QC failure. For example, blank contamination or recoveries out of range.







Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12470  
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
458984	1.00000	S	9.0000	9.0000	0.00	23	7/18/2012 14:16	0.2800	0.6700	100	0.0720	0.4150	1000	dpm
3072086020	1.00000	S	9.0000	9.0000	0.00	26	7/18/2012 14:10	0.1167	0.5333	120	0.0970	0.4050	1000	dpm
3072086021	1.00000	S	9.0000	9.0000	0.00	27	7/18/2012 14:02	0.0700	0.4600	100	0.0690	0.3930	1000	dpm
3072086022	1.00000	S	9.0000	9.0000	0.00	29	7/18/2012 13:28	0.0900	0.4500	100	0.0630	0.2740	1000	dpm
3072086023	1.00000	S	9.0000	9.0000	0.00	14	7/14/2012 23:47	0.0750	0.5000	120	0.0820	0.4390	1000	dpm
3072086024	1.00000	S	9.0000	9.0000	0.00	31	7/18/2012 15:05	0.2250	0.4917	120	0.0900	0.3660	1000	dpm
3072086025	1.00000	S	9.0000	9.0000	0.00	16	7/14/2012 23:47	0.1583	0.4500	120	0.0870	0.3430	1000	dpm
3072086026	1.00000	S	9.0000	9.0000	0.00	17	7/14/2012 23:47	0.1250	0.5667	120	0.0840	0.3710	1000	dpm
3072086027	1.00000	S	9.0000	9.0000	0.00	18	7/14/2012 23:47	0.0750	0.3417	120	0.0730	0.3840	1000	dpm
3072086028	1.00000	S	9.0000	9.0000	0.00	19	7/14/2012 23:47	0.1500	0.6167	120	0.0900	0.4330	1000	dpm
3072086029	1.00000	S	9.0000	9.0000	0.00	20	7/14/2012 23:47	0.1667	0.6500	120	0.0700	0.3890	1000	dpm
3072086030	1.00000	S	9.0000	9.0000	0.00	21	7/14/2012 23:47	0.1500	0.5333	120	0.0580	0.3810	1000	dpm
3072086031	1.00000	S	9.0000	9.0000	0.00	36	7/18/2012 14:02	0.0500	0.4900	100	0.0670	0.3320	1000	dpm
3072086032	1.00000	S	9.0000	9.0000	0.00	23	7/14/2012 23:47	0.1333	0.4167	120	0.0720	0.4150	1000	dpm
3072086033	1.00000	S	9.0000	9.0000	0.00	38	7/18/2012 13:29	0.1231	0.3692	130	0.1040	0.3900	1000	dpm
3072086034	1.00000	S	9.0000	9.0000	0.00	26	7/14/2012 23:47	0.1083	0.7417	120	0.0970	0.4050	1000	dpm
3072086035	1.00000	S	9.0000	9.0000	0.00	27	7/14/2012 23:47	0.1167	0.4250	120	0.0690	0.3930	1000	dpm
3072086036	1.00000	S	9.0000	9.0000	0.00	25	7/18/2012 14:02	0.2667	0.4286	210	0.1580	0.4010	1000	dpm
3072086037	1.00000	S	9.0000	9.0000	0.00	29	7/14/2012 23:48	0.1500	0.4000	120	0.0630	0.2740	1000	dpm
3072086038	1.00000	S	9.0000	9.0000	0.00	37	7/18/2012 13:28	0.3091	0.5818	220	0.2180	0.4600	1000	dpm
3072086039	1.00000	S	9.0000	9.0000	0.00	31	7/14/2012 23:48	0.1917	0.5750	120	0.0900	0.3660	1000	dpm
LCSD12470	1.00000	S	9.0000	9.0000	0.00	29	7/20/2012 10:26	0.4000	5.2222	90	0.0630	0.2740	1000	dpm
LCSD12470	1.00000	S	9.0000	9.0000	0.00	30	7/20/2012 10:26	0.6556	5.4556	90	0.2330	0.4240	1000	dpm

MA 7/20/12

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: 12470  
Prep Start Date/Time: 7/9/2012 12:00  
Prep Finish: 7/9/2012

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
458984	1.330	0.672	0.713	0.971	0.297	dpm/S	0.208	0.00	0.000000	0.208	15.64%	1
3072086020	0.125	0.407	0.408	0.983	0.315	dpm/S	0.020	0.00	0.000000	0.020	15.74%	1
3072086021	0.006	0.344	0.344	0.944	0.288	dpm/S	0.001	0.00	0.000000	0.001	15.80%	1
3072086022	0.176	0.396	0.397	0.936	0.283	dpm/S	0.027	0.00	0.000000	0.027	15.36%	1
3072086023	-0.045	0.332	0.332	0.917	0.290	dpm/S	-0.007	0.00	0.000000	-0.007	15.72%	1
3072086024	0.879	0.566	0.587	0.977	0.311	dpm/S	0.135	0.00	0.000000	0.135	15.35%	1
3072086025	0.464	0.478	0.486	0.962	0.306	dpm/S	0.071	0.00	0.000000	0.071	15.37%	1
3072086026	0.265	0.425	0.428	0.941	0.299	dpm/S	0.041	0.00	0.000000	0.041	15.47%	1
3072086027	0.013	0.339	0.339	0.899	0.282	dpm/S	0.002	0.00	0.000000	0.002	15.27%	1
3072086028	0.390	0.466	0.471	0.974	0.311	dpm/S	0.060	0.00	0.000000	0.060	15.39%	1
3072086029	0.619	0.480	0.492	0.864	0.270	dpm/S	0.097	0.00	0.000000	0.097	15.61%	1
3072086030	0.608	0.469	0.481	0.825	0.254	dpm/S	0.092	0.00	0.000000	0.092	15.13%	1
3072086031	-0.114	0.312	0.313	0.986	0.300	dpm/S	-0.017	0.00	0.000000	-0.017	14.95%	1
3072086032	0.392	0.431	0.437	0.873	0.274	dpm/S	0.061	0.00	0.000000	0.061	15.64%	1
3072086033	0.125	0.417	0.417	0.999	0.325	dpm/S	0.019	0.00	0.000000	0.019	15.25%	1
3072086034	0.072	0.394	0.394	0.983	0.315	dpm/S	0.011	0.00	0.000000	0.011	15.74%	1
3072086035	0.302	0.400	0.404	0.848	0.265	dpm/S	0.048	0.00	0.000000	0.048	15.80%	1
3072086036	0.684	0.466	0.482	0.883	0.313	dpm/S	0.109	0.00	0.000000	0.109	15.90%	1
3072086037	0.566	0.462	0.473	0.841	0.260	dpm/S	0.087	0.00	0.000000	0.087	15.36%	1
3072086038	0.570	0.494	0.505	0.993	0.359	dpm/S	0.091	0.00	0.000000	0.091	15.98%	1
3072086039	0.662	0.524	0.538	0.977	0.311	dpm/S	0.102	0.00	0.000000	0.102	15.35%	1
LCSD12470	2.194	0.857	0.942	0.997	0.297	dpm/S	0.337	0.00	0.000000	0.337	15.36%	1
LCSD12470	2.727	1.097	1.200	1.721	0.566	dpm/S	0.423	0.00	0.000000	0.423	15.50%	1

07/20/12

7/20/12  
MBT

Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12470  
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
458984	0.400	0.371	0.377	0.732	0.250	dpm/S	0.255	0.00	0.076706	0.178	44.61%	1
3072086020	0.268	0.300	0.304	0.644	0.223	dpm/S	0.128	0.00	0.006644	0.122	45.46%	1
3072086021	0.149	0.309	0.310	0.710	0.242	dpm/S	0.067	0.00	0.000338	0.067	44.88%	1
3072086022	0.377	0.306	0.314	0.612	0.205	dpm/S	0.176	0.00	0.009334	0.167	44.19%	1
3072086023	0.142	0.298	0.299	0.681	0.237	dpm/S	0.061	0.00	-0.002512	0.064	44.64%	1
3072086024	0.174	0.292	0.293	0.623	0.215	dpm/S	0.126	0.00	0.047525	0.078	44.88%	1
3072086025	0.186	0.286	0.287	0.617	0.213	dpm/S	0.107	0.00	0.025279	0.082	43.92%	1
3072086026	0.408	0.313	0.321	0.629	0.217	dpm/S	0.196	0.00	0.013515	0.182	44.69%	1
3072086027	-0.097	0.251	0.251	0.643	0.222	dpm/S	-0.042	0.00	0.000720	-0.043	44.42%	1
3072086028	0.351	0.320	0.326	0.659	0.229	dpm/S	0.184	0.00	0.022953	0.161	45.78%	1
3072086029	0.508	0.337	0.349	0.648	0.224	dpm/S	0.261	0.00	0.035745	0.225	44.32%	1
3072086030	0.253	0.299	0.302	0.625	0.216	dpm/S	0.152	0.00	0.037238	0.115	45.53%	1
3072086031	0.363	0.314	0.320	0.653	0.221	dpm/S	0.158	0.00	-0.006130	0.164	45.20%	1
3072086032	-0.047	0.274	0.274	0.664	0.230	dpm/S	0.002	0.00	0.022619	-0.021	44.61%	1
3072086033	-0.062	0.252	0.252	0.622	0.217	dpm/S	-0.021	0.00	0.006618	-0.027	44.28%	1
3072086034	0.732	0.350	0.374	0.644	0.223	dpm/S	0.337	0.00	0.003829	0.333	45.46%	1
3072086035	0.035	0.274	0.274	0.643	0.223	dpm/S	0.032	0.00	0.016124	0.016	44.88%	1
3072086036	-0.024	0.213	0.214	0.476	0.175	dpm/S	0.028	0.00	0.038589	-0.011	45.37%	1
3072086037	0.217	0.266	0.269	0.554	0.189	dpm/S	0.126	0.00	0.030076	0.096	44.19%	1
3072086038	0.208	0.244	0.247	0.503	0.186	dpm/S	0.122	0.00	0.029048	0.093	44.70%	1
3072086039	0.386	0.314	0.321	0.623	0.215	dpm/S	0.209	0.00	0.035791	0.173	44.88%	1
LCS12470	10.935	1.071	2.230	0.649	0.215	dpm/S	4.948	0.00	0.116501	4.832	44.19%	1
LCSD12470	10.915	1.082	2.232	0.781	0.264	dpm/S	5.032	0.00	0.148545	4.883	44.74%	1

m/2012

7/20/12  
MBT

# Quality Control Sample Performance Assessment

RCDU Upload

Analyst: MBT  
Date: 7/20/2012  
Worklist: 12470  
Matrix: Filter

Method: EPA 900.0m  
SOP: PGH-R-001  
MB Sample ID: 458984



Method Blank Assessment:		1.96 Sig Unc.		MDC	Critical Value	Flag	Assessment
Analyte	Activity	1.3300	0.7130	0.9710	0.29700		
Gross Alpha		0.4000	0.3770	0.7320	0.25000		
Gross Beta							

Laboratory Control Sample Assessment:		LCS		LCSD		LCS		LCSD	
Analyte:	Gross Alpha	7/20/12 10:26	7/20/12 10:26	7/20/12 10:26	7/20/12 10:26	Gross Beta	7/20/12 10:26	7/20/12 10:26	
Count Date:	12-018-F4	12-018-F1	12-014-F4	12-014-F1					
Spike I.D.:	2.353	2.353	9.797	9.797					
Spike Concentration (DPM/Sample):	1.000	1.000	1.000	1.000					
Volume Used (mL):	1.000	1.000	1.000	1.000					
Aliquot Volume (L, g, F):	2.353	2.353	9.797	9.797					
Target Conc. (DPM/Sample, g, F):	0.138	0.138	0.192	0.192					
1.96 Sigma Uncertainty (Calculated):	2.194	2.727	10.935	10.915					
Result (DPM/Sample, g, F):	0.942	1.200	2.230	2.232					
1.96 Sigma Unc:	93.25%	115.90%	111.61%	111.41%					
% Recovery:	Pass	Pass	Pass	Pass					
Assessment:	119.00%	119.00%	130.00%	130.00%					
Upper % Recovery Limits:	52.00%	62.00%	79.00%	79.00%					
Lower % Recovery Limits:									

Duplicate Sample Assessment:		Y		Y	
LCS/LCSD Y or N?:	Gross Alpha	Gross Beta			
Analyte:	LCS12470	LCS12470			
Sample I.D.:	LCSD12470	LCSD12470			
Duplicate Sample I.D.:	2.1940	10.9350			
Sample Result (DPM/Sample, g, F):	0.9420	2.2300			
1.96 Sigma Unc:	2.7270	10.9150			
Duplicate Result (DPM/Sample, g, F):	1.2000	2.2320			
Duplicate Sample 1.96 Sigma Unc.:	No	No			
Either results below MDC?:	21.66%	0.18%			
Relative Percent Difference:	Pass	Pass			
Assessment:	35.00%	17.00%			
% RPD Limit:					

Sample Matrix Spike Control Assessment:		Analyte:	
Sample Collection Date:	Sample I.D.:		
Sample MS I.D.:	Sample MS I.D.:		
Sample MSD I.D.:	Sample MSD I.D.:		
Spike I.D.:	Sample Matrix Spike Result:		
MS/MSD Decay Corrected Spike Conc. (DPM/Sample):	Sample Matrix Spike 1.96 Sigma Unc.:		
Spike Volume Used in MS (mL):	Sample Matrix Spike Duplicate Result:		
Spike Volume Used in MSD (mL):	Sample Matrix Spike Duplicate 1.96 Sigma Unc.:		
MS Aliquot (L, g, F):	MS/MSD Relative Percent Difference:		
MS Target Conc. (DPM/Sample, g, F):	MS/MSD RPD Assessment:		
MSD Aliquot (L, g, F):	% RPD Limit:		
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 I.D.:		
Sample MS I.D.:	Sample MS I.D.:		
Sample MSD I.D.:	Sample MSD I.D.:		
Sample Matrix Spike Result:	Sample Matrix Spike Result:		
Sample Matrix Spike 1.96 Sigma Unc.:	Sample Matrix Spike 1.96 Sigma Unc.:		
Sample Matrix Spike Duplicate Result:	Sample Matrix Spike Duplicate Result:		
Sample Matrix Spike Duplicate 1.96 Sigma Unc.:	Sample Matrix Spike Duplicate 1.96 Sigma Unc.:		
MS/MSD Relative Percent Difference:	MS/MSD Relative Percent Difference:		
MS/MSD RPD Assessment:	MS/MSD RPD Assessment:		
% RPD Limit:	% RPD Limit:		

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

Comments:

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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: FGH-R-001  
PrepSOP2: n/a  
AnalSOP1: EPA 900.0  
AnalSOP2: n/a

Test Code: Alpha Beta

Matrix: IP  
Batch ID: 12470  
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			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							
28					1.5336E-01					3.4326E-01				4.3726E-01					0.0810	0.3330	0.1500	0.3480
29					1.5363E-01					3.4570E-01				4.4166E-01					0.0840	0.3220	0.0630	0.2740
30					1.5497E-01					3.5154E-01				4.4737E-01					0.0720	0.4090	0.2330	0.4240
31					1.5353E-01					3.5204E-01				4.4881E-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	0.36640
36					1.4953E-01					3.6059E-01				4.5203E-01					0.0930	0.4070	0.0670	0.3320
37					1.5981E-01					3.1898E-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	0.0760	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	866.8100	2.7170	366.8100
42					1.4541E-01					4.8566E-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					0.2330	0.9840	0.2330	0.9840
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					0.3330	1.3450	0.3330	1.3450
49					1.6983E-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					1.7880E-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	1.3970	0.1070	1.3970
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%

7/20/12  
DL

Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

SAMPLE_ID	Det#	BEG_DATE	BATCH_ID	ACPM	BCPM	CNT_TIME
3072086020	11	7/14/2012 23:46	GAB12470	0.216666667	0.65	120
3072086021	12	7/14/2012 23:46	GAB12470	0.116666667	0.458333333	120
3072086022	13	7/14/2012 23:46	GAB12470	0.141666667	0.375	120
3072086023	14	7/14/2012 23:47	GAB12470	0.075	0.5	120
3072086024	15	7/14/2012 23:47	GAB12470	0.158333333	0.55	120
3072086025	16	7/14/2012 23:47	GAB12470	0.158333333	0.45	120
3072086026	17	7/14/2012 23:47	GAB12470	0.125	0.566666667	120
3072086027	18	7/14/2012 23:47	GAB12470	0.075	0.341666667	120
3072086028	19	7/14/2012 23:47	GAB12470	0.15	0.616666667	120
3072086029	20	7/14/2012 23:47	GAB12470	0.166666667	0.65	120
3072086030	21	7/14/2012 23:47	GAB12470	0.15	0.533333333	120
3072086031	22	7/14/2012 23:47	GAB12470	0.25	0.675	120
3072086032	23	7/14/2012 23:47	GAB12470	0.133333333	0.416666667	120
3072086033	25	7/14/2012 23:47	GAB12470	0.208333333	0.533333333	120
3072086034	26	7/14/2012 23:47	GAB12470	0.108333333	0.741666667	120
3072086035	27	7/14/2012 23:47	GAB12470	0.116666667	0.425	120
3072086036	28	7/14/2012 23:47	GAB12470	0.066666667	0.441666667	120
3072086037	29	7/14/2012 23:48	GAB12470	0.15	0.4	120
3072086038	30	7/14/2012 23:48	GAB12470	0.233333333	0.641666667	120
3072086039	31	7/14/2012 23:48	GAB12470	0.191666667	0.575	120
458984	23	7/18/2012 14:16	GAB12470	0.28	0.67	100
3072086036	25	7/18/2012 14:02	GAB12470	0.266666667	0.428571429	210
3072086020	26	7/18/2012 14:10	GAB12470	0.116666667	0.533333333	120
3072086021	27	7/18/2012 14:02	GAB12470	0.07	0.46	100
3072086022	29	7/18/2012 13:28	GAB12470	0.09	0.45	100
3072086024	31	7/18/2012 15:05	GAB12470	0.225	0.491666667	120
3072086031	36	7/18/2012 14:02	GAB12470	0.05	0.49	100
3072086038	37	7/18/2012 13:28	GAB12470	0.309090909	0.581818182	220
3072086033	38	7/18/2012 13:29	GAB12470	0.123076923	0.369230769	130
LCS12470	29	7/20/2012 10:26	GAB12470	0.4	5.222222222	90
LCSD12470	30	7/20/2012 10:26	GAB12470	0.655555556	5.455555556	90



# Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LCSD12470	7/20/2012 10:26:31 AM	30	GAB12470	0.656	5.4556	90.0
LCS12470	7/20/2012 10:26:27 AM	29	GAB12470	0.400	5.2222	90.0
3072086024	7/18/2012 3:05:51 PM	31	GAB12470	0.225	0.4917	120.0
458984	7/18/2012 2:16:30 PM	23	GAB12470	0.280	0.6700	100.0
3072086020	7/18/2012 2:10:06 PM	26	GAB12470	0.117	0.5333	120.0
3072086031	7/18/2012 2:02:43 PM	36	GAB12470	0.050	0.4900	100.0
3072086021	7/18/2012 2:02:21 PM	27	GAB12470	0.070	0.4600	100.0
3072086036	7/18/2012 2:02:08 PM	25	GAB12470	0.267	0.4286	210.0
3072086033	7/18/2012 1:29:02 PM	38	GAB12470	0.123	0.3692	130.0
3072086038	7/18/2012 1:28:54 PM	37	GAB12470	0.309	0.5818	220.0
3072086022	7/18/2012 1:28:43 PM	29	GAB12470	0.090	0.4500	100.0
3072086039	7/14/2012 11:48:19 PM	31	GAB12470	0.192	0.5750	120.0
3072086038	7/14/2012 11:48:11 PM	30	GAB12470	0.233	0.6417	120.0
3072086037	7/14/2012 11:48:11 PM	29	GAB12470	0.150	0.4000	120.0
3072086036	7/14/2012 11:47:59 PM	28	GAB12470	0.067	0.4417	120.0
3072086035	7/14/2012 11:47:54 PM	27	GAB12470	0.117	0.4250	120.0

SAMPLE_ID	Count Start:	DET#	BATCH_ID	Alpha cpm	Beta cpm	Ct. Time (min)
3072086034	7/14/2012 11:47:48 PM	26	GAB12470	0.108	0.7417	120.0
3072086033	7/14/2012 11:47:45 PM	25	GAB12470	0.208	0.5333	120.0
3072086032	7/14/2012 11:47:40 PM	23	GAB12470	0.133	0.4167	120.0
3072086031	7/14/2012 11:47:38 PM	22	GAB12470	0.250	0.6750	120.0
3072086030	7/14/2012 11:47:33 PM	21	GAB12470	0.150	0.5333	120.0
3072086029	7/14/2012 11:47:29 PM	20	GAB12470	0.167	0.6500	120.0
3072086028	7/14/2012 11:47:27 PM	19	GAB12470	0.150	0.6167	120.0
3072086027	7/14/2012 11:47:21 PM	18	GAB12470	0.075	0.3417	120.0
3072086026	7/14/2012 11:47:17 PM	17	GAB12470	0.125	0.5667	120.0
3072086025	7/14/2012 11:47:13 PM	16	GAB12470	0.158	0.4500	120.0
3072086024	7/14/2012 11:47:09 PM	15	GAB12470	0.158	0.5500	120.0
3072086023	7/14/2012 11:47:06 PM	14	GAB12470	0.075	0.5000	120.0
3072086021	7/14/2012 11:46:40 PM	12	GAB12470	0.117	0.4583	120.0
3072086022	7/14/2012 11:46:37 PM	13	GAB12470	0.142	0.3750	120.0
3072086020	7/14/2012 11:46:15 PM	11	GAB12470	0.217	0.6500	120.0

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
	29	3072085100	GAB12469	120	7/14/12 21:42	B5H	WA	
	30	3072086001						
	31	002						
	32	003						
	33	004						
	34	005						
	35	006						
	36	007						
	37	008						
	38	009						
	<del>39</del>	<del>010</del>						
	1	011			7/14/12 23:20	B5H		B5H 7-14-12
	2	012			7/14/12 23:20	B5H		
	3	013						
	4	014						
	5	015						
	6	016						
	7	017						
	8	018						
	9	019						
	10	458984	GAB12470	120				
	11	3072086020			7/14/12 23:49			
	12	021						
	13	022						

- 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
	14	3072086003	GAB12470	120	7/14/10 23:49	BSH	NA	NA
	15	024						
	16	025						
	17	026						
	18	027						
	19	028						
	20	029						
	21	030						
	22	031						
	23	032						
	25	033						
	26	034						
	27	035						
	28	036						
	29	037						
	30	038						
	31	039				BSH	NA	
	32	458486	GAB12475	120				
	33	3072086040						
	34	041						
	35	042						
	36	043						
	37	044						
	38	045						

- 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	4162434	GAB 12597	90	7/18/12 0905	G	N/A	N/A
	34	320100232 PNO						
	36	201102533						
GAB	43	LOS#1-12405	GAB 12405	90	7-18-12 1017	MST	N/A	N/A
	44	LOS#3-12405						
GAB	47	3072080130	GAB 12475	300	7-18-12 1020	MST	N/A	N/A
	48	3072080106	GAB 12474	300	7-18-12 1023	MST		
	49	107						
	50	108						
	51	109100						
	52	101						
	53	458989						
GAB	32	3561420001	GAB 12630	1000	7/18/12 1300	G	N/A	N/A
	35	2						
GAB	31	3072080019	GAB	100	7/18/12 1215	DL	2	N/A
GAB	14	3072080100	GAB 12469	110	7/18/12 1420	M	2	
	15	3072080003		140				
	16	005		100	7/18/12 1415			
	17	006		110				
	18	007			1442			
	19	009		120	1416			
	20	010		100				
	21	018			1442			
	23	458984	GAB 12470	100	1410			

- 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
CAs	25	3072080036	6AB12470	210	7/18/12 1402	M	2	
	26	082		120	1410			
	27	081		150	1402			
	28	082		100	1328			
	30	0410	6AB12471	270	1402			
	31	024	6AB12470	120	1505			
	36	051		100	1402			
	37	038		220	1328			
	38	035		130	1328			
	30	80040	12471	1718/12				
CAs	29	3072060019	6AB12459	100	1523	M	2	
	14	3072080002	6AB12469	110	7/18/12 1611			
	16	041	12471	100	1627			
	17	042		110	1607			
	18	044			1652			
	19	045		120	1627			
	20	051		100	1602			
	21	053			1627			
	23	050			1603			
	26	LCSD12466 #4	6AB12466	100	1612			
CAs	27	3072080057	12471	100	1554	M	2	
	29	058			1553			
	36	458487	12472	100				
	38	LCSD12466 #3	6AB12466	90				

- 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
GAB	27	307320004	GAB124512	90	7/20/12 0947	O	N/A	N/A
	28	J 112						
	29	3073150001			0856			
	30	J 148						
	31	J 008			0902			
	32	06						
	33	307307001	GAB124512		0924			
	34	J 2804			0902			
	35	J 3814			0924			
	36	J 71026			0942			
	37				0856			
	38	3556174001	GAB12445	090				
GAB	39	W012476	GAB12476	90	7/20/12 1020	O	N/A	N/A
	40	W012477						
	41	W012478	GAB12471		1032			
	42	W012479	GAB12451		1014			
	43	W012480	GAB12451	330	1014			
	44	W012481	GAB12471	00				
	45	W012482	GAB12445		1032			
	46	W012483			1014			
GAB	49	W012484	GAB12451	90	7/20/12 1100	J		Re

- 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/12471 HBN 91041  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 1 458986-BLANK for HBN 91041 [RADC/1247

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

### Prep Information

Procedure 9000 I Batch RADC/12471 Prep Date 7/14/2012 23:50 Dilution  
 Method EPA 900.0m HBN 91041 Hold Date 12/25/2012 23:59 Analyst MBT  
 Schedule 2795671 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 23:50 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/25/2012 23:59 Analyst MBT  
 Schedule 2795671 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL
Rad Chemistry	OK				
Gross Alpha	OK	0.034U ± 0.288 (0.760)	pCi/sa 0.034U ± 0.288 (0.760)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					
Gross Beta	OK	-0.105U ± 0.225 (0.585)	pCi/sa -0.105U ± 0.225 (0.585)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					

## 2 3072086040-2541-SU1-5

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12471 Prep Date 7/18/2012 14:02 Dilution  
 Method EPA 900.0m HBN 91041 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785395 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 14:02 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785395 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.528J ± 0.482 (0.946)	pCi/sa 0.528J ± 0.482 (0.946)			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/12471 HBN 91041  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 4 3072086042-2541-SU1-7

### Analytical Information

Procedure 9000 I Instru NONE Run Date 7/18/2012 16:07 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785399 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.515J ± 0.511 (0.990)	pCi/sa 0.515J ± 0.511 (0.990)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.352J ± 0.329 (0.659)	pCi/sa 0.352J ± 0.329 (0.659)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

## 5 3072086043-2541-SU1-8

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12471 Prep Date 7/17/2012 10:12 Dilution  
 Method EPA 900.0m HBN 91041 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785401 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 10:12 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785401 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	1.10 ± 0.596 (0.845)	pCi/sa 1.10 ± 0.596 (0.845)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.837 ± 0.374 (0.566)	pCi/sa 0.837 ± 0.374 (0.566)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

## 6 3072086044-2541-SU1-9

Type PS Matrix Wipe Collected 6/18/2012 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/12471 HBN 91041  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

**6 3072086044-2541-SU1-9**

## Prep Information

**Procedure** 9000 I **Batch** RADC/12471 **Prep Date** 7/18/2012 16:51 **Dilution**  
**Method** EPA 900.0m **HBN** 91041 **Hold Date** 12/15/2012 23:59 **Analyst** MBT  
**Schedule** 2785403 **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 16:51 **Dilution**  
**Method** EPA 900.0m **Col ID** **Hold Date** 12/15/2012 23:59 **Analyst** MBT  
**Schedule** 2785403 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.061U ± 0.328 (0.946)	pCi/sa -0.061U ± 0.328 (0.946)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.412J ± 0.336 (0.674)	pCi/sa 0.412J ± 0.336 (0.674)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

**7 3072086045-2541-SU1-10**

**Type** PS **Matrix** Wipe **Collected** 6/18/2012 00:01 **% Moisture**  
**Client** RTI **WO** 3072086 **Work ID** Fort Monmouth 1207074 **Location**

## Prep Information

**Procedure** 9000 I **Batch** RADC/12471 **Prep Date** 7/18/2012 16:27 **Dilution**  
**Method** EPA 900.0m **HBN** 91041 **Hold Date** 12/15/2012 23:59 **Analyst** MBT  
**Schedule** 2785405 **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 16:27 **Dilution**  
**Method** EPA 900.0m **Col ID** **Hold Date** 12/15/2012 23:59 **Analyst** MBT  
**Schedule** 2785405 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.390J ± 0.471 (0.974)	pCi/sa 0.390J ± 0.471 (0.974)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.460J ± 0.341 (0.659)	pCi/sa 0.460J ± 0.341 (0.659)			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/12471 HBN 91041  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

**7 3072086045-2541-SU1-10**

**8 3072086046-2541-SU1-11**

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

**Prep Information**

Procedure 9000 I Batch RADC/12471 Prep Date 7/15/2012 12:32 Dilution  
 Method EPA 900.0m HBN 91041 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785407 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 7/15/2012 12:32 Dilution  
 Method EPA 900.0m CoI ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785407 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.463J ± 0.456 (0.870)	pCi/sa 0.463J ± 0.456 (0.870)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.484J ± 0.413 (0.847)	pCi/sa 0.484J ± 0.413 (0.847)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

**9 3072086047-2541-SU1-12**

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

**Prep Information**

Procedure 9000 I Batch RADC/12471 Prep Date 7/15/2012 12:32 Dilution  
 Method EPA 900.0m HBN 91041 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785409 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 7/15/2012 12:32 Dilution  
 Method EPA 900.0m CoI ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785409 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/12471 HBN 91041  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 9 3072086047-2541-SU1-12

Analyte	CC	Posted Result		Result	MDL	RDL	Reg. Limits	
							Low	High
Gross Alpha	OK	0.045U ± 0.307 (0.788)	pCi/sa	0.045U ± 0.307 (0.788)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.								
Gross Beta	OK	0.147U ± 0.351 (0.794)	pCi/sa	0.147U ± 0.351 (0.794)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.								

## 10 3072086048-2541-SU1-13

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12471 Prep Date 7/15/2012 12:32 Dilution  
 Method EPA 900.0m HBN 91041 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785411 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 7/15/2012 12:32 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785411 File CC OK F

Analyte	CC	Posted Result		Result	MDL	RDL	Reg. Limits	
							Low	High
Rad Chemistry	OK					dpm/sa		
Gross Alpha	OK	0.995 ± 0.561 (0.801)	pCi/sa	0.995 ± 0.561 (0.801)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.								
Gross Beta	OK	1.13 ± 0.485 (0.795)	pCi/sa	1.13 ± 0.485 (0.795)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.								

## 11 3072086049-2541-SU1-14

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12471 Prep Date 7/18/2012 12:11 Dilution  
 Method EPA 900.0m HBN 91041 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785413 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/12471 HBN 91041  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 11 3072086049-2541-SU1-14

### Analytical Information

Procedure 9000 I Instru NONE Run Date 7/18/2012 12:11 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785413 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	1.15 ± 0.661 (0.944)	pCi/sa 1.15 ± 0.661 (0.944)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.860 ± 0.437 (0.710)	pCi/sa 0.860 ± 0.437 (0.710)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 12 3072086050-2541-SU1-15

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12471 Prep Date 7/18/2012 06:41 Dilution  
 Method EPA 900.0m HBN 91041 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785415 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 06:41 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785415 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.111U ± 0.412 (0.982)	pCi/sa 0.111U ± 0.412 (0.982)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.726 ± 0.364 (0.632)	pCi/sa 0.726 ± 0.364 (0.632)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 13 3072086051-2541-SU1-16

Type PS Matrix Wipe Collected 6/18/2012 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/12471 HBN 91041  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

13 3072086051-2541-SU1-16

## Prep Information

Procedure 9000 I Batch RADC/12471 Prep Date 7/18/2012 16:02 Dilution  
 Method EPA 900.0m HBN 91041 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785417 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 16:02 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785417 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.448J ± 0.488 (0.962)	pCi/sa 0.448J ± 0.488 (0.962)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.576J ± 0.386 (0.716)	pCi/sa 0.576J ± 0.386 (0.716)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

14 3072086052-2541-SU1-17

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

## Prep Information

Procedure 9000 I Batch RADC/12471 Prep Date 7/15/2012 12:32 Dilution  
 Method EPA 900.0m HBN 91041 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785419 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 7/15/2012 12:32 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785419 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	0.281U ± 0.371 (0.810)	pCi/sa 0.281U ± 0.371 (0.810)			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/12471 HBN 91041  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

14 3072086052-2541-SU1-17

15 3072086053-2541-SU1-18

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

## Prep Information

Procedure 9000 I Batch RADC/12471 Prep Date 7/18/2012 16:27 Dilution  
 Method EPA 900.0m HBN 91041 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785421 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 16:27 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785421 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	1.14 ± 0.661 (0.919)	pCi/sa 1.14 ± 0.661 (0.919)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.548J ± 0.383 (0.690)	pCi/sa 0.548J ± 0.383 (0.690)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

16 3072086054-2541-SU1-19

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

## Prep Information

Procedure 9000 I Batch RADC/12471 Prep Date 7/15/2012 12:32 Dilution  
 Method EPA 900.0m HBN 91041 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785423 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 7/15/2012 12:32 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785423 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/12471 HBN 91041  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 16 3072086054-2541-SU1-19

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Alpha	OK	0.409J ± 0.443 (0.866)	pCi/sa 0.409J ± 0.443 (0.866)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	1.76 ± 0.571 (0.779)	pCi/sa 1.76 ± 0.571 (0.779)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

## 17 3072086055-2541-SU1-20

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12471 Prep Date 7/18/2012 06:41 Dilution  
 Method EPA 900.0m HBN 91041 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785425 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 06:41 Dilution  
 Method EPA 900.0m CoI ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785425 File CC OK F

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.662J ± 0.538 (0.977)	pCi/sa 0.662J ± 0.538 (0.977)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.832 ± 0.390 (0.623)	pCi/sa 0.832 ± 0.390 (0.623)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

## 18 3072086056-2541-SU1-20D

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12471 Prep Date 7/18/2012 16:02 Dilution  
 Method EPA 900.0m HBN 91041 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785427 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/12471 HBN 91041  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

**18 3072086056-2541-SU1-20D**

## Analytical Information

**Procedure** 9000 I **Instru** NONE **Run Date** 7/18/2012 16:02 **Dilution**  
**Method** EPA 900.0m **Col ID** **Hold Date** 12/15/2012 23:59 **Analyst** MBT  
**Schedule** 2785427 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	1.46 ± 0.742 (0.971)	pCi/sa 1.46 ± 0.742 (0.971)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.406J ± 0.380 (0.732)	pCi/sa 0.406J ± 0.380 (0.732)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

**19 3072086057-2541-SU1-21**

**Type** PS **Matrix** Wipe **Collected** 6/18/2012 00:01 **% Moisture**  
**Client** RTI **WO** 3072086 **Work ID** Fort Monmonth 1207074 **Location**

## Prep Information

**Procedure** 9000 I **Batch** RADC/12471 **Prep Date** 7/18/2012 15:54 **Dilution**  
**Method** EPA 900.0m **HBN** 91041 **Hold Date** 12/15/2012 23:59 **Analyst** MBT  
**Schedule** 2785429 **Instru** NONE **CC** OK F

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

## Analytical Information

**Procedure** 9000 I **Instru** NONE **Run Date** 7/18/2012 15:54 **Dilution**  
**Method** EPA 900.0m **Col ID** **Hold Date** 12/15/2012 23:59 **Analyst** MBT  
**Schedule** 2785429 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.639J ± 0.534 (0.944)	pCi/sa 0.639J ± 0.534 (0.944)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.118U ± 0.315 (0.710)	pCi/sa 0.118U ± 0.315 (0.710)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

**20 3072086058-2541-SU1-22**

**Type** PS **Matrix** Wipe **Collected** 6/18/2012 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/12471 HBN 91041  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

**20 3072086058-2541-SU1-22**

## Prep Information

**Procedure** 9000 I **Batch** RADC/12471 **Prep Date** 7/18/2012 17:15 **Dilution**  
**Method** EPA 900.0m **HBN** 91041 **Hold Date** 12/15/2012 23:59 **Analyst** MBT  
**Schedule** 2785431 **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 17:15 **Dilution**  
**Method** EPA 900.0m **Col ID** **Hold Date** 12/15/2012 23:59 **Analyst** MBT  
**Schedule** 2785431 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.631J ± 0.532 (0.936)	pCi/sa 0.631J ± 0.532 (0.936)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.232J ± 0.296 (0.612)	pCi/sa 0.232J ± 0.296 (0.612)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

**21 3072086059-2541-SU1-23**

**Type** PS **Matrix** Wipe **Collected** 6/18/2012 00:01 **% Moisture**  
**Client** RTI **WO** 3072086 **Work ID** Fort Monmouth 1207074 **Location**

## Prep Information

**Procedure** 9000 I **Batch** RADC/12471 **Prep Date** 7/15/2012 12:26 **Dilution**  
**Method** EPA 900.0m **HBN** 91041 **Hold Date** 12/15/2012 23:59 **Analyst** MBT  
**Schedule** 2785433 **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** 7/15/2012 12:26 **Dilution**  
**Method** EPA 900.0m **Col ID** **Hold Date** 12/15/2012 23:59 **Analyst** MBT  
**Schedule** 2785433 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.433J ± 0.462 (0.917)	pCi/sa 0.433J ± 0.462 (0.917)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.157U ± 0.308 (0.681)	pCi/sa 0.157U ± 0.308 (0.681)			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

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Batch	RADC/12471	HBN	91041
Rule	9000 I	Status	RE
Create Date	6/28/2012	Analyst	MBT



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21 3072086059-2541-SU1-23

\*\* 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 13:09 Assigned Analyst MBT  
Batch ID 12471 Earliest Due Date 07/04/2012 07:12  
A-code 9000 I 9000W or NJ HBN 91041  
Method EPA 900.0m EPA 900.0 or NJAC7186

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
	458986	BLANK	IP		QCACCOUNT	0.034U	0.288	0.760	-0.105U	0.225	0.585	7/14/12 23:50		
3072086	3072086040	PS	WP	6/18/2012 0:01	RTI	0.528J	0.482	0.946	0.942	0.314	0.434	7/18/12 14:02		
3072086	3072086041	PS	WP	6/18/2012 0:01	RTI	0.464J	0.486	0.962	0.148U	0.282	0.617	7/18/12 16:27		
3072086	3072086042	PS	WP	6/18/2012 0:01	RTI	0.515J	0.511	0.990	0.352J	0.329	0.659	7/18/12 16:07		
3072086	3072086043	PS	WP	6/18/2012 0:01	RTI	1.10	0.596	0.845	0.837	0.374	0.566	7/17/12 10:12		
3072086	3072086044	PS	WP	6/18/2012 0:01	RTI	-0.061U	0.328	0.946	0.412J	0.336	0.674	7/18/12 16:51		
3072086	3072086045	PS	WP	6/18/2012 0:01	RTI	0.390J	0.471	0.974	0.460J	0.341	0.659	7/18/12 16:27		
3072086	3072086046	PS	WP	6/18/2012 0:01	RTI	0.463J	0.456	0.870	0.484J	0.413	0.847	7/15/12 12:32		
3072086	3072086047	PS	WP	6/18/2012 0:01	RTI	0.045U	0.307	0.788	0.147U	0.794	0.794	7/15/12 12:32		
3072086	3072086048	PS	WP	6/18/2012 0:01	RTI	0.995	0.561	0.801	1.13	0.485	0.795	7/15/12 12:32		
3072086	3072086049	PS	WP	6/18/2012 0:01	RTI	1.15	0.661	0.944	0.860	0.437	0.710	7/18/12 12:11		
3072086	3072086050	PS	WP	6/18/2012 0:01	RTI	0.111U	0.412	0.982	0.726	0.364	0.632	7/18/12 6:41		
3072086	3072086051	PS	WP	6/18/2012 0:01	RTI	0.448J	0.488	0.962	0.576J	0.386	0.716	7/18/12 16:02		
3072086	3072086052	PS	WP	6/18/2012 0:01	RTI	-0.098U	0.357	0.982	0.281U	0.371	0.810	7/15/12 12:32		
3072086	3072086053	PS	WP	6/18/2012 0:01	RTI	1.14	0.661	0.919	0.548J	0.383	0.690	7/18/12 16:27		
3072086	3072086054	PS	WP	6/18/2012 0:01	RTI	0.409J	0.443	0.866	1.76	0.571	0.779	7/15/12 12:32		
3072086	3072086055	PS	WP	6/18/2012 0:01	RTI	0.662J	0.538	0.977	0.832	0.390	0.623	7/18/12 6:41		
3072086	3072086056	PS	WP	6/18/2012 0:01	RTI	1.46	0.742	0.971	0.406J	0.380	0.732	7/18/12 16:02		
3072086	3072086057	PS	WP	6/18/2012 0:01	RTI	0.639J	0.534	0.944	0.118U	0.315	0.710	7/18/12 15:54		
3072086	3072086058	PS	WP	6/18/2012 0:01	RTI	0.631J	0.532	0.936	0.232J	0.296	0.612	7/18/12 17:15		
3072086	3072086059	PS	WP	6/18/2012 0:01	RTI	0.433J	0.462	0.917	0.157U	0.308	0.681	7/15/12 12:28		

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

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Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12471  
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
458986	1.00000	S	9.00000	9.00000	0.00	32	7/14/2012 23:50	0.0583	0.2917	120	0.0530	0.3380	1000	dpm
3072086040	1.00000	S	9.00000	9.00000	0.00	30	7/18/2012 14:02	0.3148	0.8741	270	0.2330	0.4240	1000	dpm
3072086041	1.00000	S	9.00000	9.00000	0.00	16	7/18/2012 16:27	0.1583	0.4333	120	0.0870	0.3430	1000	dpm
3072086042	1.00000	S	9.00000	9.00000	0.00	17	7/18/2012 16:07	0.1636	0.5545	110	0.0840	0.3710	1000	dpm
3072086043	1.00000	S	9.00000	9.00000	0.00	36	7/17/2012 10:12	0.2308	0.7692	130	0.0670	0.3320	1000	dpm
3072086044	1.00000	S	9.00000	9.00000	0.00	18	7/18/2012 16:51	0.0636	0.5636	110	0.0730	0.3840	1000	dpm
3072086045	1.00000	S	9.00000	9.00000	0.00	19	7/18/2012 16:27	0.1500	0.6667	120	0.0900	0.4330	1000	dpm
3072086046	1.00000	S	9.00000	9.00000	0.00	1	7/15/2012 12:32	0.1300	1.0460	130	0.0640	0.8040	1000	dpm
3072086047	1.00000	S	9.00000	9.00000	0.00	2	7/15/2012 12:32	0.0690	0.7700	130	0.0620	0.7010	1000	dpm
3072086048	1.00000	S	9.00000	9.00000	0.00	3	7/15/2012 12:32	0.2100	1.2150	130	0.0600	0.6670	1000	dpm
3072086049	1.00000	S	9.00000	9.00000	0.00	27	7/18/2012 12:11	0.2500	0.8400	100	0.0690	0.3930	1000	dpm
3072086050	1.00000	S	9.00000	9.00000	0.00	34	7/18/2012 6:41	0.1429	0.7786	140	0.1250	0.4480	1000	dpm
3072086051	1.00000	S	9.00000	9.00000	0.00	20	7/18/2012 16:02	0.1400	0.6700	100	0.0700	0.3890	1000	dpm
3072086052	1.00000	S	9.00000	9.00000	0.00	7	7/15/2012 12:32	0.0920	0.8100	130	0.1070	0.6890	1000	dpm
3072086053	1.00000	S	9.00000	9.00000	0.00	21	7/18/2012 16:27	0.2300	0.7000	100	0.0580	0.3810	1000	dpm
3072086054	1.00000	S	9.00000	9.00000	0.00	9	7/15/2012 12:32	0.1100	1.4380	130	0.0550	0.6370	1000	dpm
3072086055	1.00000	S	9.00000	9.00000	0.00	31	7/18/2012 6:41	0.1917	0.7750	120	0.0900	0.3660	1000	dpm
3072086056	1.00000	S	9.00000	9.00000	0.00	23	7/18/2012 16:02	0.3000	0.6800	100	0.0720	0.4150	1000	dpm
3072086057	1.00000	S	9.00000	9.00000	0.00	27	7/18/2012 15:54	0.1700	0.4800	100	0.0690	0.3930	1000	dpm
3072086058	1.00000	S	9.00000	9.00000	0.00	29	7/18/2012 17:15	0.1600	0.4100	100	0.0630	0.2740	1000	dpm
3072086059	1.00000	S	9.00000	9.00000	0.00	14	7/15/2012 12:26	0.1500	0.5333	120	0.0820	0.4390	1000	dpm
LCS12471	1.00000	S	9.00000	9.00000	0.00	31	7/20/2012 10:32	0.4778	5.1333	90	0.0900	0.3660	1000	dpm
LCSD12471	1.00000	S	9.00000	9.00000	0.00	33	7/20/2012 10:54	0.6333	5.1111	90	0.1200	0.4100	1000	dpm

*M 7/20/12*

*7/20/12*



Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12471  
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
458986	0.034	0.288	0.288	0.760	0.232	dpm/S	0.005	0.00	0.000000	0.005	15.82%	1
3072086040	0.528	0.473	0.482	0.946	0.352	dpm/S	0.082	0.00	0.000000	0.082	15.50%	1
3072086041	0.464	0.478	0.486	0.962	0.306	dpm/S	0.071	0.00	0.000000	0.071	15.37%	1
3072086042	0.515	0.502	0.511	0.990	0.310	dpm/S	0.080	0.00	0.000000	0.080	15.47%	1
3072086043	1.095	0.563	0.596	0.845	0.266	dpm/S	0.164	0.00	0.000000	0.164	14.95%	1
3072086044	-0.061	0.328	0.328	0.946	0.293	dpm/S	-0.009	0.00	0.000000	-0.009	15.27%	1
3072086045	0.390	0.466	0.471	0.974	0.311	dpm/S	0.060	0.00	0.000000	0.060	15.39%	1
3072086046	0.463	0.448	0.456	0.870	0.273	dpm/S	0.066	0.00	0.000000	0.066	14.26%	1
3072086047	0.045	0.307	0.307	0.788	0.247	dpm/S	0.007	0.00	0.000000	0.007	15.52%	1
3072086048	0.995	0.532	0.561	0.801	0.250	dpm/S	0.150	0.00	0.000000	0.150	15.07%	1
3072086049	1.145	0.629	0.661	0.944	0.288	dpm/S	0.181	0.00	0.000000	0.181	15.80%	1
3072086050	0.111	0.412	0.412	0.982	0.327	dpm/S	0.018	0.00	0.000000	0.018	16.12%	1
3072086051	0.448	0.481	0.488	0.962	0.293	dpm/S	0.070	0.00	0.000000	0.070	15.61%	1
3072086052	-0.096	0.356	0.357	0.982	0.320	dpm/S	-0.015	0.00	0.000000	-0.015	15.71%	1
3072086053	1.137	0.629	0.661	0.919	0.275	dpm/S	0.172	0.00	0.000000	0.172	15.13%	1
3072086054	0.409	0.437	0.443	0.866	0.268	dpm/S	0.055	0.00	0.000000	0.055	13.45%	1
3072086055	0.662	0.524	0.538	0.977	0.311	dpm/S	0.102	0.00	0.000000	0.102	15.35%	1
3072086056	1.458	0.695	0.742	0.971	0.297	dpm/S	0.228	0.00	0.000000	0.228	15.64%	1
3072086057	0.639	0.522	0.534	0.944	0.288	dpm/S	0.101	0.00	0.000000	0.101	15.80%	1
3072086058	0.631	0.520	0.532	0.936	0.283	dpm/S	0.097	0.00	0.000000	0.097	15.36%	1
3072086059	0.433	0.455	0.462	0.917	0.290	dpm/S	0.068	0.00	0.000000	0.068	15.72%	1
LCSI2471	2.526	0.938	1.041	1.154	0.355	dpm/S	0.388	0.00	0.000000	0.388	15.35%	1
LCSD12471	3.179	1.027	1.174	1.238	0.390	dpm/S	0.513	0.00	0.000000	0.513	16.15%	1

7/12/2012

Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12471  
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
458986	-0.105	0.224	0.225	0.585	0.201	dpm/S	-0.046	0.00	0.001777	-0.048	46.02%	1
3072086040	0.942	0.265	0.314	0.434	0.165	dpm/S	0.450	0.00	0.028761	0.421	44.74%	1
3072086041	0.148	0.281	0.282	0.617	0.213	dpm/S	0.090	0.00	0.025279	0.065	43.92%	1
3072086042	0.352	0.323	0.329	0.659	0.226	dpm/S	0.184	0.00	0.026251	0.157	44.69%	1
3072086043	0.837	0.343	0.374	0.566	0.196	dpm/S	0.437	0.00	0.059054	0.378	45.20%	1
3072086044	0.412	0.327	0.336	0.674	0.231	dpm/S	0.180	0.00	-0.003373	0.183	44.42%	1
3072086045	0.460	0.331	0.341	0.659	0.229	dpm/S	0.234	0.00	0.022953	0.211	45.78%	1
3072086046	0.484	0.404	0.413	0.847	0.302	dpm/S	0.242	0.00	0.021342	0.221	45.62%	1
3072086047	0.147	0.350	0.351	0.794	0.282	dpm/S	0.069	0.00	0.001917	0.067	45.63%	1
3072086048	1.127	0.441	0.485	0.795	0.282	dpm/S	0.548	0.00	0.046365	0.502	44.49%	1
3072086049	0.860	0.409	0.437	0.710	0.242	dpm/S	0.447	0.00	0.061225	0.386	44.88%	1
3072086050	0.726	0.340	0.364	0.632	0.223	dpm/S	0.331	0.00	0.005979	0.325	44.69%	1
3072086051	0.576	0.372	0.386	0.716	0.244	dpm/S	0.281	0.00	0.025885	0.255	44.32%	1
3072086052	0.281	0.368	0.371	0.810	0.288	dpm/S	0.121	0.00	-0.003696	0.125	44.36%	1
3072086053	0.548	0.370	0.383	0.690	0.235	dpm/S	0.319	0.00	0.069619	0.249	45.53%	1
3072086054	1.759	0.477	0.571	0.779	0.276	dpm/S	0.801	0.00	0.018859	0.782	44.45%	1
3072086055	0.832	0.361	0.390	0.623	0.215	dpm/S	0.409	0.00	0.035791	0.373	44.88%	1
3072086056	0.406	0.373	0.380	0.732	0.250	dpm/S	0.265	0.00	0.084082	0.181	44.61%	1
3072086057	0.118	0.315	0.315	0.710	0.242	dpm/S	0.087	0.00	0.034164	0.053	44.88%	1
3072086058	0.232	0.293	0.296	0.612	0.205	dpm/S	0.136	0.00	0.033533	0.102	44.19%	1
3072086059	0.157	0.307	0.308	0.681	0.237	dpm/S	0.094	0.00	0.024405	0.070	44.64%	1
LCS12471	10.318	1.046	2.122	0.728	0.245	dpm/S	4.767	0.00	0.136513	4.631	44.88%	1
LCSD12471	9.871	1.023	2.041	0.751	0.254	dpm/S	4.701	0.00	0.177870	4.523	45.82%	1

07/20/12

# Quality Control Sample Performance Assessment

RCDU Upload

Analyst: MBT  
Date: 7/20/2012  
Worklist: 12471  
Matrix: Filter

Method: EPA 900.0m  
SOP: PGH-R-001  
MB Sample ID: 458986



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

Method Blank Assessment			
Analyte	Activity	1.96 Sig Unc.	MDC
Gross Alpha	0.0340	0.2880	0.7600
Gross Beta	-0.1050	0.2250	0.5850

Laboratory Control Sample Assessment					
Analyte:	Count Date:	Gross Alpha		Gross Beta	
		LCS	LCS D	LCS D	LCS D
7/20/12 10:32	7/20/12 10:54	7/20/12 10:32	7/20/12 10:54	7/20/12 10:32	7/20/12 10:54
12-018-F3	12-018-F4	12-014-F3	12-014-F4		
2.353	2.353	9.797	9.797		
1.000	1.000	1.000	1.000		
1.000	1.000	1.000	1.000		
2.353	2.353	9.797	9.797		
0.138	0.138	0.192	0.192		
3.179	3.179	10.318	9.871		
1.041	1.174	2.122	2.041		
107.36%	135.11%	105.31%	100.75%		
Pass	High**	Pass	Pass		
119.00%	119.00%	130.00%	130.00%		
62.00%	62.00%	79.00%	79.00%		

Duplicate Sample Assessment			
LCS/LCSD Y or N?	Y	Y	
Gross Alpha	Pass	Pass	
LCS12471	LCS12471	LCS12471	
2.5260	10.3180	10.3180	
1.0410	2.1220	2.1220	
3.1790	9.8710	9.8710	
1.1740	2.0410	2.0410	
No	No	No	
22.89%	4.43%	4.43%	
Pass	Pass	Pass	
35.00%	17.00%	17.00%	

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

Comments:

*Handwritten signature*

*Handwritten initials*

Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12471  
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	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				Alpha Bkg	Beta Bkg	Alpha Bkg	Beta Bkg	BKG 1 Date	6/3/2012	BKG 2 Date	7/13/2012		
	a	b	c	d								e	a	b	c	d	e	a	b									c	d
1					1.4256E-01					3.238E-01					4.5624E-01								0.0640	0.8040			0.0640	0.8040	
2					1.5524E-01					2.7992E-01					4.5633E-01								0.0620	0.7010			0.0620	0.7010	
3					1.5070E-01					3.0910E-01					4.4491E-01								0.0600	0.6670			0.0600	0.6670	
4					1.4437E-01					2.9237E-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								0.0860	0.6310			0.0860	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			0.1620	0.4690	
12					1.5319E-01					3.7376E-01					4.5830E-01								0.0890	0.3780			0.0890	0.3780	
13					1.4959E-01					4.0742E-01					3.9032E-01								0.0500	0.3390			0.0500	0.3390	
14					1.5721E-01					3.5889E-01					4.4635E-01								0.0690	0.3800			0.0690	0.3800	
15					1.5605E-01					3.4723E-01					4.4658E-01								0.0820	0.4950			0.0820	0.4950	
16					1.5365E-01					3.5439E-01					4.3920E-01								0.0610	0.3910			0.0610	0.3910	
17					1.5472E-01					3.2964E-01					4.4691E-01								0.1370	0.3860			0.1370	0.3860	
18					1.5273E-01					3.6020E-01					4.4422E-01								0.0630	0.3820			0.0630	0.3820	
19					1.5393E-01					3.8255E-01					4.5782E-01								0.0770	0.4570			0.0770	0.4570	
20					1.5610E-01					3.6978E-01					4.4521E-01								0.0970	0.3620			0.0970	0.3620	
21					1.5130E-01					4.0476E-01					4.5533E-01								0.0760	0.3780			0.0760	0.3780	
22					1.5360E-01					3.9282E-01					4.3554E-01								0.0570	0.4180			0.0570	0.4180	
23					1.5639E-01					3.6878E-01					4.4612E-01								0.0750	0.4570			0.0750	0.4570	
24					#N/A					#N/A					#N/A														
25					1.5698E-01					3.5511E-01					4.5668E-01								0.1270	0.4110			0.1270	0.4110	
26					1.5748E-01					3.3781E-01					4.5458E-01								0.1450	0.4370			0.1450	0.4370	
27					1.5803E-01					3.3926E-01					4.4883E-01								0.0740	0.2860			0.0740	0.2860	



Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

**CSU Analysis for Preparation**

**Planchet Weighing**

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

**Volume Aliquot**

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

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

**CSU Analysis for Analysis**

**Mass Aliquot**

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

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

**CSU Analysis for Yield Correction**

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

2/10/12  
VAD

Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

SAMPLE_ID	Det#	BEG_DATE	BATCH_ID	ACPM	BCPM	CNT_TIME
458986	32	7/14/2012 23:50	GAB12471	0.058333333	0.291666667	120
3072086040	33	7/14/2012 23:50	GAB12471	0.2	0.783333333	120
3072086041	34	7/14/2012 23:50	GAB12471	0.225	0.533333333	120
3072086042	35	7/14/2012 23:50	GAB12471	0.183333333	6.583333333	120
3072086043	36	7/14/2012 23:50	GAB12471	0.108333333	0.75	120
3072086044	37	7/14/2012 23:50	GAB12471	0.366666667	0.675	120
3072086045	38	7/14/2012 23:50	GAB12471	0.15	0.55	120
3072086056	11	7/15/2012 12:25	GAB12471	0.275	0.841666667	120
3072086057	12	7/15/2012 12:25	GAB12471	0.166666667	0.55	120
3072086058	13	7/15/2012 12:25	GAB12471	0.133333333	0.608333333	120
3072086059	14	7/15/2012 12:26	GAB12471	0.15	0.533333333	120
3072086043	36	7/17/2012 10:12	GAB12471	0.230769231	0.769230769	130
3072086048	37	7/17/2012 10:12	GAB12471	0.391666667	1.016666667	120
3072086045	13	7/17/2012 10:41	GAB12471	0.183333333	0.575	120
3072086054	25	7/18/2012 6:41	GAB12471	0.276190476	0.766666667	210
3072086055	31	7/18/2012 6:41	GAB12471	0.191666667	0.775	120
3072086049	33	7/18/2012 6:41	GAB12471	0.364285714	1.185714286	140
3072086050	34	7/18/2012 6:41	GAB12471	0.142857143	0.778571429	140
3072086051	37	7/18/2012 6:41	GAB12471	0.277272727	0.777272727	220
3072086041	16	7/18/2012 16:27	GAB12471	0.158333333	0.433333333	120
3072086042	17	7/18/2012 16:07	GAB12471	0.163636364	0.554545455	110
3072086044	18	7/18/2012 16:51	GAB12471	0.063636364	0.563636364	110
3072086045	19	7/18/2012 16:27	GAB12471	0.15	0.666666667	120
3072086051	20	7/18/2012 16:02	GAB12471	0.14	0.67	100
3072086053	21	7/18/2012 16:27	GAB12471	0.23	0.7	100
3072086056	23	7/18/2012 16:02	GAB12471	0.3	0.68	100
3072086057	27	7/18/2012 15:54	GAB12471	0.17	0.48	100
3072086058	29	7/18/2012 17:15	GAB12471	0.16	0.41	100
3072086049	27	7/18/2012 12:11	GAB12471	0.25	0.84	100
3072086040	30	7/18/2012 14:02	GAB12471	0.314814815	0.874074074	270
LCS12471	31	7/20/2012 10:32	GAB12471	0.477777778	5.133333333	90
LCSD12471	33	7/20/2012 10:54	GAB12471	0.633333333	5.111111111	90
3072086046	1	7/15/2012 12:32	GAB12471	0.13	1.046	130
3072086047	2	7/15/2012 12:32	GAB12471	0.069	0.77	130
3072086052	7	7/15/2012 12:32	GAB12471	0.092	0.81	130
3072086054	9	7/15/2012 12:32	GAB12471	0.11	1.438	130
3072086048	3	7/15/2012 12:32	GAB12471	0.21	1.215	130

Sample Measurement  
 C:\UMS\GAB12471.SDT

Sample Measurement Parameters:

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: 07/15/2012 12:32:09

Elapsed Time: 130:00  
 Guard: 803.4 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	12496	3072086046	0.13 (±24.3%)	0.0039	0.0020	1.046 (±8.57%)	0.0112	0.0055
2	12887	3072086047	0.069 (±33.3%)	0.0047	0.0024	0.77 (±10.0%)	0.0105	0.0051
3	12496	<del>3072086048</del>	0.21 (±19.2%)	0.0054	0.0027	1.215 (±7.96%)	0.0107	0.0053
4	12887	<del>3072086049</del>	0.17 (±21.3%)	0.0047	0.0024	1.154 (±8.16%)	0.0112	0.0055
5	12921	<del>3072086050</del>	0.18 (±20.9%)	0.0047	0.0024	6.415 (±3.46%)	0.0202	0.0099
6	12921	<del>3072086051</del>	0.092 (±28.9%)	0.0054	0.0027	Outliers!	0.0298	0.0148
7	12496	3072086052	0.092 (±28.9%)	0.0054	0.0027	0.81 (±9.76%)	0.0112	0.0055
8	12887	3072086053	0.092 (±28.9%)	0.0039	0.0020	0.88 (±9.33%)	0.0102	0.0050
9	12496	<del>3072086054</del>	0.11 (±26.7%)	0.0054	0.0027	1.438 (±7.31%)	0.0114	0.0056
10	12921	<del>3072086055</del>	0.13 (±24.3%)	undef.	undef.	Outliers!	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)
LCSD12471	7/20/2012 10:54:53 AM	33	GAB12471	0.633	5.1111	90.0
LCS12471	7/20/2012 10:32:23 AM	31	GAB12471	0.478	5.1333	90.0
3072086058	7/18/2012 5:15:00 PM	29	GAB12471	0.160	0.4100	100.0
3072086044	7/18/2012 4:51:17 PM	18	GAB12471	0.064	0.5636	110.0
3072086053	7/18/2012 4:27:43 PM	21	GAB12471	0.230	0.7000	100.0
3072086045	7/18/2012 4:27:36 PM	19	GAB12471	0.150	0.6667	120.0
3072086041	7/18/2012 4:27:25 PM	16	GAB12471	0.158	0.4333	120.0
3072086042	7/18/2012 4:07:23 PM	17	GAB12471	0.164	0.5545	110.0
3072086056	7/18/2012 4:02:23 PM	23	GAB12471	0.300	0.6800	100.0
3072086051	7/18/2012 4:02:14 PM	20	GAB12471	0.140	0.6700	100.0
3072086057	7/18/2012 3:54:14 PM	27	GAB12471	0.170	0.4800	100.0
3072086040	7/18/2012 2:02:31 PM	30	GAB12471	0.315	0.8741	270.0
3072086049	7/18/2012 12:11:05 PM	27	GAB12471	0.250	0.8400	100.0
3072086051	7/18/2012 6:41:56 AM	37	GAB12471	0.277	0.7773	220.0
3072086050	7/18/2012 6:41:26 AM	34	GAB12471	0.143	0.7786	140.0
3072086049	7/18/2012 6:41:18 AM	33	GAB12471	0.364	1.1857	140.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
3072086055	7/18/2012 6:41:11 AM	31	GAB12471	0.192	0.7750	120.0
3072086054	7/18/2012 6:41:01 AM	25	GAB12471	0.276	0.7667	210.0
3072086045	7/17/2012 10:41:14 AM	13	GAB12471	0.183	0.5750	120.0
3072086048	7/17/2012 10:12:13 AM	37	GAB12471	0.392	1.0167	120.0
3072086043	7/17/2012 10:12:07 AM	36	GAB12471	0.231	0.7692	130.0
3072086059	7/15/2012 12:26:01 PM	14	GAB12471	0.150	0.5333	120.0
3072086058	7/15/2012 12:25:58 PM	13	GAB12471	0.133	0.6083	120.0
3072086057	7/15/2012 12:25:54 PM	12	GAB12471	0.167	0.5500	120.0
3072086056	7/15/2012 12:25:52 PM	11	GAB12471	0.275	0.8417	120.0
3072086045	7/14/2012 11:50:32 PM	38	GAB12471	0.150	0.5500	120.0
3072086044	7/14/2012 11:50:29 PM	37	GAB12471	0.367	0.6750	120.0
3072086043	7/14/2012 11:50:25 PM	36	GAB12471	0.108	0.7500	120.0
3072086042	7/14/2012 11:50:22 PM	35	GAB12471	0.183	6.5833	120.0
3072086041	7/14/2012 11:50:18 PM	34	GAB12471	0.225	0.5333	120.0
3072086040	7/14/2012 11:50:15 PM	33	GAB12471	0.200	0.7833	120.0
458986	7/14/2012 11:50:12 PM	32	GAB12471	0.058	0.2917	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
GMS	14	3072086023	GAB12470	120	7/14/12 23:49	BSH	NA	NA
	15	024						
	16	025						
	17	026						
	18	027						
	19	028						
	20	029						
	21	030						
	22	031						
	23	032						
	25	033						
	26	034						
	27	035						
	28	036						
	29	037						
	30	038						
	31	039						
	32	458986	GAB12471	120		BSH	NA	
	33	3072086040	GAB12472					
	34	041						
	35	042						
	36	043						
	37	044						
	38	045						

- 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 REL

Date: 7/16/12

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
	1	3072086046	GAB10471	120	7/10/13 12:30	BSH	WA	WA
	2	047						
	3	048						
	4	049						
	5	050						
	6	051						
	7	052						
	8	053						
	9	054						
	10	055						
	11	056			7/11/13 12:37			
	12	057						
	13	058						
	14	059						
	15	458987	GAB10472					
	16	3072086060						
	17	061						
	18	062						
	19	063						
	20	064						
	21	065						
	22	066						
	23	067						
	24	068						

- 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	AL	2	
	36	613	12471	130				
	37	018		120				
GAB	12	458981	GAB 12467	140	7-17-12 1041	WBT	2	MDC
	13	3072080045	GAB 12471	120				
GAS	43	3072080109	GAS 12474	300	7/17/12 1130	AL		
	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

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
GRA	13	3561332001	GRA12643	650	7/17/12 2145	RMLC	N/A	
	14	CO2						
	16	3561248001						
	17	CO2						
	18	CO3						
	19	3561707001						
	20	CO2						
	21	CO4						
	22	CO5						
	23	3073080001						
GAB	26	3072944001	GAB12597	650	7/17/12 2145	RMLC	N/A	
	27	3073177001	GAB12646					
	28	3073178001						
	29	3073220002						
	30	CO3						
	35	3072080054	GAB12471	210	7-18-12 0040	MBT	NA	
	31	55		120				
BAB	33	3072080049		140				
	34	50		140				
	37	51		220				
	38	3072080069	GAB12472	220	7-18-12 2145	MBT	NA	
	30	68		100	7-18-12 2145	MBT	NA	
LGS	11	LGS#3 12402	GAB12402	90	7-18-12	MBT		
	15	LGS#1 12403	GAB12403	90				

- 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: 7/18/12

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
GNS	35	3072080036	64812470	210	7/18/12 1402	[Signature]	2	
	36	020		120	1410			
	37	021		100	1402			
	39	022		100	1328			
	30	010	64812471	270	1402			
	31	024	64812470	120	1505			
	36	031		100	1402			
	37	038		220	1328			
	38	033		130	1328			
	30	80040			7/18/12			
GNS	29	3072080019	64812459	100	1523	[Signature]	2	
	14	3072080002	64812469	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	056			1602			
	26	LCS12466 #4	64812466	100	1612		NA	
27	3072080057	12471	100	1554				
29	058							
36	458987	12472	100	1553				
38	LCS12466 #3	64812466	90					

- 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
GAB	27	307320004	GAB120512	90	7/22/12 0947	O	N/A	N/A
	28	↓ 116	↓	↓	↓	↓	↓	↓
	29	3073150001	↓	↓	0856	↓	↓	↓
	30	↓ 148	↓	↓	↓	↓	↓	↓
	31	↓ 008	↓	↓	0902	↓	↓	↓
	32	06	↓	↓	↓	↓	↓	↓
	33	3073009001	GAB120512	↓	0924	↓	↓	↓
	34	↓ 72809	↓	↓	0902	↓	↓	↓
	35	↓ 73014	↓	↓	0924	↓	↓	↓
	36	↓ 71036	↓	↓	0942	↓	↓	↓
	37	↓	↓	↓	0856	↓	↓	↓
	38	5501740001	GAB120512	0150	↓	↓	↓	↓
GAB	39	W012470	GAB12470	90	7/20/12 1020	O	N/A	N/A
	40	W012471	↓	↓	↓	↓	↓	↓
	41	W012471	GAB12471	↓	1032	↓	↓	↓
	42	W012471	GAB12471	↓	1014	↓	↓	↓
	43	W012471	GAB12471	330	116	↓	↓	↓
	44	W012471	GAB12471	40	1032	↓	↓	↓
	45	W012471	GAB12471	↓	↓	↓	↓	↓
	46	W012471	GAB12471	↓	1014	↓	↓	↓
GAB	19	W012451	GAB12451	80	7/20/12 1100	J	↓	RL

- 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/12472 HBN 91042  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 1 458987-BLANK for HBN 91042 [RADC/1247

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

### Prep Information

Procedure 9000 I Batch RADC/12472 Prep Date 7/18/2012 15:53 Dilution  
 Method EPA 900.0m HBN 91042 Hold Date 12/25/2012 23:59 Analyst MBT  
 Schedule 2795672 Instru NONE CC OK F

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

### Analytical Information

Procedure 9000 I Instru NONE Run Date 7/18/2012 15:53 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/25/2012 23:59 Analyst MBT  
 Schedule 2795672 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL
Rad Chemistry	OK				
Gross Alpha	OK	-0.181U ± 0.285 (0.986)	pCi/sa -0.181U ± 0.285 (0.986)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					
Gross Beta	OK	0.216U ± 0.294 (0.653)	pCi/sa 0.216U ± 0.294 (0.653)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					

## 2 3072086060-2541-SU1-24

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth Location  
 1207074

### Prep Information

Procedure 9000 I Batch RADC/12472 Prep Date 7/15/2012 12:26 Dilution  
 Method EPA 900.0m HBN 91042 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785435 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 7/15/2012 12:26 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785435 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.247U ± 0.431 (0.962)	pCi/sa 0.247U ± 0.431 (0.962)		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/12472 HBN 91042  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 2 3072086060-2541-SU1-24

Analyte	CC	Posted Result		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Gross Beta	OK	0.839 ± 0.387 (0.617)	pCi/sa 0.839 ± 0.387 (0.617)			dpm/sa		

The lab does not hold TNI accreditation for this parameter.

## 3 3072086061-2541-SU1-25

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12472 Prep Date 7/15/2012 12:26 Dilution  
 Method EPA 900.0m HBN 91042 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785437 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 7/15/2012 12:26 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785437 File CC OK F

Analyte	CC	Posted Result		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Rad Chemistry	OK					dpm/sa		
Gross Alpha	OK	0.319J ± 0.442 (0.941)	pCi/sa 0.319J ± 0.442 (0.941)			dpm/sa		

The lab does not hold TNI accreditation for this parameter.

Gross Beta OK 0.849 ±  
0.391  
(0.629) pCi/sa 0.849 ±  
0.391  
(0.629) dpm/sa

The lab does not hold TNI accreditation for this parameter.

## 4 3072086062-2541-SU1-26

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12472 Prep Date 7/15/2012 12:26 Dilution  
 Method EPA 900.0m HBN 91042 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785439 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/12472 HBN 91042  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 4 3072086062-2541-SU1-26

### Analytical Information

<b>Procedure</b> 9000 I	<b>Instru</b> NONE	<b>Run Date</b> 7/15/2012 12:26	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>Col ID</b>	<b>Hold Date</b> 12/15/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785439	<b>File</b>		<b>CC</b> OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.777J ± 0.543 (0.899)	pCi/sa 0.777J ± 0.543 (0.899)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.671 ± 0.374 (0.643)	pCi/sa 0.671 ± 0.374 (0.643)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 5 3072086063-2541-SU1-27

<b>Type</b> PS	<b>Matrix</b> Wipe	<b>Collected</b> 6/18/2012 00:01	<b>% Moisture</b>
<b>Client</b> RTI	<b>WO</b> 3072086	<b>Work ID</b> Fort Monmouth 1207074	<b>Location</b>

### Prep Information

<b>Procedure</b> 9000 I	<b>Batch</b> RADC/12472	<b>Prep Date</b> 7/15/2012 12:26	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>HBN</b> 91042	<b>Hold Date</b> 12/15/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785441	<b>Instru</b> NONE		<b>CC</b> OK F

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

### Analytical Information

<b>Procedure</b> 9000 I	<b>Instru</b> NONE	<b>Run Date</b> 7/15/2012 12:26	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>Col ID</b>	<b>Hold Date</b> 12/15/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785441	<b>File</b>		<b>CC</b> OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.336J ± 0.458 (0.974)	pCi/sa 0.336J ± 0.458 (0.974)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.340J ± 0.323 (0.659)	pCi/sa 0.340J ± 0.323 (0.659)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 6 3072086064-2541-SU1-28

<b>Type</b> PS	<b>Matrix</b> Wipe	<b>Collected</b> 6/18/2012 00:01	<b>% Moisture</b>
<b>Client</b> RTI	<b>WO</b> 3072086	<b>Work ID</b> Fort Monmouth 1207074	<b>Location</b>

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

# Quality Control Review



Batch RADC/12472 HBN 91042  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

**6 3072086064-2541-SU1-28**

## Prep Information

**Procedure** 9000 I **Batch** RADC/12472 **Prep Date** 7/15/2012 12:26 **Dilution**  
**Method** EPA 900.0m **HBN** 91042 **Hold Date** 12/15/2012 23:59 **Analyst** MBT  
**Schedule** 2785443 **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** 7/15/2012 12:26 **Dilution**  
**Method** EPA 900.0m **Co I D** **Hold Date** 12/15/2012 23:59 **Analyst** MBT  
**Schedule** 2785443 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.673J ± 0.505 (0.864)	pCi/sa 0.673J ± 0.505 (0.864)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.031U ± 0.282 (0.648)	pCi/sa 0.031U ± 0.282 (0.648)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

**7 3072086065-2541-SU1-28D**

**Type** PS **Matrix** Wipe **Collected** 6/18/2012 00:01 **% Moisture**  
**Client** RTI **WO** 3072086 **Work ID** Fort Monmouth 1207074 **Location**

## Prep Information

**Procedure** 9000 I **Batch** RADC/12472 **Prep Date** 7/15/2012 12:26 **Dilution**  
**Method** EPA 900.0m **HBN** 91042 **Hold Date** 12/15/2012 23:59 **Analyst** MBT  
**Schedule** 2785445 **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** 7/15/2012 12:26 **Dilution**  
**Method** EPA 900.0m **Co I D** **Hold Date** 12/15/2012 23:59 **Analyst** MBT  
**Schedule** 2785445 **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 ± 0.564 (0.825)	pCi/sa 0.939 ± 0.564 (0.825)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.336J ± 0.319 (0.625)	pCi/sa 0.336J ± 0.319 (0.625)		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/12472 HBN 91042  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

7 3072086065-2541-SU1-28D

8 3072086066-2541-SU1-29

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

## Prep Information

Procedure 9000 I Batch RADC/12472 Prep Date 7/18/2012 21:35 Dilution  
 Method EPA 900.0m HBN 91042 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785447 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 21:35 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785447 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	0.197U ± 0.321 (0.716)	pCi/sa 0.197U ± 0.321 (0.716)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

9 3072086067-2541-SU1-30

Type PS Matrix Wipe Collected 6/18/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

## Prep Information

Procedure 9000 I Batch RADC/12472 Prep Date 7/15/2012 12:26 Dilution  
 Method EPA 900.0m HBN 91042 Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785449 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 7/15/2012 12:26 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/15/2012 23:59 Analyst MBT  
 Schedule 2785449 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/12472 HBN 91042  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

**9 3072086067-2541-SU1-30**

Analyte	CC	Posted		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Gross Alpha	OK	0.392J ± 0.437 (0.873)	pCi/sa 0.392J ± 0.437 (0.873)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								
Gross Beta	OK	0.252J ± 0.314 (0.664)	pCi/sa 0.252J ± 0.314 (0.664)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								

**10 3072086068-2541-SU2-18**

<b>Type</b> PS	<b>Matrix</b> Wipe	<b>Collected</b> 6/18/2012 00:01	<b>% Moisture</b>
<b>Client</b> RTI	<b>WO</b> 3072086	<b>Work ID</b> Fort Monmouth 1207074	<b>Location</b>

**Prep Information**

<b>Procedure</b> 9000 I	<b>Batch</b> RADC/12472	<b>Prep Date</b> 7/18/2012 06:43	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>HBN</b> 91042	<b>Hold Date</b> 12/15/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785451	<b>Instru</b> NONE		<b>CC</b> OK F
Initial Volume	1 mL Default	1 mL	
Final Volume,	1 mL Default	1 mL	

**Analytical Information**

<b>Procedure</b> 9000 I	<b>Instru</b> NONE	<b>Run Date</b> 7/18/2012 06:43	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>Col ID</b>	<b>Hold Date</b> 12/15/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785451	<b>File</b>		<b>CC</b> OK F

Analyte	CC	Posted		MDL	RDL		Reg. Limits	
		Result	Result				Low	High
Rad Chemistry	OK					dpm/sa		
Gross Alpha	OK	-0.181U ± 0.285 (0.986)	pCi/sa -0.181U ± 0.285 (0.986)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								
Gross Beta	OK	0.039U ± 0.265 (0.653)	pCi/sa 0.039U ± 0.265 (0.653)			dpm/sa		
The lab does not hold TNI accreditation for this parameter.								

**11 3072086069-275-8**

<b>Type</b> PS	<b>Matrix</b> Wipe	<b>Collected</b> 6/15/2012 00:01	<b>% Moisture</b>
<b>Client</b> RTI	<b>WO</b> 3072086	<b>Work ID</b> Fort Monmouth 1207074	<b>Location</b>

**Prep Information**

<b>Procedure</b> 9000 I	<b>Batch</b> RADC/12472	<b>Prep Date</b> 7/18/2012 06:42	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>HBN</b> 91042	<b>Hold Date</b> 12/12/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785453	<b>Instru</b> NONE		<b>CC</b> 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/12472 HBN 91042  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

**11 3072086069-275-8**

## Analytical Information

<b>Procedure</b> 9000 I	<b>Instru</b> NONE	<b>Run Date</b> 7/18/2012 06:42	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>CoI ID</b>	<b>Hold Date</b> 12/12/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785453	<b>File</b>		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.629J ± 0.533 (0.999)	pCi/sa 0.629J ± 0.533 (0.999)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.087U ± 0.257 (0.622)	pCi/sa -0.087U ± 0.257 (0.622)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

**12 3072086070-275-10**

<b>Type</b> PS	<b>Matrix</b> Wipe	<b>Collected</b> 6/15/2012 00:01	<b>% Moisture</b>
<b>Client</b> RTI	<b>WO</b> 3072086	<b>Work ID</b> Fort Monmouth 1207074	<b>Location</b>

### Prep Information

<b>Procedure</b> 9000 I	<b>Batch</b> RADC/12472	<b>Prep Date</b> 7/15/2012 12:27	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>HBN</b> 91042	<b>Hold Date</b> 12/12/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785455	<b>Instru</b> NONE		CC OK F

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

## Analytical Information

<b>Procedure</b> 9000 I	<b>Instru</b> NONE	<b>Run Date</b> 7/15/2012 12:27	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>CoI ID</b>	<b>Hold Date</b> 12/12/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785455	<b>File</b>		CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.407J ± 0.432 (0.848)	pCi/sa 0.407J ± 0.432 (0.848)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.181U ± 0.248 (0.643)	pCi/sa -0.181U ± 0.248 (0.643)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

**13 3072086071-275-11**

<b>Type</b> PS	<b>Matrix</b> Wipe	<b>Collected</b> 6/15/2012 00:01	<b>% Moisture</b>
<b>Client</b> RTI	<b>WO</b> 3072086	<b>Work ID</b> Fort Monmouth 1207074	<b>Location</b>

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



# Quality Control Review



Batch RADC/12472 HBN 91042  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

13 3072086071-275-11

## Prep Information

Procedure 9000 I Batch RADC/12472 Prep Date 7/18/2012 21:35 Dilution  
 Method EPA 900.0m HBN 91042 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785457 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 21:35 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785457 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	1.27 ± 0.693 (0.919)	pCi/sa 1.27 ± 0.693 (0.919)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.085U ± 0.292 (0.690)	pCi/sa -0.085U ± 0.292 (0.690)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

14 3072086072-275-30

Type PS Matrix Wipe Collected 6/15/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

## Prep Information

Procedure 9000 I Batch RADC/12472 Prep Date 7/15/2012 12:27 Dilution  
 Method EPA 900.0m HBN 91042 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785459 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 7/15/2012 12:27 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785459 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.187U ± 0.368 (0.841)	pCi/sa 0.187U ± 0.368 (0.841)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.225J ± 0.264 (0.554)	pCi/sa 0.225J ± 0.264 (0.554)			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/12472 HBN 91042  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

14 3072086072-275-30

15 3072086073-292-2

Type PS Matrix Wipe Collected 6/15/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

## Prep Information

Procedure 9000 I Batch RADC/12472 Prep Date 7/18/2012 21:36 Dilution  
 Method EPA 900.0m HBN 91042 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785461 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 21:36 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785461 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	2.03 ± 0.870 (0.971)	pCi/sa 2.03 ± 0.870 (0.971)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.286J ± 0.372 (0.732)	pCi/sa 0.286J ± 0.372 (0.732)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

16 3072086074-292-6

Type PS Matrix Wipe Collected 6/15/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

## Prep Information

Procedure 9000 I Batch RADC/12472 Prep Date 7/15/2012 12:27 Dilution  
 Method EPA 900.0m HBN 91042 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785463 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 7/15/2012 12:27 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785463 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/12472 HBN 91042  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

16 3072086074-292-6									
Analyte	CC	Posted		MDL	RDL		Reg. Limits		
		Result	Result				Low	High	
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	0.420J ± 0.320 (0.623)	pCi/sa 0.420J ± 0.320 (0.623)			dpm/sa			
The lab does not hold TNI accreditation for this parameter.									

17 3072086075-292-8				
Type PS	Matrix Wipe	Collected 6/15/2012 00:01	% Moisture	
Client RTI	WO 3072086	Work ID Fort Monmouth 1207074	Location	

### Prep Information

Procedure 9000 I	Batch RADC/12472	Prep Date 7/15/2012 12:27	Dilution
Method EPA 900.0m	HBN 91042	Hold Date 12/12/2012 23:59	Analyst MBT
Schedule 2785465	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 7/15/2012 12:27	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/12/2012 23:59	Analyst MBT
Schedule 2785465	File		CC OK F

Analyte	CC	Posted		MDL	RDL		Reg. Limits		
		Result	Result				Low	High	
Rad Chemistry	OK					dpm/sa			
Gross Alpha	OK	0.034U ± 0.288 (0.760)	pCi/sa 0.034U ± 0.288 (0.760)			dpm/sa			
The lab does not hold TNI accreditation for this parameter.									
Gross Beta	OK	-0.105U ± 0.225 (0.585)	pCi/sa -0.105U ± 0.225 (0.585)			dpm/sa			
The lab does not hold TNI accreditation for this parameter.									

18 3072086076-292-11				
Type PS	Matrix Wipe	Collected 6/15/2012 00:01	% Moisture	
Client RTI	WO 3072086	Work ID Fort Monmouth 1207074	Location	

### Prep Information

Procedure 9000 I	Batch RADC/12472	Prep Date 7/18/2012 21:37	Dilution
Method EPA 900.0m	HBN 91042	Hold Date 12/12/2012 23:59	Analyst MBT
Schedule 2785467	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/12472 HBN 91042  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

**18 3072086076-292-11**

## Analytical Information

<b>Procedure</b> 9000 I	<b>Instru</b> NONE	<b>Run Date</b> 7/18/2012 21:37	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>Col ID</b>	<b>Hold Date</b> 12/12/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785467	<b>File</b>		<b>CC</b> OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.892J ± 0.599 (0.944)	pCi/sa 0.892J ± 0.599 (0.944)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.068U ± 0.293 (0.710)	pCi/sa -0.068U ± 0.293 (0.710)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

**19 3072086077-292-19**

<b>Type</b> PS	<b>Matrix</b> Wipe	<b>Collected</b> 6/15/2012 00:01	<b>% Moisture</b>
<b>Client</b> RTI	<b>WO</b> 3072086	<b>Work ID</b> Fort Monmouth 1207074	<b>Location</b>

## Prep Information

<b>Procedure</b> 9000 I	<b>Batch</b> RADC/12472	<b>Prep Date</b> 7/18/2012 21:37	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>HBN</b> 91042	<b>Hold Date</b> 12/12/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785469	<b>Instru</b> NONE		<b>CC</b> OK F

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

## Analytical Information

<b>Procedure</b> 9000 I	<b>Instru</b> NONE	<b>Run Date</b> 7/18/2012 21:37	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>Col ID</b>	<b>Hold Date</b> 12/12/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785469	<b>File</b>		<b>CC</b> OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.436J ± 0.477 (0.936)	pCi/sa 0.436J ± 0.477 (0.936)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.165U ± 0.281 (0.612)	pCi/sa 0.165U ± 0.281 (0.612)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

**20 3072086078-292-21**

<b>Type</b> PS	<b>Matrix</b> Wipe	<b>Collected</b> 6/15/2012 00:01	<b>% Moisture</b>
<b>Client</b> RTI	<b>WO</b> 3072086	<b>Work ID</b> Fort Monmouth 1207074	<b>Location</b>

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

# Quality Control Review



Batch RADC/12472 HBN 91042  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

**20 3072086078-292-21**

## Prep Information

Procedure 9000 I Batch RADC/12472 Prep Date 7/18/2012 21:38 Dilution  
 Method EPA 900.0m HBN 91042 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785471 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 21:38 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785471 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.154U ± 0.409 (0.986)	pCi/sa 0.154U ± 0.409 (0.986)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.663 ± 0.375 (0.653)	pCi/sa 0.663 ± 0.375 (0.653)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

**21 3072086079-292-22**

Type PS Matrix Wipe Collected 6/15/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

## Prep Information

Procedure 9000 I Batch RADC/12472 Prep Date 7/15/2012 12:27 Dilution  
 Method EPA 900.0m HBN 91042 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785473 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 7/15/2012 12:27 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785473 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 ± 0.395 (0.886)	pCi/sa 0.221U ± 0.395 (0.886)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.308J ± 0.292 (0.591)	pCi/sa 0.308J ± 0.292 (0.591)			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

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<b>Batch</b>	RADC/12472	<b>HBN</b>	91042
<b>Rule</b>	9000 I	<b>Status</b>	RE
<b>Create Date</b>	6/28/2012	<b>Analyst</b>	MBT



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21      3072086079-292-22

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



# Gross Alpha and Gross Beta Preparation Sheet



Batch: 12472

Transfer Analyst: NBT

Prep Date/Time: 7-9-12 12:00

Matrix: Filter

Logbook ID: 3-R021-5

Spike Analyst: N/A

QC ID: a: N/A

LCS QC Vol (mL): a: N/A

MS/MSD QC Vol (mL): a: N/A

Pipette ID: N/A

Aliquot Balance ID: N/A

Aliquot Wgt. Date: \_\_\_\_\_

Tare Balance ID: \_\_\_\_\_

Tare Wgt. Date: \_\_\_\_\_

Gross Balance ID: \_\_\_\_\_

Gross Wgt. Date: \_\_\_\_\_

Bottle ID	Sample No.	Analyst Initials	Analyst Initials	Analyst Initials	Analyst Initials	Analyst Initials	Sample Comments
		Tare Mass (g)	5mL Test Mass (g)	Sample Volume (mL)	Gross Mass (g)		
NA	458987	N/A	N/A	1.0	N/A	N/A	N/A
1	307208W060						
2	061						
3	062						
4	063						
5	064						
6	065						
7	066						
8	067						
9	068						
10	069						
11	070						
12	071						
13	072						
14	073						
15	074						
16	075						
17	076						
18	077						
19	078						
20	079						
21	LCS 12472						
22	LCSP12472						
23							
24							

Conc HNO<sub>3</sub>: \_\_\_\_\_

NBT 7-11-12

8N HNO<sub>3</sub>: \_\_\_\_\_

Date Removed / / @ \_\_\_\_\_

Batch Comments: Ludox: \_\_\_\_\_

Date Placed in oven / / @ \_\_\_\_\_

Peer Review \_\_\_\_\_ Date: \_\_\_\_\_



Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

**Test Code:** Alpha Beta  
**Matrix:** IP  
**Batch ID:** 12472  
**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
458987	1.00000	S	9.0000	9.0000	0.00	36	7/18/2012 15:53	0.0400	0.4200	100	0.0670	0.3320	1000	dpm
3072086060	1.00000	S	9.0000	9.0000	0.00	16	7/15/2012 12:26	0.1250	0.7250	120	0.0870	0.3430	1000	dpm
3072086061	1.00000	S	9.0000	9.0000	0.00	17	7/15/2012 12:26	0.1333	0.7667	120	0.0840	0.3710	1000	dpm
3072086062	1.00000	S	9.0000	9.0000	0.00	18	7/15/2012 12:26	0.1917	0.7250	120	0.0730	0.3840	1000	dpm
3072086063	1.00000	S	9.0000	9.0000	0.00	19	7/15/2012 12:26	0.1417	0.6083	120	0.0900	0.4330	1000	dpm
3072086064	1.00000	S	9.0000	9.0000	0.00	20	7/15/2012 12:26	0.1750	0.4417	120	0.0700	0.3890	1000	dpm
3072086065	1.00000	S	9.0000	9.0000	0.00	21	7/15/2012 12:26	0.2000	0.5917	120	0.0580	0.3810	1000	dpm
3072086066	1.00000	S	9.0000	9.0000	0.00	20	7/18/2012 21:35	0.0800	0.4800	100	0.0700	0.3890	1000	dpm
3072086067	1.00000	S	9.0000	9.0000	0.00	23	7/15/2012 12:26	0.1333	0.5500	120	0.0720	0.4150	1000	dpm
3072086068	1.00000	S	9.0000	9.0000	0.00	36	7/18/2012 6:43	0.0400	0.3400	100	0.0670	0.3320	1000	dpm
3072086069	1.00000	S	9.0000	9.0000	0.00	38	7/18/2012 6:42	0.2000	0.3846	130	0.1040	0.3900	1000	dpm
3072086070	1.00000	S	9.0000	9.0000	0.00	27	7/15/2012 12:27	0.1333	0.3333	120	0.0690	0.3930	1000	dpm
3072086071	1.00000	S	9.0000	9.0000	0.00	21	7/18/2012 21:35	0.2500	0.4200	100	0.0580	0.3810	1000	dpm
3072086072	1.00000	S	9.0000	9.0000	0.00	29	7/15/2012 12:27	0.0917	0.3833	120	0.0630	0.2740	1000	dpm
3072086073	1.00000	S	9.0000	9.0000	0.00	23	7/18/2012 21:36	0.3900	0.6600	100	0.0720	0.4150	1000	dpm
3072086074	1.00000	S	9.0000	9.0000	0.00	31	7/15/2012 12:27	0.1250	0.5667	120	0.0900	0.3660	1000	dpm
3072086075	1.00000	S	9.0000	9.0000	0.00	32	7/15/2012 12:27	0.0583	0.2917	120	0.0530	0.3380	1000	dpm
3072086076	1.00000	S	9.0000	9.0000	0.00	27	7/18/2012 21:37	0.2100	0.4100	100	0.0690	0.3930	1000	dpm
3072086077	1.00000	S	9.0000	9.0000	0.00	29	7/18/2012 21:37	0.1300	0.3700	100	0.0630	0.2740	1000	dpm
3072086078	1.00000	S	9.0000	9.0000	0.00	36	7/18/2012 21:38	0.0900	0.6400	100	0.0670	0.3320	1000	dpm
3072086079	1.00000	S	9.0000	9.0000	0.00	36	7/15/2012 12:27	0.1000	0.4833	120	0.0670	0.3320	1000	dpm
LCS12472	1.00000	S	9.0000	9.0000	0.00	28	7/19/2012 17:33	0.5667	4.1667	90	0.1500	0.3480	1000	dpm
LCSD12472	1.00000	S	9.0000	9.0000	0.00	38	7/20/2012 13:25	0.6556	5.1222	90	0.1040	0.3900	1000	dpm

*Maria*

Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12472  
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
458987	-0.181	0.283	0.285	0.986	0.300	dpm/S	-0.027	0.00	0.000000	-0.027	14.95%	1
3072086060	0.247	0.429	0.431	0.962	0.306	dpm/S	0.038	0.00	0.000000	0.038	15.37%	1
3072086061	0.319	0.438	0.442	0.941	0.299	dpm/S	0.049	0.00	0.000000	0.049	15.47%	1
3072086062	0.777	0.524	0.543	0.899	0.282	dpm/S	0.119	0.00	0.000000	0.119	15.27%	1
3072086063	0.336	0.454	0.458	0.974	0.311	dpm/S	0.052	0.00	0.000000	0.052	15.39%	1
3072086064	0.673	0.491	0.505	0.864	0.270	dpm/S	0.105	0.00	0.000000	0.105	15.61%	1
3072086065	0.939	0.538	0.564	0.825	0.254	dpm/S	0.142	0.00	0.000000	0.142	15.13%	1
3072086066	0.064	0.370	0.371	0.962	0.293	dpm/S	0.010	0.00	0.000000	0.010	15.61%	1
3072086067	0.392	0.431	0.437	0.873	0.274	dpm/S	0.061	0.00	0.000000	0.061	15.64%	1
3072086068	-0.181	0.283	0.285	0.986	0.300	dpm/S	-0.027	0.00	0.000000	-0.027	14.95%	1
3072086069	0.629	0.521	0.533	0.999	0.325	dpm/S	0.096	0.00	0.000000	0.096	15.25%	1
3072086070	0.407	0.426	0.432	0.848	0.265	dpm/S	0.064	0.00	0.000000	0.064	15.80%	1
3072086071	1.269	0.655	0.693	0.919	0.275	dpm/S	0.192	0.00	0.000000	0.192	15.13%	1
3072086072	0.187	0.367	0.368	0.841	-0.260	dpm/S	0.029	0.00	0.000000	0.029	15.36%	1
3072086073	2.033	0.790	0.870	0.971	0.297	dpm/S	0.318	0.00	0.000000	0.318	15.64%	1
3072086074	0.228	0.429	0.431	0.977	0.311	dpm/S	0.035	0.00	0.000000	0.035	15.35%	1
3072086075	0.034	0.288	0.288	0.760	0.232	dpm/S	0.005	0.00	0.000000	0.005	15.82%	1
3072086076	0.892	0.578	0.599	0.944	0.288	dpm/S	0.141	0.00	0.000000	0.141	15.80%	1
3072086077	0.436	0.471	0.477	0.936	0.283	dpm/S	0.067	0.00	0.000000	0.067	15.36%	1
3072086078	0.154	0.408	0.409	0.986	0.300	dpm/S	0.023	0.00	0.000000	0.023	14.95%	1
3072086079	0.221	0.393	0.395	0.886	0.276	dpm/S	0.033	0.00	0.000000	0.033	14.95%	1
LCS12472	2.682	1.013	1.121	1.416	0.453	dpm/S	0.417	0.00	0.000000	0.417	15.54%	1
LCSD12472	3.616	1.104	1.280	1.234	0.384	dpm/S	0.552	0.00	0.000000	0.552	15.25%	1

Matt 11/12

Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12472  
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
458987	0.216	0.292	0.294	0.653	0.221	dpm/S	0.088	0.00	-0.009736	0.098	45.20%	1
3072086060	0.839	0.357	0.387	0.617	0.213	dpm/S	0.382	0.00	0.013466	0.369	43.92%	1
3072086061	0.849	0.361	0.391	0.629	0.217	dpm/S	0.396	0.00	0.016262	0.379	44.69%	1
3072086062	0.671	0.354	0.374	0.643	0.222	dpm/S	0.341	0.00	0.042744	0.298	44.42%	1
3072086063	0.340	0.318	0.323	0.659	0.229	dpm/S	0.175	0.00	0.019765	0.156	45.78%	1
3072086064	0.031	0.282	0.282	0.648	0.224	dpm/S	0.053	0.00	0.038827	0.014	44.32%	1
3072086065	0.336	0.314	0.319	0.625	0.216	dpm/S	0.211	0.00	0.057476	0.153	45.53%	1
3072086066	0.197	0.319	0.321	0.716	0.244	dpm/S	0.091	0.00	0.003698	0.087	44.32%	1
3072086067	0.252	0.311	0.314	0.664	0.230	dpm/S	0.135	0.00	0.022619	0.112	44.61%	1
3072086068	0.039	0.265	0.265	0.653	0.221	dpm/S	0.008	0.00	-0.009736	0.018	45.20%	1
3072086069	-0.087	0.256	0.257	0.622	0.217	dpm/S	-0.005	0.00	0.033305	-0.039	44.28%	1
3072086070	-0.181	0.246	0.248	0.643	0.223	dpm/S	-0.060	0.00	0.021761	-0.081	44.88%	1
3072086071	-0.085	0.291	0.292	0.690	0.235	dpm/S	0.039	0.00	0.077714	-0.039	45.53%	1
3072086072	0.225	0.261	0.264	0.554	0.189	dpm/S	0.109	0.00	0.009910	0.099	44.19%	1
3072086073	0.286	0.368	0.372	0.732	0.250	dpm/S	0.245	0.00	0.111722	0.128	44.61%	1
3072086074	0.420	0.312	0.320	0.623	0.215	dpm/S	0.201	0.00	0.012321	0.188	44.88%	1
3072086075	-0.105	0.224	0.225	0.585	0.201	dpm/S	-0.046	0.00	0.001777	-0.048	46.02%	1
3072086076	-0.068	0.293	0.293	0.710	0.242	dpm/S	0.017	0.00	0.047695	-0.031	44.88%	1
3072086077	0.165	0.280	0.281	0.612	0.205	dpm/S	0.096	0.00	0.023162	0.073	44.19%	1
3072086078	0.663	0.356	0.375	0.653	0.221	dpm/S	0.308	0.00	0.008294	0.300	45.20%	1
3072086079	0.308	0.286	0.292	0.591	0.203	dpm/S	0.151	0.00	0.011899	0.139	45.20%	1
LCS12472	8.406	0.968	1.788	0.730	0.245	dpm/S	3.819	0.00	0.143013	3.676	43.73%	1
LCSD12472	10.255	1.060	2.118	0.759	0.256	dpm/S	4.732	0.00	0.191351	4.541	44.28%	1

Martell

# Quality Control Sample Performance Assessment

RCDU Upload

Analyst: MBT  
Date: 7/21/2012  
Worklist: 12472  
Matrix: Filler

Method: EPA 900.0m  
SOP: PGHR-001  
MB Sample ID: 458987



Method Blank Assessment			
Analyte	Activity	MDC	Assessment
Gross Alpha	-0.1810	0.2850	0.30000
Gross Beta	0.2160	0.6530	0.22100

Laboratory Control Sample Assessment					
Analyte:	LCS		LCS D		LCS D
	7/19/12 17:33	7/20/12 13:25	7/19/12 17:33	7/20/12 13:25	
Gross Alpha	Gross Beta				
Count Date:	12-018-F3	12-018-F4	12-014-F3	12-014-F4	
Spike I.D.:	2.353	2.353	9.797	9.797	
Spike Concentration (DPM/Sample):	1.000	1.000	1.000	1.000	
Volume Used (mL):	1.000	1.000	1.000	1.000	
Aliquot Volume (L, g, F):	2.353	2.353	9.797	9.797	
Target Conc. (DPM/Sample, g, F):	0.138	0.138	0.192	0.192	
1.96 Sigma Uncertainty (Calculated):	2.682	3.616	8.406	10.255	
Result (DPM/Sample, g, F):	1.121	1.280	1.788	2.116	
1.96 Sigma Unc.:	113.99%	153.68%	85.79%	104.67%	
% Recovery:	Pass	High**	Pass	Pass	
Assessment:	119.00%	119.00%	130.00%	130.00%	
Upper % Recovery Limits:	62.00%	62.00%	79.00%	79.00%	
Lower % Recovery Limits:					

Duplicate Sample Assessment					
LCS/LCSD Y or N?	Y				
Analyte:	Gross Alpha				
Sample I.D.:	LCS12472	LCS12472	LCS12472	LCS12472	
Duplicate Sample I.D.:	LCS12472	LCS12472	LCS12472	LCS12472	
Sample Result (DPM/Sample, g, F):	1.1210	1.1210	1.7890	1.7890	
1.96 Sigma Unc.:	3.6160	3.6160	10.2550	10.2550	
Duplicate Sample (DPM/Sample, g, F):	1.2800	1.2800	1.982%	1.982%	
Relative Percent Difference:	29.66%	29.66%	19.82%	19.82%	
Assessment:	Pass	Pass	Fail**	Fail**	
% RPD Limit:	35.00%	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:

*mbt/12/12*

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

Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12472  
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			Beta to Alpha Cross-Talk			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	a	b	c	d	e	a	b	Alpha Bkg	Beta Bkg	Alpha Bkg	Beta Bkg
1					1.4258E-01					3.239E-01	4.5624E-01												0.0640	0.8040	0.0640	0.8040
2					1.5524E-01					2.7992E-01	4.5633E-01												0.0620	0.7010	0.0620	0.7010
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												0.0660	0.6310	0.0660	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												0.0950	0.3780	0.0950	0.3780
12					1.5319E-01					3.7376E-01	4.5820E-01												0.0500	0.3330	0.0500	0.3330
13					1.4959E-01					4.0742E-01	3.9032E-01												0.0650	0.3900	0.0650	0.3900
14					1.5721E-01					3.5889E-01	4.4635E-01												0.0820	0.4850	0.0820	0.4850
15					1.5605E-01					3.4723E-01	4.4658E-01												0.0610	0.3910	0.0610	0.3910
16					1.5365E-01					3.5388E-01	4.3920E-01												0.1370	0.3860	0.1370	0.3860
17					1.5472E-01					3.2964E-01	4.4691E-01												0.0630	0.3820	0.0630	0.3820
18					1.5273E-01					3.6020E-01	4.4422E-01												0.0770	0.4570	0.0770	0.4570
19					1.5993E-01					3.8259E-01	4.5782E-01												0.0970	0.3820	0.0970	0.3820
20					1.5610E-01					3.6978E-01	4.4321E-01												0.0780	0.3780	0.0780	0.3780
21					1.5130E-01					4.0476E-01	4.5533E-01												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
23					1.5639E-01					3.6878E-01	4.4612E-01												0.0750	0.4570	0.0750	0.4570
24					#N/A					#N/A	#N/A												0.1270	0.4110	0.1270	0.4110
25					1.5898E-01					3.5511E-01	4.5368E-01												0.1490	0.4370	0.1490	0.4370
26					1.5743E-01					3.3781E-01	4.5458E-01												0.0740	0.4370	0.0740	0.4370
27					1.5803E-01					3.3826E-01	4.4883E-01												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: 12472  
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 Data			Alpha Efficiency	11/20/2006	Alpha to Beta Cross-Talk	11/20/2006	Beta Efficiency	11/20/2006	Beta Eff: ax + b			Beta-to-Alpha Xtalk: ax + b			Alpha Bkg	Beta Bkg	Alpha Bkg	Beta Bkg	BKG 1 Date	6/3/2012	BKG 2 Date	7/13/2012
	a	b	c							d	e	a	b	c	a								
28				1.5536E-01								4.3725E-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								4.4737E-01			0.0720	0.4090	0.2330	0.4240					
31				1.5353E-01								4.4881E-01			0.0890	0.3670	0.0900	0.3960					
32				1.5823E-01								4.6019E-01			0.0540	0.4120	0.0530	0.3380					
33				1.6147E-01								4.5824E-01			0.0900	0.3870	0.1200	0.4100					
34				1.6117E-01								4.4688E-01			0.0760	0.4040	0.1250	0.4460					
35				#N/A								#N/A			0.1970	0.3930	0.2070	0.3660					
36				1.4953E-01								4.5203E-01			0.0930	0.4070	0.0670	0.3320					
37				1.5981E-01								4.4695E-01			0.0420	0.3190	0.2180	0.4600					
38				1.5254E-01								4.4279E-01			0.1100	0.3990	0.1940	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								3.352E-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								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								4.4759E-01			0.2390	0.9840	0.2390	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	2.0960	0.1650	2.0960					
49				1.6993E-01								4.4190E-01			0.3330	1.3450	0.3330	1.3450					
50				1.6594E-01								4.3046E-01			0.2050	1.4600	0.2050	1.4600					
51				1.7880E-01								4.5625E-01			0.1500	1.3760	0.1500	1.3760					
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%

**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
458987	15	7/15/2012 12:26	GAB12472	0.175	0.466666667	120
3072086060	16	7/15/2012 12:26	GAB12472	0.125	0.725	120
3072086061	17	7/15/2012 12:26	GAB12472	0.133333333	0.766666667	120
3072086062	18	7/15/2012 12:26	GAB12472	0.191666667	0.725	120
3072086063	19	7/15/2012 12:26	GAB12472	0.141666667	0.608333333	120
3072086064	20	7/15/2012 12:26	GAB12472	0.175	0.441666667	120
3072086065	21	7/15/2012 12:26	GAB12472	0.2	0.591666667	120
3072086066	22	7/15/2012 12:26	GAB12472	0.166666667	0.575	120
3072086067	23	7/15/2012 12:26	GAB12472	0.133333333	0.55	120
3072086068	25	7/15/2012 12:26	GAB12472	0.208333333	0.425	120
3072086069	26	7/15/2012 12:26	GAB12472	0.133333333	0.383333333	120
3072086070	27	7/15/2012 12:27	GAB12472	0.133333333	0.333333333	120
3072086071	28	7/15/2012 12:27	GAB12472	0.1	0.466666667	120
3072086072	29	7/15/2012 12:27	GAB12472	0.091666667	0.383333333	120
3072086073	30	7/15/2012 12:27	GAB12472	0.258333333	0.641666667	120
3072086074	31	7/15/2012 12:27	GAB12472	0.125	0.566666667	120
3072086075	32	7/15/2012 12:27	GAB12472	0.058333333	0.291666667	120
3072086076	33	7/15/2012 12:27	GAB12472	0.075	0.475	120
3072086077	34	7/15/2012 12:27	GAB12472	0.158333333	0.483333333	120
3072086078	35	7/15/2012 12:27	GAB12472	0.291666667	7.733333333	120
3072086079	36	7/15/2012 12:27	GAB12472	0.1	0.483333333	120
3072086069	38	7/18/2012 6:42	GAB12472	0.2	0.384615385	130
3072086068	36	7/18/2012 6:43	GAB12472	0.04	0.34	100
458987	36	7/18/2012 15:53	GAB12472	0.04	0.42	100
3072086066	20	7/18/2012 21:35	GAB12472	0.08	0.48	100
3072086071	21	7/18/2012 21:35	GAB12472	0.25	0.42	100
3072086073	23	7/18/2012 21:36	GAB12472	0.39	0.66	100
3072086076	27	7/18/2012 21:37	GAB12472	0.21	0.41	100
3072086077	29	7/18/2012 21:37	GAB12472	0.13	0.37	100
3072086078	36	7/18/2012 21:38	GAB12472	0.09	0.64	100
LCS12472	28	7/19/2012 17:33	GAB12472	0.566666667	4.166666667	90
LCSD12472	38	7/20/2012 13:25	GAB12472	0.655555556	5.122222222	90



SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
3072086074	7/15/2012 12:27:16 PM	31	GAB12472	0.125	0.5667	120.0
<del>3072086073</del>	<del>7/15/2012 12:27:12 PM</del>	<del>30</del>	<del>GAB12472</del>	<del>0.258</del>	<del>0.6417</del>	<del>120.0</del>
3072086072	7/15/2012 12:27:07 PM	29	GAB12472	0.092	0.3833	120.0
<del>3072086071</del>	<del>7/15/2012 12:27:04 PM</del>	<del>28</del>	<del>GAB12472</del>	<del>0.100</del>	<del>0.4667</del>	<del>120.0</del>
3072086070	7/15/2012 12:27:00 PM	27	GAB12472	0.133	0.3333	120.0
3072086069	7/15/2012 12:26:54 PM	26	GAB12472	0.133	0.3833	120.0
3072086068	7/15/2012 12:26:47 PM	25	GAB12472	0.208	0.4250	120.0
3072086067	7/15/2012 12:26:40 PM	23	GAB12472	0.133	0.5500	120.0
<del>3072086066</del>	<del>7/15/2012 12:26:35 PM</del>	<del>22</del>	<del>GAB12472</del>	<del>0.167</del>	<del>0.5750</del>	<del>120.0</del>
3072086065	7/15/2012 12:26:31 PM	21	GAB12472	0.200	0.5917	120.0
3072086064	7/15/2012 12:26:28 PM	20	GAB12472	0.175	0.4417	120.0
3072086063	7/15/2012 12:26:25 PM	19	GAB12472	0.142	0.6083	120.0
3072086062	7/15/2012 12:26:19 PM	18	GAB12472	0.192	0.7250	120.0
3072086061	7/15/2012 12:26:16 PM	17	GAB12472	0.133	0.7667	120.0
3072086060	7/15/2012 12:26:12 PM	16	GAB12472	0.125	0.7250	120.0
<del>458987</del>	<del>7/15/2012 12:26:08 PM</del>	<del>15</del>	<del>GAB12472</del>	<del>0.175</del>	<del>0.4667</del>	<del>120.0</del>

*AG 7/21/12*

*AG 7/21/12*

*Red  
for WDC*

*AG 7/21/12*

*AG 7/21/12*

# Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LCSD12472	7/20/2012 1:25:29 PM	38	GAB12472	0.656	5.1222	90.0
LCS12472	7/19/2012 5:33:31 PM	28	GAB12472	0.567	4.1667	90.0
3072086078	7/18/2012 9:38:46 PM	36	GAB12472	0.090	0.6400	100.0
3072086077	7/18/2012 9:37:22 PM	29	GAB12472	0.130	0.3700	100.0
3072086076	7/18/2012 9:37:05 PM	27	GAB12472	0.210	0.4100	100.0
3072086073	7/18/2012 9:36:07 PM	23	GAB12472	0.390	0.6600	100.0
3072086071	7/18/2012 9:35:15 PM	21	GAB12472	0.250	0.4200	100.0
3072086066	7/18/2012 9:35:10 PM	20	GAB12472	0.080	0.4800	100.0
458987	7/18/2012 3:53:28 PM	36	GAB12472	0.040	0.4200	100.0
3072086068	7/18/2012 6:43:05 AM	36	GAB12472	0.040	0.3400	100.0
3072086069	7/18/2012 6:42:03 AM	38	GAB12472	0.200	0.3846	130.0
3072086079	7/15/2012 12:27:36 PM	36	GAB12472	0.100	0.4833	120.0
<del>3072086078</del>	<del>7/15/2012 12:27:32 PM</del>	<del>35</del>	<del>GAB12472</del>	<del>0.292</del>	<del>7.7333</del>	<del>120.0</del>
<del>3072086077</del>	<del>7/15/2012 12:27:28 PM</del>	<del>34</del>	<del>GAB12472</del>	<del>0.158</del>	<del>0.4833</del>	<del>120.0</del>
<del>3072086076</del>	<del>7/15/2012 12:27:25 PM</del>	<del>33</del>	<del>GAB12472</del>	<del>0.075</del>	<del>0.4750</del>	<del>120.0</del>
3072086075	7/15/2012 12:27:20 PM	32	GAB12472	0.058	0.2917	120.0

*Ret'd for NDC*

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
	1	3072086046	GAB10471	120	7/12/12 09:30	BSH	WA	NA
	2	047						
	3	048						
	4	049						
	5	050						
	6	051						
	7	052						
	8	053						
	9	054						
	10	055						
	11	056			7/15/12 12:37			
	12	057						
	13	058						
	14	059						
	15	458987	GAB10472					
	16	3072086060						
	17	061						
	18	062						
	19	063						
	20	064						
	21	065						
	22	066						
	23	067						
	24	068						

- 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
	26	3072086069	GAB12472	120	7/15/12	BSH	NA	NA
	27	070						
	28	071						
	29	072						
	30	073						
	31	074						
	32	075						
	33	076						
	34	077						
	35	078						
	36	079						
	37	458998	GAB12473					
	38	3072086080						
	11	3072416001	GAB12598	1000	7/15/12	BSH	NA	NA
	12	913001						
	13	14001						
	14	15001						
	15	16001						
	16	17001						
	17	18001						
	18	19001						
	19	20001						
	20	30001						
	21	31001						

- 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	25	3072086036	GAB 12470	810	7/18/12 1402	AM	9	
	26	020		120	1410			
	27	021		100	1402			
	29	022		100	1328			
	30	010	GAB 12471	270	1402			
	31	024	GAB 12470	120	1505			
	36	031		100	1402			
	37	038		230	1328			
	38	033		130	1328			
	30	80040			7/18/12			
GAS	29	3072060019	GAB 12459	1000-7112	1523	AM	2	
	14	3072086002	GAB 12464	110	7/18/12 1611			
	16	041	12471	120	1627			
	17	042		110	1607			
	18	044			1628			
	19	045		120	1627			
	20	051		100	1602			
	21	053			1627			
	23	056			1602			
	26	LS012446 #4	GAB 12466	1000	1612			
27	3072086057	12471	100	1554				
29	058			1553				
26	458987	12472	100					
38	LS12446 #3	GAB 12466	90					

- Legend:
- 1. Detector daily check failure
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  - 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	3022800001	GAB12451	90	7/14/12 2:51H	J	N/A	N/A
	20	3022800001						
	21	3022800001						
	22	3022800001						
	23	W0 12043	GAB12443					
	25	W0 J						
	26	405015	GAB12456					
	27	W0 12006						
	28	W0 J						
	29	3022800001						
	30	3022800001						
	31	405015	GAB12435					
	33	W0 12033						
	34	W0 J						
	36	3022800001						
	37	W0 12004	GAB12480					
	38	W0 J						
GAS	11	W0 120467	GAB12467	90	7/15/12 2:13P	J	N/A	N/A
	12	W0 J						
	13	3022800001	GAB12472	100				
	14	071						
	15	073						
	16	076						
	17	077						

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- Legend:
- 1. Detector daily check failure
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  - 4. Sample was re-prepped
  - 5. Other noted comments

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

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
	20	3561330001	GRA1265C	700	7/19/12 16:37	BSH	NA	NA
	21	3561358001						
	22	↓ 002						
	23	3561360001						
	25	3561286001						
	26	3562011001						
	29	↓ 002						
	30	↓ 003						
	32	↓ 004			15:43			
	33	3073177601			16:39			
	34	3073178001			↓			
	35	3072501001			15:43			
GRB	11	LSN2469 (1)	GAB12469	90	7/19/12 12:36	GR	NA	NA
	16	3072085087	GAB12468	120			2	
	27	↓ 088		100			↓	
	28	LS12472 (2)	GAB12472	90			NA	
	33	3072085089	GAB12468	140			2	
	36	↓ 041		100			↓	
	38	↓ 048		130			↓	
	34	458982	GAB12468	140		GR	2	NA
	51	3072086047	GAB12473	300	7/19/12 17:30	GR	NA	NA
	52	↓ 98						
	53	↓ 99						

- Legend:
- 1. Detector daily check failure
  - 2. MDC > Contract RL
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  - 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
GAA	13	3561332-001	GAB12643	650	7/17/12 2145	RMLK	N/A	
	14	↓ CO2						
	16	3561248-001						
	17	↓ CO2						
	18	↓ CO3						
	19	3561707-001						
	20	↓ CO2						
	21	↓ CO4						
	22	↓ CO5						
	23	3073080-001						
GAB	26	3072944-001	GAB12597	650	7/17/12 2145	RMLK	N/A	
	27	3073177-001	GAB12646					
	28	3073178-001						
	29	3073220-002						
	30	↓ CO3						
GAB	25	3072080-0054	GAB12471	210	7-18-12 0640	MGT	N/A	
	31	↓ 55		120				
	33	3072080-0049		140				
	34	↓ 50		140				
	37	↓ 51		220				
	38	3072080-0009	GAB12470	<del>220</del> 130				
	30	68		100	7-18-12 9456	MGT	N	
	11	LOS#3 12402	GAB12402	90	7-18-12	MGT		
	15	LOS#1 12403	GAB12403	90	↓			

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







# **Gross Alpha and Beta Sample Analysis Data**

# Quality Control Review



Batch RADC/12473 HBN 91043  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 1 458988-BLANK for HBN 91043 [RADC/1247

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

### Prep Information

Procedure 9000 I Batch RADC/12473 Prep Date 7/18/2012 15:29 Dilution  
 Method EPA 900.0m HBN 91043 Hold Date 12/25/2012 23:59 Analyst MBT  
 Schedule 2795673 Instru NONE CC OK F

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

### Analytical Information

Procedure 9000 I Instru NONE Run Date 7/18/2012 15:29 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/25/2012 23:59 Analyst MBT  
 Schedule 2795673 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL
Rad Chemistry	OK				
Gross Alpha	OK	-0.043U ± 0.223 (0.531)	pCi/sa -0.043U ± 0.223 (0.531)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					
Gross Beta	OK	0.069U ± 0.307 (0.652)	pCi/sa 0.069U ± 0.307 (0.652)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					

## 2 3072086080-292-23

Type PS Matrix Wipe Collected 6/15/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12473 Prep Date 7/18/2012 15:29 Dilution  
 Method EPA 900.0m HBN 91043 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785475 Instru NONE CC OK F

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

### Analytical Information

Procedure 9000 I Instru NONE Run Date 7/18/2012 15:29 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785475 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK						dpm/sa
Gross Alpha	OK	0.264J ± 0.320 (0.645)	pCi/sa 0.264J ± 0.320 (0.645)				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/12473 HBN 91043  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 2 3072086080-292-23

Analyte	CC	Posted	Result	MDL	RDL	Reg. Limits	
		Result				Low	High
Gross Beta	OK	-0.828U ± 0.397 (0.845)	pCi/sa -0.828U ± 0.397 (0.845)		dpm/sa		

The lab does not hold TNI accreditation for this parameter.

## 3 3072086081-292-26

Type PS Matrix Wipe Collected 6/15/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12473 Prep Date 7/18/2012 15:30 Dilution  
 Method EPA 900.0m HBN 91043 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785477 Instru NONE CC OK F

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

### Analytical Information

Procedure 9000 I Instru NONE Run Date 7/18/2012 15:30 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785477 File CC OK F

Analyte	CC	Posted	Result	MDL	RDL	Reg. Limits	
		Result				Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.665U ± 0.395 (0.965)	pCi/sa -0.665U ± 0.395 (0.965)		dpm/sa		

The lab does not hold TNI accreditation for this parameter.

Gross Beta	OK	0.479J ± 0.366 (0.725)	pCi/sa 0.479J ± 0.366 (0.725)		dpm/sa		
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The lab does not hold TNI accreditation for this parameter.

## 4 3072086082-292-26D

Type PS Matrix Wipe Collected 6/15/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12473 Prep Date 7/18/2012 15:30 Dilution  
 Method EPA 900.0m HBN 91043 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785479 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/12473 HBN 91043  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 4 3072086082-292-26D

### Analytical Information

<b>Procedure</b> 9000 I	<b>Instru</b> NONE	<b>Run Date</b> 7/18/2012 15:30	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>Col ID</b>	<b>Hold Date</b> 12/12/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785479	<b>File</b>		<b>CC</b> OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.050U ± 0.347 (0.787)	pCi/sa -0.050U ± 0.347 (0.787)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.299J ± 0.359 (0.734)	pCi/sa 0.299J ± 0.359 (0.734)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

## 5 3072086083-283(Squires Hall)-7

<b>Type</b> PS	<b>Matrix</b> Wipe	<b>Collected</b> 6/15/2012 00:01	<b>% Moisture</b>
<b>Client</b> RTI	<b>WO</b> 3072086	<b>Work ID</b> Fort Monmouth 1207074	<b>Location</b>

### Prep Information

<b>Procedure</b> 9000 I	<b>Batch</b> RADC/12473	<b>Prep Date</b> 7/18/2012 17:17	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>HBN</b> 91043	<b>Hold Date</b> 12/12/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785481	<b>Instru</b> NONE		<b>CC</b> OK F

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

### Analytical Information

<b>Procedure</b> 9000 I	<b>Instru</b> NONE	<b>Run Date</b> 7/18/2012 17:17	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>Col ID</b>	<b>Hold Date</b> 12/12/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785481	<b>File</b>		<b>CC</b> OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.112U ± 0.266 (0.632)	pCi/sa -0.112U ± 0.266 (0.632)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.191U ± 0.341 (0.710)	pCi/sa 0.191U ± 0.341 (0.710)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

## 6 3072086084-283-11

<b>Type</b> PS	<b>Matrix</b> Wipe	<b>Collected</b> 6/15/2012 00:01	<b>% Moisture</b>
<b>Client</b> RTI	<b>WO</b> 3072086	<b>Work ID</b> Fort Monmouth 1207074	<b>Location</b>

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

# Quality Control Review



Batch RADC/12473 HBN 91043  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

6 3072086084-283-11

## Prep Information

Procedure 9000 I Batch RADC/12473 Prep Date 7/18/2012 17:17 Dilution  
 Method EPA 900.0m HBN 91043 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785483 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 17:17 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785483 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.518J ± 0.317 (0.539)	pCi/sa 0.518J ± 0.317 (0.539)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.011U ± 0.306 (0.650)	pCi/sa 0.011U ± 0.306 (0.650)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

7 3072086085-283-12

Type PS Matrix Wipe Collected 6/15/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

## Prep Information

Procedure 9000 I Batch RADC/12473 Prep Date 7/18/2012 17:17 Dilution  
 Method EPA 900.0m HBN 91043 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785485 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 17:17 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785485 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.354J ± 0.293 (0.545)	pCi/sa 0.354J ± 0.293 (0.545)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.139U ± 0.332 (0.693)	pCi/sa 0.139U ± 0.332 (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/12473 HBN 91043  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

**7 3072086085-283-12**

**8 3072086086-283-14**

Type PS Matrix Wipe Collected 6/15/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

## Prep Information

Procedure 9000 I Batch RADC/12473 Prep Date 7/19/2012 11:46 Dilution  
 Method EPA 900.0m HBN 91043 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785487 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 11:46 Dilution  
 Method EPA 900.0m CoI ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785487 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.008U ± 0.300 (0.674)	pCi/sa 0.008U ± 0.300 (0.674)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.059U ± 0.309 (0.670)	pCi/sa -0.059U ± 0.309 (0.670)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

**9 3072086087-283-16**

Type PS Matrix Wipe Collected 6/15/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

## Prep Information

Procedure 9000 I Batch RADC/12473 Prep Date 7/19/2012 11:46 Dilution  
 Method EPA 900.0m HBN 91043 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785489 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 11:46 Dilution  
 Method EPA 900.0m CoI ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785489 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/12473 HBN 91043  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 9 3072086087-283-16

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Alpha	OK	0.318J ± 0.295 (0.563)	pCi/sa 0.318J ± 0.295 (0.563)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.347J ± 0.309 (0.611)	pCi/sa 0.347J ± 0.309 (0.611)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

## 10 3072086088-283-18

Type PS Matrix Wipe Collected 6/15/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12473 Prep Date 7/19/2012 11:46 Dilution  
 Method EPA 900.0m HBN 91043 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785491 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 11:46 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785491 File CC OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.428J ± 0.347 (0.650)	pCi/sa 0.428J ± 0.347 (0.650)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.333U ± 0.385 (0.835)	pCi/sa -0.333U ± 0.385 (0.835)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

## 11 3072086089-283-20

Type PS Matrix Wipe Collected 6/15/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12473 Prep Date 7/19/2012 11:46 Dilution  
 Method EPA 900.0m HBN 91043 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785493 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/12473 HBN 91043  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

**11 3072086089-283-20**

## Analytical Information

<b>Procedure</b> 9000 I		<b>Instru</b> NONE		<b>Run Date</b> 7/19/2012 11:46		<b>Dilution</b>	
<b>Method</b> EPA 900.0m		<b>Col ID</b>		<b>Hold Date</b> 12/12/2012 23:59		<b>Analyst</b> MBT	
<b>Schedule</b> 2785493		<b>File</b>				<b>CC</b> OK F	
Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.408J ± 0.426 (0.844)	pCi/sa 0.408J ± 0.426 (0.844)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.023U ± 0.287 (0.615)	pCi/sa -0.023U ± 0.287 (0.615)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

**12 3072086090-283-20D**

<b>Type</b> PS	<b>Matrix</b> Wipe	<b>Collected</b> 6/15/2012 00:01	<b>% Moisture</b>
<b>Client</b> RTI	<b>WO</b> 3072086	<b>Work ID</b> Fort Monmouth 1207074	<b>Location</b>

**Prep Information**

<b>Procedure</b> 9000 I	<b>Batch</b> RADC/12473	<b>Prep Date</b> 7/19/2012 11:46	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>HBN</b> 91043	<b>Hold Date</b> 12/12/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785495	<b>Instru</b> NONE		<b>CC</b> OK F
Initial Volume	1 mL Default	1 mL	
Final Volume,	1 mL Default	1 mL	

## Analytical Information

<b>Procedure</b> 9000 I		<b>Instru</b> NONE		<b>Run Date</b> 7/19/2012 11:46		<b>Dilution</b>	
<b>Method</b> EPA 900.0m		<b>Col ID</b>		<b>Hold Date</b> 12/12/2012 23:59		<b>Analyst</b> MBT	
<b>Schedule</b> 2785495		<b>File</b>				<b>CC</b> OK F	
Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.016U ± 0.232 (0.531)	pCi/sa 0.016U ± 0.232 (0.531)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.506J ± 0.338 (0.652)	pCi/sa 0.506J ± 0.338 (0.652)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

**13 3072086091-283-26**

<b>Type</b> PS	<b>Matrix</b> Wipe	<b>Collected</b> 6/15/2012 00:01	<b>% Moisture</b>
<b>Client</b> RTI	<b>WO</b> 3072086	<b>Work ID</b> Fort Monmouth 1207074	<b>Location</b>

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

# Quality Control Review



Batch RADC/12473 HBN 91043  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

**13 3072086091-283-26**

## Prep Information

Procedure 9000 I Batch RADC/12473 Prep Date 7/19/2012 11:46 Dilution  
 Method EPA 900.0m HBN 91043 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785497 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 11:46 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785497 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.082U ± 0.276 (0.645)	pCi/sa -0.082U ± 0.276 (0.645)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.835U ± 0.396 (0.845)	pCi/sa -0.835U ± 0.396 (0.845)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

**14 3072086092-283-27**

Type PS Matrix Wipe Collected 6/15/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

## Prep Information

Procedure 9000 I Batch RADC/12473 Prep Date 7/19/2012 11:46 Dilution  
 Method EPA 900.0m HBN 91043 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785499 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 11:46 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785499 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.920U ± 0.387 (0.965)	pCi/sa -0.920U ± 0.387 (0.965)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.289J ± 0.350 (0.725)	pCi/sa 0.289J ± 0.350 (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/12473 HBN 91043  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

14 3072086092-283-27

15 3072086093-283-28

Type PS Matrix Wipe Collected 6/15/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

## Prep Information

Procedure 9000 I Batch RADC/12473 Prep Date 7/19/2012 11:46 Dilution  
 Method EPA 900.0m HBN 91043 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785501 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 11:46 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785501 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.271U ± 0.325 (0.787)	pCi/sa -0.271U ± 0.325 (0.787)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.112U ± 0.338 (0.734)	pCi/sa -0.112U ± 0.338 (0.734)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

16 3072086094-283-29

Type PS Matrix Wipe Collected 6/15/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

## Prep Information

Procedure 9000 I Batch RADC/12473 Prep Date 7/19/2012 11:46 Dilution  
 Method EPA 900.0m HBN 91043 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785503 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 11:46 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785503 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/12473 HBN 91043  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 16 3072086094-283-29

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Alpha	OK	-0.186U ± 0.257 (0.632)	pCi/sa -0.186U ± 0.257 (0.632)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.462J ± 0.359 (0.710)	pCi/sa 0.462J ± 0.359 (0.710)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

## 17 3072086095-283-30

Type PS Matrix Wipe Collected 6/15/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12473 Prep Date 7/19/2012 11:46 Dilution  
 Method EPA 900.0m HBN 91043 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785505 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 11:46 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785505 File CC OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.276J ± 0.278 (0.539)	pCi/sa 0.276J ± 0.278 (0.539)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.122U ± 0.299 (0.650)	pCi/sa -0.122U ± 0.299 (0.650)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

## 18 3072086096-283-SINK-A

Type PS Matrix Wipe Collected 6/15/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12473 Prep Date 7/19/2012 11:46 Dilution  
 Method EPA 900.0m HBN 91043 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785507 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/12473 HBN 91043  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 18 3072086096-283-SINK-A

### Analytical Information

Procedure 9000 I Instru NONE Run Date 7/19/2012 11:46 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785507 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 ± 0.260 (0.545)	pCi/sa 0.148U ± 0.260 (0.545)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.161U ± 0.332 (0.693)	pCi/sa 0.161U ± 0.332 (0.693)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 19 3072086097-283-SINK-B-2ND FLOOR

Type PS Matrix Wipe Collected 6/15/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12473 Prep Date 7/19/2012 17:29 Dilution  
 Method EPA 900.0m HBN 91043 Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785509 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 17:29 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/12/2012 23:59 Analyst MBT  
 Schedule 2785509 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.037U ± 0.275 (0.632)	pCi/sa -0.037U ± 0.275 (0.632)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.183U ± 0.341 (0.710)	pCi/sa 0.183U ± 0.341 (0.710)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 20 3072086098-2540-SU10-DRAIN

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/12473 HBN 91043  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 20 3072086098-2540-SU10-DRAIN

### Prep Information

Procedure 9000 I Batch RADC/12473 Prep Date 7/19/2012 17:29 Dilution  
 Method EPA 900.0m HBN 91043 Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785511 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 17:29 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785511 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.147U ± 0.257 (0.539)	pCi/sa 0.147U ± 0.257 (0.539)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.134U ± 0.311 (0.650)	pCi/sa 0.134U ± 0.311 (0.650)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

## 21 3072086099-292-CABINET-1

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12473 Prep Date 7/19/2012 17:29 Dilution  
 Method EPA 900.0m HBN 91043 Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785513 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 17:29 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785513 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	0.092U ± 0.251 (0.545)	pCi/sa 0.092U ± 0.251 (0.545)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.400J ± 0.348 (0.693)	pCi/sa 0.400J ± 0.348 (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

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<b>Batch</b>	RADC/12473	<b>HBN</b>	91043
<b>Rule</b>	9000 I	<b>Status</b>	RE
<b>Create Date</b>	6/28/2012	<b>Analyst</b>	MBT



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21 3072086099-292-CABINET-1

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





### Gross Alpha and Gross Beta Preparation Sheet

Batch: 12473  
 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	Analyst Initials	Sample Comments
		Tare Mass (g)	5mL Test Mass (g)	Sample Volume (mL)	Gross Mass (g)		
NA	458988	NA	NA	1.0	NA	NA	
1	3072081080						
2	081						
3	082						
4	083						
5	084						
6	085						
7	086						
8	087						
9	088						
10	089						
11	090						
12	091						
13	092						
14	093						
15	094						
16	095						
17	096						
18	097						
19	098						
20	099						
21	LOS 12473						
22	LOSD 12473						
23							
24							

Batch Comments: Ludox: 8N HNO<sub>3</sub>      Date Removed: / / @      Date Placed in oven: / / @      Peer Review: \_\_\_\_\_ Date: \_\_\_\_\_  
 Conc HNO<sub>3</sub>: MBT 7-11-12

Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

**Test Code:** Alpha Beta  
**Matrix:** IP  
**Batch ID:** 12473  
**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  
**AnalISOPI:** EPA 900.0  
**AnalISOPI2:** n/a  
**Count Date:** 7/18/2012 15:29  
**Alpha Gross CPM:** 0.0867  
**Beta Gross CPM:** 1.1967  
**Count Duration (min):** 300  
**Alpha Bkg CPM:** 0.0940  
**Beta Bkg CPM:** 1.1670  
**Bkg Count Duration (min):** 1000  
**Req Activity Units:** dpm  
**Sigma Zero Factor:** 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
458988	1.00000	S	9.0000	9.0000	0.00	47	7/18/2012 15:29	0.0867	1.1967	300	0.0940	1.1670	1000	dpm
3072086080	1.00000	S	9.0000	9.0000	0.00	48	7/18/2012 15:29	0.2133	1.7100	300	0.1650	2.0860	1000	dpm
3072086081	1.00000	S	9.0000	9.0000	0.00	49	7/18/2012 15:30	0.2200	1.5233	300	0.3330	1.3450	1000	dpm
3072086082	1.00000	S	9.0000	9.0000	0.00	50	7/18/2012 15:30	0.1967	1.5933	300	0.2050	1.4600	1000	dpm
3072086083	1.00000	S	9.0000	9.0000	0.00	51	7/18/2012 17:17	0.1300	1.4567	300	0.1500	1.3750	1000	dpm
3072086084	1.00000	S	9.0000	9.0000	0.00	52	7/18/2012 17:17	0.2000	1.1800	300	0.1070	1.1480	1000	dpm
3072086085	1.00000	S	9.0000	9.0000	0.00	53	7/18/2012 17:17	0.1700	1.4800	300	0.1070	1.3970	1000	dpm
3072086086	1.00000	S	9.0000	9.0000	0.00	43	7/19/2012 11:46	0.1633	1.1300	300	0.1620	1.1560	1000	dpm
3072086087	1.00000	S	9.0000	9.0000	0.00	44	7/19/2012 11:46	0.1667	1.1633	300	0.1110	0.9900	1000	dpm
3072086088	1.00000	S	9.0000	9.0000	0.00	45	7/19/2012 11:46	0.2133	1.6200	300	0.1410	1.7460	1000	dpm
3072086089	1.00000	S	9.0000	9.0000	0.00	46	7/19/2012 11:46	0.3000	0.9933	300	0.2330	0.9840	1000	dpm
3072086090	1.00000	S	9.0000	9.0000	0.00	47	7/19/2012 11:46	0.0967	1.4000	300	0.0940	1.1670	1000	dpm
3072086091	1.00000	S	9.0000	9.0000	0.00	48	7/19/2012 11:46	0.1500	1.6900	300	0.1650	2.0860	1000	dpm
3072086092	1.00000	S	9.0000	9.0000	0.00	49	7/19/2012 11:46	0.1767	1.4267	300	0.3330	1.3450	1000	dpm
3072086093	1.00000	S	9.0000	9.0000	0.00	50	7/19/2012 11:46	0.1600	1.3967	300	0.2050	1.4600	1000	dpm
3072086094	1.00000	S	9.0000	9.0000	0.00	51	7/19/2012 11:46	0.1167	1.5767	300	0.1500	1.3750	1000	dpm
3072086095	1.00000	S	9.0000	9.0000	0.00	52	7/19/2012 11:46	0.1567	1.1067	300	0.1070	1.1480	1000	dpm
3072086096	1.00000	S	9.0000	9.0000	0.00	53	7/19/2012 11:46	0.1333	1.4800	300	0.1070	1.3970	1000	dpm
3072086097	1.00000	S	9.0000	9.0000	0.00	51	7/19/2012 17:29	0.1433	1.4567	300	0.1500	1.3750	1000	dpm
3072086098	1.00000	S	9.0000	9.0000	0.00	52	7/19/2012 17:29	0.1333	1.2167	300	0.1070	1.1480	1000	dpm
3072086099	1.00000	S	9.0000	9.0000	0.00	53	7/19/2012 17:29	0.1233	1.5900	300	0.1070	1.3970	1000	dpm
LCS12473	1.00000	S	9.0000	9.0000	0.00	51	7/18/2012 15:27	0.7111	6.2778	90	0.1500	1.3750	1000	dpm
LCSD12473	1.00000	S	9.0000	9.0000	0.00	52	7/18/2012 15:27	0.7667	5.9889	90	0.1070	1.1480	1000	dpm

07/20/12

12473

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: 12473  
Prep Start Date/Time: 7/9/2012 12:00  
Prep Finish: 7/9/2012

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
458988	-0.043	0.223	0.223	0.531	0.194	dpm/S	-0.007	0.00	0.000000	-0.007	17.20%	1
3072086080	0.264	0.317	0.320	0.645	0.241	dpm/S	0.048	0.00	0.000000	0.048	18.31%	1
3072086081	-0.665	0.377	0.395	0.965	0.369	dpm/S	-0.113	0.00	0.000000	-0.113	16.99%	1
3072086082	-0.050	0.346	0.347	0.787	0.296	dpm/S	-0.008	0.00	0.000000	-0.008	16.59%	1
3072086083	-0.112	0.265	0.266	0.632	0.235	dpm/S	-0.020	0.00	0.000000	-0.020	17.88%	1
3072086084	0.518	0.303	0.317	0.539	0.198	dpm/S	0.093	0.00	0.000000	0.093	17.97%	1
3072086085	0.354	0.286	0.293	0.545	0.200	dpm/S	0.063	0.00	0.000000	0.063	17.78%	1
3072086086	0.008	0.300	0.300	0.674	0.252	dpm/S	0.001	0.00	0.000000	0.001	17.36%	1
3072086087	0.318	0.289	0.295	0.563	0.207	dpm/S	0.056	0.00	0.000000	0.056	17.51%	1
3072086088	0.428	0.339	0.347	0.650	0.241	dpm/S	0.072	0.00	0.000000	0.072	16.90%	1
3072086089	0.408	0.419	0.426	0.844	0.319	dpm/S	0.067	0.00	0.000000	0.067	16.42%	1
3072086090	0.016	0.232	0.232	0.531	0.194	dpm/S	0.003	0.00	0.000000	0.003	17.20%	1
3072086091	-0.082	0.276	0.276	0.645	0.241	dpm/S	-0.015	0.00	0.000000	-0.015	18.31%	1
3072086092	-0.920	0.350	0.387	0.965	0.369	dpm/S	-0.156	0.00	0.000000	-0.156	16.99%	1
3072086093	-0.271	0.321	0.325	0.787	0.296	dpm/S	-0.045	0.00	0.000000	-0.045	16.59%	1
3072086094	-0.186	0.254	0.257	0.632	0.235	dpm/S	-0.033	0.00	0.000000	-0.033	17.88%	1
3072086095	0.276	0.274	0.278	0.539	0.198	dpm/S	0.050	0.00	0.000000	0.050	17.97%	1
3072086096	0.148	0.259	0.260	0.545	0.200	dpm/S	0.026	0.00	0.000000	0.026	17.78%	1
3072086097	-0.037	0.275	0.275	0.632	0.235	dpm/S	-0.007	0.00	0.000000	-0.007	17.88%	1
3072086098	0.147	0.256	0.257	0.539	0.198	dpm/S	0.026	0.00	0.000000	0.026	17.97%	1
3072086099	0.092	0.251	0.251	0.545	0.200	dpm/S	0.016	0.00	0.000000	0.016	17.78%	1
LCS12473	3.138	0.984	1.133	1.230	0.393	dpm/S	0.561	0.00	0.000000	0.561	17.88%	1
LCSD12473	3.671	1.013	1.207	1.060	0.331	dpm/S	0.660	0.00	0.000000	0.660	17.97%	1

M7/2012

MBT

Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12473  
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
458988	0.069	0.307	0.307	0.652	0.256	dpm/S	0.030	0.00	-0.002130	0.032	45.90%	1
3072086080	-0.828	0.368	0.397	0.845	0.334	dpm/S	-0.376	0.00	0.013042	-0.389	46.97%	1
3072086081	0.479	0.355	0.366	0.725	0.285	dpm/S	0.178	0.00	-0.033134	0.211	44.19%	1
3072086082	0.299	0.355	0.359	0.734	0.289	dpm/S	0.133	0.00	-0.002337	0.136	45.41%	1
3072086083	0.191	0.339	0.341	0.710	0.279	dpm/S	0.082	0.00	-0.005605	0.087	45.63%	1
3072086084	0.011	0.306	0.306	0.650	0.255	dpm/S	0.032	0.00	0.026828	0.005	45.67%	1
3072086085	0.139	0.331	0.332	0.693	0.272	dpm/S	0.083	0.00	0.017296	0.066	47.12%	1
3072086086	-0.059	0.309	0.309	0.670	0.263	dpm/S	-0.026	0.00	0.000376	-0.026	44.46%	1
3072086087	0.347	0.303	0.309	0.611	0.239	dpm/S	0.173	0.00	0.016281	0.157	45.20%	1
3072086088	-0.333	0.380	0.385	0.835	0.330	dpm/S	-0.126	0.00	0.019198	-0.145	43.55%	1
3072086089	-0.023	0.287	0.287	0.615	0.241	dpm/S	0.009	0.00	0.019628	-0.010	44.76%	1
3072086090	0.506	0.326	0.338	0.652	0.256	dpm/S	0.233	0.00	0.000774	0.232	45.90%	1
3072086091	-0.835	0.367	0.396	0.845	0.334	dpm/S	-0.396	0.00	-0.004047	-0.392	46.97%	1
3072086092	0.289	0.346	0.350	0.725	0.285	dpm/S	0.082	0.00	-0.045840	0.128	44.19%	1
3072086093	-0.112	0.338	0.338	0.734	0.289	dpm/S	-0.063	0.00	-0.012621	-0.051	45.41%	1
3072086094	0.462	0.350	0.359	0.710	0.279	dpm/S	0.202	0.00	-0.009341	0.211	45.63%	1
3072086095	-0.122	0.298	0.299	0.650	0.255	dpm/S	-0.041	0.00	0.014327	-0.056	45.67%	1
3072086096	0.161	0.331	0.332	0.693	0.272	dpm/S	0.083	0.00	0.007230	0.076	47.12%	1
3072086097	0.183	0.339	0.341	0.710	0.279	dpm/S	0.082	0.00	-0.001868	0.084	45.63%	1
3072086098	0.134	0.310	0.311	0.650	0.255	dpm/S	0.069	0.00	0.007596	0.061	45.67%	1
3072086099	0.400	0.340	0.348	0.693	0.272	dpm/S	0.193	0.00	0.004484	0.189	47.12%	1
LCSD12473	10.401	1.146	2.185	1.326	0.467	dpm/S	4.903	0.00	0.157240	4.746	45.63%	1
LCSD12473	10.183	1.117	2.137	1.216	0.426	dpm/S	4.841	0.00	0.190294	4.651	45.67%	1

M 7/20/12

Workbook Page 3 of 7  
GAB\_12473\_1

Page 2 of 2  
Results Summary  
Printed 7/20/2012 at 3:03 PM

7/20/12  
MBT

P:\GAB\GAB DATA 2011-2012\GAB Data 12000-12999\GAB\_12473\_1



Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12473  
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	11/20/2006	Beta Eff. $ax + b$				Beta-to-Alpha Xtalk: $ax + b$				Alpha Bkg	Beta Bkg	Alpha Bkg	Beta Bkg	BKG 1 Date: 6/3/2012	BKG 2 Date: 7/13/2012		
	a	b	c	d									e	a	b	c	d	e	a	b							c	d
1					1.4256E-01						3.238E-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						2.221E-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	0.6690	0.1070	0.6690	
8					1.4091E-01						3.0938E-01		4.2938E-01											0.0860	0.6310	0.0860	0.6310	
9					1.3453E-01						3.4269E-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	0.1620	0.4690	
12					1.5319E-01						3.7376E-01		4.5830E-01											0.0890	0.3760	0.0890	0.3760	
13					1.4959E-01						4.0742E-01		3.9032E-01											0.0500	0.3330	0.0500	0.3330	
14					1.5721E-01						3.5889E-01		4.4635E-01											0.0690	0.3900	0.0690	0.3900	
15					1.5605E-01						3.4723E-01		4.4658E-01											0.0820	0.4950	0.0820	0.4950	
16					1.5365E-01						3.5438E-01		4.3920E-01											0.0610	0.3910	0.0610	0.3910	
17					1.5472E-01						3.2964E-01		4.4691E-01											0.1370	0.3860	0.1370	0.3860	
18					1.5273E-01						3.6020E-01		4.4422E-01											0.0630	0.3820	0.0630	0.3820	
19					1.5393E-01						3.8255E-01		4.5782E-01											0.0770	0.4570	0.0770	0.4570	
20					1.5610E-01						3.6978E-01		4.4321E-01											0.0970	0.3820	0.0970	0.3820	
21					1.5130E-01						4.0476E-01		4.5533E-01											0.0780	0.3780	0.0780	0.3780	
22					1.5360E-01						3.9282E-01		4.3554E-01											0.0570	0.4180	0.0570	0.4180	
23					1.5639E-01						3.6878E-01		4.4612E-01											0.0750	0.4570	0.0750	0.4570	
24					#N/A						#N/A		#N/A															
25					1.5698E-01						3.5511E-01		4.5368E-01											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	
27					1.5603E-01						3.3628E-01		4.4833E-01											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: 12473  
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 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	d	e	a	b	c	a	b	c	6/3/2012	7/13/2012		
28					1.5538E-01					3.4325E-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					1.5353E-01					3.5204E-01					4.4881E-01							0.0890	0.3870	0.0900	0.3660
32					1.5823E-01					3.3321E-01					4.6019E-01							0.0540	0.4120	0.0530	0.3380
33					1.6147E-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	0.6640
36					1.4953E-01					3.6039E-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					1.8176E-01					2.5955E-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					3.3522E-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					1.6896E-01					2.6541E-01					4.3550E-01							0.1410	1.7460	0.1410	1.7460
46					1.6416E-01					2.9296E-01					4.4795E-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					2.6993E-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					2.8847E-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	Uncertainty	Uncertainty	CSU for Preparation (UE1) 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	Uncertainty	Uncertainty	CSU for Analysis (UE2) 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	Uncertainty	Uncertainty	CSU for Yield (UE3) 10.00%
Additional Sample Uncertainty due to analysis without a tracer or chemical carrier	10.00%	1	10.00%	1.00%	

4/20/12  
P

Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

alpha Counts  
beta

SAMPLE_ID	Det#	BEG_DATE	BATCH_ID	ACPM	BCPM	CNT_TIME		
458988	47	#####	GAB12473	0.087	1.197	300	26	359
3072086080	48	#####	GAB12473	0.213	1.71	300	64	513
3072086081	49	#####	GAB12473	0.22	1.523	300	66	457
3072086082	50	#####	GAB12473	0.197	1.593	300	59	478
3072086083	51	#####	GAB12473	0.13	1.457	300	39	437
3072086084	52	#####	GAB12473	0.2	1.18	300	60	354
3072086085	53	#####	GAB12473	0.17	1.48	300	51	444
3072086086	43	#####	GAB12473	0.163	1.13	300	49	339
3072086087	44	#####	GAB12473	0.167	1.163	300	50	349
3072086088	45	#####	GAB12473	0.213	1.62	300	64	486
3072086089	46	#####	GAB12473	0.3	0.993	300	90	298
3072086090	47	#####	GAB12473	0.097	1.4	300	29	420
3072086091	48	#####	GAB12473	0.15	1.69	300	45	507
3072086092	49	#####	GAB12473	0.177	1.427	300	53	428
3072086093	50	#####	GAB12473	0.16	1.397	300	48	419
3072086094	51	#####	GAB12473	0.117	1.577	300	35	473
3072086095	52	#####	GAB12473	0.157	1.107	300	47	332
3072086096	53	#####	GAB12473	0.133	1.48	300	40	444
3072086097	51	#####	GAB12473	0.143	1.457	300	43	437
3072086098	52	#####	GAB12473	0.133	1.217	300	40	365
3072086099	53	#####	GAB12473	0.123	1.59	300	37	477
LCS12473	51	#####	GAB12473	0.711	6.278	90	64	565
LCSD12473	52	#####	GAB12473	0.767	5.989	90	69	539

4/27/2012



## Batch Report

Batch Name: GAB12473

Procedure: GAB Filter Counting

Calibration: Water

Count Date: 7/18/2012 3:27:13 PM

Preset Count Time: 18000

Count Mode: Simultaneous

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
458988	47	26	359	7/18/2012 3:29:57 PM	300
3072086080	48	64	513	7/18/2012 3:29:59 PM	300
3072086081	49	66	457	7/18/2012 3:30:00 PM	300
3072086082	50	59	478	7/18/2012 3:30:00 PM	300
3072086083	51	39	437	7/18/2012 5:17:04 PM	300
3072086084	52	60	354	7/18/2012 5:17:04 PM	300
3072086085	53	51	444	7/18/2012 5:17:04 PM	300
3072086086	43	49	339	7/19/2012 11:46:47 AM	300
3072086087	44	50	349	7/19/2012 11:46:48 AM	300
3072086088	45	64	486	7/19/2012 11:46:48 AM	300
3072086089	46	90	298	7/19/2012 11:46:48 AM	300
3072086090	47	29	420	7/19/2012 11:46:48 AM	300
3072086091	48	45	507	7/19/2012 11:46:48 AM	300
3072086092	49	53	428	7/19/2012 11:46:48 AM	300
3072086093	50	48	419	7/19/2012 11:46:48 AM	300
3072086094	51	35	473	7/19/2012 11:46:48 AM	300

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
3072086095	52	47	332	7/19/2012 11:46:49 AM	300
3072086096	53	40	444	7/19/2012 11:46:49 AM	300
3072086097	51	43	437	7/19/2012 5:29:09 PM	300
3072086098	52	40	365	7/19/2012 5:29:09 PM	300
3072086099	53	37	477	7/19/2012 5:29:09 PM	300
LCS12473	51	64	565	7/18/2012 3:27:07 PM	90
LCSD12473	52	69	539	7/18/2012 3:27:07 PM	90

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
CAS	S1	6512473 #1	6AB12473	90	7/18/12 1527	Q	N	M
	S2	6512473 #2				F		
	47	458488		300	7/18/12 1530	Q		M
	48	3072086080						
	49	081						
	S0	082						
CAS	S1	6873	6AB12473	300	7/18/12	Q	M	NA
	S2	084						
	S3	085						
GRA	1	650142003	6AB12473	300	7/18/12 2014	Q	N/A	N/A
	2	532001						
	3	435002 07/18/12						
	4	435003						
	5	435004						
	6	512001						
	7	J 2						
CAS	11	4104743	6AB12473	90				
	12	4104744						
	13	4104745						
	14	70732000-1170						
	15	71030001						
	16	73014						
	17	73007						
	18	73005						

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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
TR54	31	3072998001	M112629	20	7-19-12 11:22	LAC	N/A	N/A
	32	3073007001						
	33	3073008001						
	34	UCS 12629			7-19-12 11:45	LAC	N/A	N/A
	40	UCSD 12629						
645	43	3072086086	GRB12473	300	7/19/12 11:46	LAC	N/A	N/A
	44	087						
	45	088						
	46	089						
	47	090						
	48	091						
	49	092						
	50	093						
	51	094						
	52	095						
	53	096						
TR54	39	UCS12630	M112630	20	7/19/12 13:00	LAC	5	verification of recovery
646	37	UCSD12463	GRB12463	90	7/19/12 1406	LAC	N/A	N/A
648	12	3561253001	GRA12656	200	7/19/12 16:34	B5H	N/A	N/A
	13	002			15:41			
	15	<del>35612473</del> 003			16:34			
	16	3561373001			15:43			
	17	002			16:34			
	19	3561352001						

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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
	20	3561330001	GRA12656	700	7/19/12	BSH	NA	NA
	21	3561358001						
	22	↓ 002						
	23	3561360001						
	25	3561286001						
	26	3562011001						
	29	↓ 002						
	30	↓ 003						
	32	↓ 004						
	33	3073177001			15:43			
	34	3073178001			16:34			
	35	3072501001			↓ 15:43			
	11	LLS12469 (1)	GAB12469	90	7/19/12 17:36		NA	NA
	16	3072085087	GAB12468	120			2	
	27	↓ 088		100			↓	
	28	LLS12472 (2)	GAB12472	90			NA	
	33	3072085089	GAB12468	140			2	
	36	↓ 041		100			↓	
	38	↓ 048		130			↓	
	34	458982	GAB12468	140			2	NA
	51	3072086097	GAB12473	300	7/19/12 17:30		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 Sample Analysis Data**



# Quality Control Review



Batch RADC/12474 HBN 91044  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 1 458989-BLANK for HBN 91044 [RADC/1247

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

### Prep Information

Procedure 9000 I Batch RADC/12474 Prep Date 7/18/2012 10:23 Dilution  
 Method EPA 900.0m HBN 91044 Hold Date 12/25/2012 23:59 Analyst MBT  
 Schedule 2795674 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 10:23 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/25/2012 23:59 Analyst MBT  
 Schedule 2795674 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL
Rad Chemistry	OK				
Gross Alpha	OK	-0.021U ± 0.234 (0.545)	pCi/sa -0.021U ± 0.234 (0.545)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					
Gross Beta	OK	-0.098U ± 0.320 (0.693)	pCi/sa -0.098U ± 0.320 (0.693)		pCi/sam
The lab does not hold TNI accreditation for this parameter.					

## 2 3072086100-292-CABINET-2

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12474 Prep Date 7/18/2012 10:23 Dilution  
 Method EPA 900.0m HBN 91044 Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785515 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 10:23 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785515 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	-0.130U ± 0.263 (0.632)	pCi/sa -0.130U ± 0.263 (0.632)			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/12474 HBN 91044  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT



## 2 3072086100-292-CABINET-2

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Beta	OK	0.149U ± 0.338 (0.710)	pCi/sa 0.149U ± 0.338 (0.710)		dpm/sa		

The lab does not hold TNI accreditation for this parameter.

## 3 3072086101-292-CABINET-3

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12474 Prep Date 7/18/2012 10:23 Dilution  
 Method EPA 900.0m HBN 91044 Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785517 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 10:23 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785517 File CC OK F

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.647 ± 0.339 (0.539)	pCi/sa 0.647 ± 0.339 (0.539)		dpm/sa		

The lab does not hold TNI accreditation for this parameter.

Gross Beta	OK	2.43 ± 0.592 (0.650)	pCi/sa 2.43 ± 0.592 (0.650)		dpm/sa		
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The lab does not hold TNI accreditation for this parameter.

## 4 3072086102-283-BASEMENT

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12474 Prep Date 7/18/2012 12:46 Dilution  
 Method EPA 900.0m HBN 91044 Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785519 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/12474 HBN 91044  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 4 3072086102-283-BASEMENT

### Analytical Information

<b>Procedure</b> 9000 I	<b>Instru</b> NONE	<b>Run Date</b> 7/18/2012 12:46	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>Col ID</b>	<b>Hold Date</b> 12/16/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785519	<b>File</b>		<b>CC</b> OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.246U ± 0.406 (0.844)	pCi/sa 0.246U ± 0.406 (0.844)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.069U ± 0.291 (0.615)	pCi/sa 0.069U ± 0.291 (0.615)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 5 3072086103-283-WW-DRAIN

**Type** PS **Matrix** Wipe **Collected** 6/19/2012 00:01 **% Moisture**  
**Client** RTI **WO** 3072086 **Work ID** Fort Monmonth 1207074 **Location**

### Prep Information

<b>Procedure</b> 9000 I	<b>Batch</b> RADC/12474	<b>Prep Date</b> 7/18/2012 12:46	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>HBN</b> 91044	<b>Hold Date</b> 12/16/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785521	<b>Instru</b> NONE		<b>CC</b> OK F

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

### Analytical Information

<b>Procedure</b> 9000 I	<b>Instru</b> NONE	<b>Run Date</b> 7/18/2012 12:46	<b>Dilution</b>
<b>Method</b> EPA 900.0m	<b>Col ID</b>	<b>Hold Date</b> 12/16/2012 23:59	<b>Analyst</b> MBT
<b>Schedule</b> 2785521	<b>File</b>		<b>CC</b> OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.862 ± 0.414 (0.650)	pCi/sa 0.862 ± 0.414 (0.650)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.217U ± 0.389 (0.835)	pCi/sa -0.217U ± 0.389 (0.835)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 6 3072086104-283-WW-FLOOR

**Type** PS **Matrix** Wipe **Collected** 6/19/2012 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/12474 HBN 91044  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 6 3072086104-283-WW-FLOOR

### Prep Information

**Procedure** 9000 I **Batch** RADC/12474 **Prep Date** 7/18/2012 12:46 **Dilution**  
**Method** EPA 900.0m **HBN** 91044 **Hold Date** 12/16/2012 23:59 **Analyst** MBT  
**Schedule** 2785523 **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 12:46 **Dilution**  
**Method** EPA 900.0m **Col ID** **Hold Date** 12/16/2012 23:59 **Analyst** MBT  
**Schedule** 2785523 **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 ± 0.256 (0.563)	pCi/sa 0.070U ± 0.256 (0.563)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.346J ± 0.307 (0.611)	pCi/sa 0.346J ± 0.307 (0.611)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 7 3072086105-283-WW-SINK FLOOR

**Type** PS **Matrix** Wipe **Collected** 6/19/2012 00:01 **% Moisture**  
**Client** RTI **WO** 3072086 **Work ID** Fort Monmouth 1207074 **Location**

### Prep Information

**Procedure** 9000 I **Batch** RADC/12474 **Prep Date** 7/18/2012 12:46 **Dilution**  
**Method** EPA 900.0m **HBN** 91044 **Hold Date** 12/16/2012 23:59 **Analyst** MBT  
**Schedule** 2785525 **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 12:46 **Dilution**  
**Method** EPA 900.0m **Col ID** **Hold Date** 12/16/2012 23:59 **Analyst** MBT  
**Schedule** 2785525 **File** **CC** OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.238U ± 0.330 (0.674)	pCi/sa 0.238U ± 0.330 (0.674)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	1.14 ± 0.415 (0.670)	pCi/sa 1.14 ± 0.415 (0.670)		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/12474 HBN 91044  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

**7 3072086105-283-WW-SINK FLOOR**

**8 3072086106-283-2ND FLOOR-BROOM SINK**

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

**Prep Information**

Procedure 9000 I Batch RADC/12474 Prep Date 7/18/2012 10:23 Dilution  
 Method EPA 900.0m HBN 91044 Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785527 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 10:23 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785527 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.155U ± 0.268 (0.645)	pCi/sa -0.155U ± 0.268 (0.645)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.536U ± 0.389 (0.845)	pCi/sa -0.536U ± 0.389 (0.845)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

**9 3072086107-283-2ND FLOOR-BROOM FLOOR**

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

**Prep Information**

Procedure 9000 I Batch RADC/12474 Prep Date 7/18/2012 10:23 Dilution  
 Method EPA 900.0m HBN 91044 Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785529 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 10:23 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785529 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/12474 HBN 91044  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 9 3072086107-283-2ND FLOOR-BROOM FLOOR

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
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	-0.061U ± 0.333 (0.725)	pCi/sa -0.061U ± 0.333 (0.725)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 10 3072086108-283-2ND FLOOR WW

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072086	Work ID Fort Monmonth 1207074	Location

### Prep Information

Procedure 9000 I	Batch RADC/12474	Prep Date 7/18/2012 10:23	Dilution
Method EPA 900.0m	HBN 91044	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785531	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 10:23	Dilution
Method EPA 900.0m	Col ID	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785531	File		CC OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.171U ± 0.334 (0.787)	pCi/sa -0.171U ± 0.334 (0.787)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.047U ± 0.345 (0.734)	pCi/sa 0.047U ± 0.345 (0.734)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 11 3072086109-283-1ST FLOOR BACK FLOOR

Type PS	Matrix Wipe	Collected 6/19/2012 00:01	% Moisture
Client RTI	WO 3072086	Work ID Fort Monmonth 1207074	Location

### Prep Information

Procedure 9000 I	Batch RADC/12474	Prep Date 7/17/2012 11:19	Dilution
Method EPA 900.0m	HBN 91044	Hold Date 12/16/2012 23:59	Analyst MBT
Schedule 2785531	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/12474 HBN 91044  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 11 3072086109-283-1ST FLOOR BACK FLOOR

### Analytical Information

Procedure 9000 I Instru NONE Run Date 7/17/2012 11:19 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785533 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.372J ± 0.348 (0.674)	pCi/sa 0.372J ± 0.348 (0.674)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.103U ± 0.319 (0.670)	pCi/sa 0.103U ± 0.319 (0.670)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 12 3072086110-283-SUMP

Type PS Matrix Wipe Collected 6/19/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12474 Prep Date 7/17/2012 11:19 Dilution  
 Method EPA 900.0m HBN 91044 Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785535 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 11:19 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785535 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.242J ± 0.283 (0.563)	pCi/sa 0.242J ± 0.283 (0.563)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.695 ± 0.342 (0.611)	pCi/sa 0.695 ± 0.342 (0.611)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 13 3072086111-283-BOILER SUMP

Type PS Matrix Wipe Collected 6/19/2012 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/12474 HBN 91044  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 13 3072086111-283-BOILER SUMP

### Prep Information

Procedure 9000 I Batch RADC/12474 Prep Date 7/17/2012 11:19 Dilution  
 Method EPA 900.0m HBN 91044 Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785537 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 11:19 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/16/2012 23:59 Analyst MBT  
 Schedule 2785537 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK					dpm/sa	
Gross Alpha	OK	2.60 ± 0.704 (0.650)	pCi/sa 2.60 ± 0.704 (0.650)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	1.11 ± 0.483 (0.835)	pCi/sa 1.11 ± 0.483 (0.835)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							

## 14 3072086112-283-WHALL1STFLOOR-DRAIN

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/12474 Prep Date 7/17/2012 11:19 Dilution  
 Method EPA 900.0m HBN 91044 Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785539 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 11:19 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785539 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 ± 0.402 (0.844)	pCi/sa 0.205U ± 0.402 (0.844)			dpm/sa	
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.021U ± 0.288 (0.615)	pCi/sa 0.021U ± 0.288 (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/12474 HBN 91044  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 14 3072086112-283-WHALL1STFLOOR-DRAIN

## 15 3072086113-283-WW2NDFLOOR-DRAIN

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/12474 Prep Date 7/17/2012 11:19 Dilution  
 Method EPA 900.0m HBN 91044 Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785541 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 11:19 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/17/2012 23:59 Analyst MBT  
 Schedule 2785541 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.004U ± 0.229 (0.531)	pCi/sa -0.004U ± 0.229 (0.531)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.058U ± 0.306 (0.652)	pCi/sa 0.058U ± 0.306 (0.652)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 16 3072086114-283-RM102-FD

Type PS Matrix Wipe Collected 6/21/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12474 Prep Date 7/17/2012 11:19 Dilution  
 Method EPA 900.0m HBN 91044 Hold Date 12/18/2012 23:59 Analyst MBT  
 Schedule 2785543 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 11:19 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/18/2012 23:59 Analyst MBT  
 Schedule 2785543 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/12474 HBN 91044  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 16 3072086114-283-RM102-FD

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Gross Alpha	OK	0.319J ± 0.328 (0.645)	pCi/sa 0.319J ± 0.328 (0.645)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	-0.039U ± 0.397 (0.845)	pCi/sa -0.039U ± 0.397 (0.845)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 17 3072086115-283-214A-FD

Type PS Matrix Wipe Collected 6/21/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12474 Prep Date 7/17/2012 11:19 Dilution  
 Method EPA 900.0m HBN 91044 Hold Date 12/18/2012 23:59 Analyst MBT  
 Schedule 2785545 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 11:19 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/18/2012 23:59 Analyst MBT  
 Schedule 2785545 File CC OK F

Analyte	CC	Posted		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.998U ± 0.386 (0.965)	pCi/sa -0.998U ± 0.386 (0.965)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	1.82 ± 0.520 (0.725)	pCi/sa 1.82 ± 0.520 (0.725)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 18 3072086116-2540-SU10-BIAS

Type PS Matrix Wipe Collected 6/21/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12474 Prep Date 7/17/2012 11:19 Dilution  
 Method EPA 900.0m HBN 91044 Hold Date 12/18/2012 23:59 Analyst MBT  
 Schedule 2785547 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/12474 HBN 91044  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 18 3072086116-2540-SU10-BIAS

### Analytical Information

Procedure 9000 I Instru NONE Run Date 7/17/2012 11:19 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/18/2012 23:59 Analyst MBT  
 Schedule 2785547 File CC OK F

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.131U ± 0.338 (0.787)	pCi/sa -0.131U ± 0.338 (0.787)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.292J ± 0.358 (0.734)	pCi/sa 0.292J ± 0.358 (0.734)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 19 3072086117-2540-SU11-BIAS

Type PS Matrix Wipe Collected 6/21/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12474 Prep Date 7/17/2012 11:19 Dilution  
 Method EPA 900.0m HBN 91044 Hold Date 12/18/2012 23:59 Analyst MBT  
 Schedule 2785549 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 11:19 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/18/2012 23:59 Analyst MBT  
 Schedule 2785549 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 ± 0.287 (0.632)	pCi/sa 0.056U ± 0.287 (0.632)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.282J ± 0.347 (0.710)	pCi/sa 0.282J ± 0.347 (0.710)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 20 3072086118-2541-Floor-BIAS

Type PS Matrix Wipe Collected 6/21/2012 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/12474 HBN 91044  
 Rule 9000 I Status RE  
 Create Date 6/28/2012 Analyst MBT

## 20 3072086118-2541-Floor-BIAS

### Prep Information

Procedure 9000 I Batch RADC/12474 Prep Date 7/17/2012 11:19 Dilution  
 Method EPA 900.0m HBN 91044 Hold Date 12/18/2012 23:59 Analyst MBT  
 Schedule 2785551 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 11:19 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/18/2012 23:59 Analyst MBT  
 Schedule 2785551 File CC OK F

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.555 ± 0.323 (0.539)	pCi/sa 0.555 ± 0.323 (0.539)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.540J ± 0.343 (0.650)	pCi/sa 0.540J ± 0.343 (0.650)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							

## 21 3072086119-SU12-BIAS-2

Type PS Matrix Wipe Collected 6/21/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12474 Prep Date 7/17/2012 11:19 Dilution  
 Method EPA 900.0m HBN 91044 Hold Date 12/18/2012 23:59 Analyst MBT  
 Schedule 2785553 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 11:19 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/18/2012 23:59 Analyst MBT  
 Schedule 2785553 File CC OK F

Analyte	CC	Posted Result		MDL	RDL	Reg. Limits	
		Result	Result			Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.429J ± 0.305 (0.545)	pCi/sa 0.429J ± 0.305 (0.545)		dpm/sa		
The lab does not hold TNI accreditation for this parameter.							
Gross Beta	OK	0.775 ± 0.382 (0.693)	pCi/sa 0.775 ± 0.382 (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

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Batch	RADC/12474	HBN	91044
Rule	9000 I	Status	RE
Create Date	6/28/2012	Analyst	MBT



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21 3072086119-SU12-BIAS-2

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



# Gross Alpha and Gross Beta Preparation Sheet

Batch: 12474

Transfer Analyst: MBT

Prep Date/Time: 7-9-12 1:00

Matrix: Filter

Logbook ID: 3-R021-5

Spike Analyst: N/A

QC ID: a: N/A

LCS QC Vol (mL): a: N/A

MS/MSD QC Vol (mL): a: N/A

Pipette ID: N/A

N/A

b: N/A

b: N/A

b: N/A

Aliquot Balance ID: N/A

Aliquot Wgt. Date: N/A

Tare Balance ID: N/A

Tare Wgt. Date: N/A

Gross Balance ID: N/A

Gross Wgt. Date: N/A

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)			
<u>N/A</u>	<u>458989</u>	<u>N/A</u>	<u>N/A</u>	<u>1.0</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	
	<u>30720800100</u>							
	<u>101</u>							
	<u>102</u>							
	<u>103</u>							
	<u>104</u>							
	<u>105</u>							
	<u>106</u>							
	<u>107</u>							
	<u>108</u>							
	<u>109</u>							
	<u>110</u>							
	<u>111</u>							
	<u>112</u>							
	<u>113</u>							
	<u>114</u>							
	<u>115</u>							
	<u>116</u>							
	<u>117</u>							
	<u>118</u>							
	<u>119</u>							
	<u>LCS 12474</u>							
	<u>LQSD 12474</u>							

Batch Comments: Ludox:

8N HNO<sub>3</sub>:

Conc HNO<sub>3</sub>:

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: 12474  
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
458989	1.00000	S	9.0000	9.0000	0.00	53	7/18/2012 10:23	0.1033	1.3500	300	0.1070	1.3970	1000	dpm
3072086100	1.00000	S	9.0000	9.0000	0.00	51	7/18/2012 10:23	0.1267	1.4367	300	0.1500	1.3750	1000	dpm
3072086101	1.00000	S	9.0000	9.0000	0.00	52	7/18/2012 10:23	0.2233	2.2900	300	0.1070	1.1480	1000	dpm
3072086102	1.00000	S	9.0000	9.0000	0.00	46	7/18/2012 12:46	0.2733	1.0267	300	0.2330	0.9840	1000	dpm
3072086103	1.00000	S	9.0000	9.0000	0.00	45	7/18/2012 12:46	0.2867	1.6900	300	0.1410	1.7460	1000	dpm
3072086104	1.00000	S	9.0000	9.0000	0.00	44	7/18/2012 12:46	0.1233	1.1500	300	0.1110	0.9900	1000	dpm
3072086105	1.00000	S	9.0000	9.0000	0.00	43	7/18/2012 12:46	0.2033	1.6733	300	0.1620	1.1560	1000	dpm
3072086106	1.00000	S	9.0000	9.0000	0.00	48	7/18/2012 10:23	0.1367	1.8267	300	0.1650	2.0860	1000	dpm
3072086107	1.00000	S	9.0000	9.0000	0.00	49	7/18/2012 10:23	0.2267	1.2867	300	0.3330	1.3450	1000	dpm
3072086108	1.00000	S	9.0000	9.0000	0.00	50	7/18/2012 10:23	0.1767	1.4733	300	0.2050	1.4600	1000	dpm
3072086109	1.00000	S	9.0000	9.0000	0.00	43	7/17/2012 11:19	0.2267	1.2200	300	0.1620	1.1560	1000	dpm
3072086110	1.00000	S	9.0000	9.0000	0.00	44	7/17/2012 11:19	0.1533	1.3167	300	0.1110	0.9900	1000	dpm
3072086111	1.00000	S	9.0000	9.0000	0.00	45	7/17/2012 11:19	0.5800	2.3467	300	0.1410	1.7460	1000	dpm
3072086112	1.00000	S	9.0000	9.0000	0.00	46	7/17/2012 11:19	0.2667	1.0033	300	0.2330	0.9840	1000	dpm
3072086113	1.00000	S	9.0000	9.0000	0.00	47	7/17/2012 11:19	0.0933	1.1933	300	0.0940	1.1670	1000	dpm
3072086114	1.00000	S	9.0000	9.0000	0.00	48	7/17/2012 11:19	0.2233	2.0833	300	0.1650	2.0860	1000	dpm
3072086115	1.00000	S	9.0000	9.0000	0.00	49	7/17/2012 11:19	0.1633	2.1000	300	0.3330	1.3450	1000	dpm
3072086116	1.00000	S	9.0000	9.0000	0.00	50	7/17/2012 11:19	0.1833	1.5867	300	0.2050	1.4600	1000	dpm
3072086117	1.00000	S	9.0000	9.0000	0.00	51	7/17/2012 11:19	0.1600	1.5067	300	0.1500	1.3750	1000	dpm
3072086118	1.00000	S	9.0000	9.0000	0.00	52	7/17/2012 11:19	0.2067	1.4233	300	0.1070	1.1480	1000	dpm
3072086119	1.00000	S	9.0000	9.0000	0.00	53	7/17/2012 11:19	0.1833	1.7833	300	0.1070	1.3970	1000	dpm
LCS12474	1.00000	S	9.0000	9.0000	0.00	12	7/20/2012 16:37	0.5333	4.8444	90	0.1550	0.4240	1000	dpm
LCSD12474	1.00000	S	9.0000	9.0000	0.00	13	7/20/2012 16:37	0.5667	4.7778	90	0.1230	0.3450	1000	dpm

*M 7/21/12*



Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12474  
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
458989	-0.021	0.234	0.234	0.545	0.200	dpm/S	-0.004	0.00	0.000000	-0.004	17.78%	1
3072086100	-0.130	0.262	0.263	0.632	0.235	dpm/S	-0.023	0.00	0.000000	-0.023	17.88%	1
3072086101	0.647	0.318	0.339	0.539	0.198	dpm/S	0.116	0.00	0.000000	0.116	17.97%	1
3072086102	0.246	0.404	0.406	0.844	0.319	dpm/S	0.040	0.00	0.000000	0.040	16.42%	1
3072086103	0.862	0.384	0.414	0.650	0.241	dpm/S	0.146	0.00	0.000000	0.146	16.90%	1
3072086104	0.070	0.256	0.256	0.563	0.207	dpm/S	0.012	0.00	0.000000	0.012	17.51%	1
3072086105	0.238	0.327	0.330	0.674	0.252	dpm/S	0.041	0.00	0.000000	0.041	17.36%	1
3072086106	-0.155	0.267	0.268	0.645	0.241	dpm/S	-0.028	0.00	0.000000	-0.028	18.31%	1
3072086107	-0.626	0.381	0.397	0.965	0.369	dpm/S	-0.106	0.00	0.000000	-0.106	16.99%	1
3072086108	-0.171	0.333	0.334	0.787	0.296	dpm/S	-0.028	0.00	0.000000	-0.028	16.59%	1
3072086109	0.372	0.342	0.348	0.674	0.252	dpm/S	0.065	0.00	0.000000	0.065	17.36%	1
3072086110	2.598	0.279	0.283	0.563	0.207	dpm/S	0.439	0.00	0.000000	0.439	17.51%	1
3072086111	0.205	0.400	0.402	0.650	0.241	dpm/S	0.034	0.00	0.000000	0.034	16.90%	1
3072086112	-0.004	0.229	0.229	0.844	0.319	dpm/S	0.034	0.00	0.000000	0.034	16.42%	1
3072086113	0.319	0.323	0.328	0.531	0.194	dpm/S	-0.001	0.00	0.000000	-0.001	17.20%	1
3072086114	-0.998	0.342	0.386	0.645	0.241	dpm/S	0.058	0.00	0.000000	0.058	18.31%	1
3072086115	-0.131	0.337	0.338	0.965	0.369	dpm/S	-0.170	0.00	0.000000	-0.170	16.99%	1
3072086116	0.056	0.287	0.287	0.787	0.296	dpm/S	-0.022	0.00	0.000000	-0.022	16.59%	1
3072086117	0.555	0.308	0.323	0.632	0.235	dpm/S	0.010	0.00	0.000000	0.010	17.88%	1
3072086118	0.429	0.295	0.305	0.539	0.198	dpm/S	0.100	0.00	0.000000	0.100	17.97%	1
LCS12474	2.470	0.998	1.091	0.545	0.200	dpm/S	0.076	0.00	0.000000	0.076	17.78%	1
LCSD12474	2.966	1.050	1.176	1.456	0.467	dpm/S	0.378	0.00	0.000000	0.378	15.32%	1
				1.350	0.426	dpm/S	0.444	0.00	0.000000	0.444	14.96%	1

MBT

Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12474  
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
458989	-0.098	0.319	0.320	0.693	0.272	dpm/S	-0.047	0.00	-0.001007	-0.046	47.12%	1
3072086100	0.149	0.337	0.338	0.710	0.279	dpm/S	0.062	0.00	-0.006539	0.068	45.63%	1
3072086101	2.427	0.402	0.592	0.650	0.255	dpm/S	1.142	0.00	0.033559	1.108	45.67%	1
3072086102	0.069	0.291	0.291	0.615	0.241	dpm/S	0.043	0.00	0.011816	0.031	44.76%	1
3072086103	-0.217	0.387	0.389	0.835	0.330	dpm/S	-0.056	0.00	0.038661	-0.095	43.55%	1
3072086104	0.346	0.301	0.307	0.611	0.239	dpm/S	0.160	0.00	0.003607	0.156	45.20%	1
3072086105	1.137	0.362	0.415	0.670	0.263	dpm/S	0.517	0.00	0.011655	0.506	44.46%	1
3072086106	-0.536	0.377	0.389	0.845	0.334	dpm/S	-0.259	0.00	-0.007645	-0.252	46.97%	1
3072086107	-0.061	0.333	0.333	0.725	0.285	dpm/S	-0.058	0.00	-0.031179	-0.027	44.19%	1
3072086108	0.047	0.345	0.345	0.734	0.289	dpm/S	0.013	0.00	-0.007946	0.021	45.41%	1
3072086109	0.103	0.319	0.319	0.670	0.263	dpm/S	0.064	0.00	0.018234	0.046	44.46%	1
3072086110	0.695	0.318	0.342	0.611	0.239	dpm/S	0.327	0.00	0.012381	0.314	45.20%	1
3072086111	1.112	0.440	0.483	0.835	0.330	dpm/S	0.601	0.00	0.116515	0.484	43.55%	1
3072086112	0.021	0.288	0.288	0.615	0.241	dpm/S	0.019	0.00	0.009863	0.009	44.76%	1
3072086113	0.058	0.306	0.306	0.652	0.256	dpm/S	0.026	0.00	-0.000194	0.027	45.90%	1
3072086114	-0.039	0.397	0.397	0.845	0.334	dpm/S	-0.003	0.00	0.015740	-0.018	46.97%	1
3072086115	1.821	0.405	0.520	0.725	0.285	dpm/S	0.755	0.00	-0.049750	0.805	44.19%	1
3072086116	0.292	0.355	0.358	0.734	0.289	dpm/S	0.127	0.00	-0.006077	0.133	45.41%	1
3072086117	0.282	0.344	0.347	0.710	0.279	dpm/S	0.132	0.00	0.002802	0.129	45.63%	1
3072086118	0.540	0.329	0.343	0.650	0.255	dpm/S	0.275	0.00	0.028751	0.247	45.67%	1
3072086119	0.775	0.356	0.382	0.693	0.272	dpm/S	0.386	0.00	0.020957	0.365	47.12%	1
LCS12474	9.337	0.996	1.945	0.762	0.258	dpm/S	4.420	0.00	0.141406	4.279	45.85%	1
LCSD12474	10.894	1.161	2.268	0.815	0.273	dpm/S	4.433	0.00	0.180759	4.252	39.03%	1

M 7/21/12



Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12474  
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	Beta to Alpha Cross-Talk				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
1					1.4256E-01					3.2356E-01					4.5624E-01				0.0640	0.8040	0.0640	0.8040
2					1.5524E-01					2.7392E-01					4.5633E-01				0.0620	0.7010	0.0620	0.7010
3					1.5070E-01					3.0910E-01					4.4491E-01				0.0600	0.6670	0.0600	0.6670
4					1.4437E-01					2.9231E-01					4.3452E-01				0.1120	0.6050	0.1120	0.6050
5					#N/A					#N/A					#N/A				0.0520	5.1640	0.0520	5.1640
6					#N/A					#N/A					#N/A				0.0510		0.0510	
7					1.5705E-01					2.4638E-01					4.4368E-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	0.1620	0.4690
12					1.5319E-01					3.7376E-01					4.5930E-01				0.0890	0.3780	0.0890	0.3780
13					1.4969E-01					4.0742E-01					3.9032E-01				0.0500	0.3330	0.0500	0.3330
14					1.5721E-01					3.5438E-01					4.4635E-01				0.0820	0.4850	0.0820	0.4850
15					1.5605E-01					3.4723E-01					4.4658E-01				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
17					1.5472E-01					3.2964E-01					4.4691E-01				0.0630	0.3820	0.0630	0.3820
18					1.5273E-01					3.6020E-01					4.4422E-01				0.0770	0.4570	0.0770	0.4570
19					1.5393E-01					3.5782E-01					4.5782E-01				0.0670	0.3820	0.0670	0.3820
20					1.5610E-01					3.6978E-01					4.4321E-01				0.0780	0.3780	0.0780	0.3780
21					1.5130E-01					4.0476E-01					4.5533E-01				0.0570	0.4180	0.0570	0.4180
22					1.5260E-01					3.9282E-01					4.3554E-01				0.0750	0.4570	0.0750	0.4570
23					1.5639E-01					3.6878E-01					4.4612E-01							
24					#N/A					#N/A					#N/A							
25					1.5698E-01					3.5511E-01					4.5368E-01				0.1270	0.4110	0.1270	0.4110
26					1.5743E-01					3.3781E-01					4.5468E-01				0.1490	0.4370	0.1490	0.4370
27					1.5803E-01					3.3828E-01					4.4883E-01				0.0740	0.2880	0.0740	0.2880

0m712112

Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12474  
Prep Start Date/Time: 7/9/2012 12:00  
Prep Finish: 7/9/2012

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

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

Det No.	Effective Calibration Date			Alpha Efficiency	11/20/2006	Alpha to Beta Cross-Talk	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	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			0.0940	0.3220	0.0630	0.2740				
30					1.5497E-01					3.5154E-01		4.4737E-01			0.0720	0.4090	0.2330	0.4240				
31					1.5353E-01					3.5204E-01		4.4881E-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					1.4853E-01					3.6059E-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	0.4800				
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					4.9588E-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					1.6996E-01					2.6541E-01		4.3550E-01			0.1410	1.7450	0.1410	1.7450				
46					1.6416E-01					2.9296E-01		4.4755E-01			0.2390	0.9840	0.2390	0.9840				
47					1.7203E-01					2.9040E-01		4.5801E-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					2.8028E-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				

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%

Pace Analytical Services  
 Gross Alpha and Gross Beta  
 Analysis

SAMPLE_ID	Det#	BEG_DATE	BATCH_ID	ACPM	BCPM	CNT_TIME	<i>alpha cto</i>	<i>beta cto</i>
LCS12474	12	7/20/2012 16:37	GAB12474	0.533333333	4.844444444	90		
LCSD12474	13	7/20/2012 16:37	GAB12474	0.566666667	4.777777778	90		
458989	53	7/18/2012 10:23	GAB12474	0.103333333	1.35	300	31	405
3072086100	51	7/18/2012 10:23	GAB12474	0.126666667	1.436666667	300	38	431
3072086101	52	7/18/2012 10:23	GAB12474	0.223333333	2.29	300	67	687
3072086102	46	7/18/2012 12:46	GAB12474	0.273333333	1.026666667	300	82	308
3072086103	45	7/18/2012 12:46	GAB12474	0.286666667	1.69	300	86	507
3072086104	44	7/18/2012 12:46	GAB12474	0.123333333	1.15	300	37	345
3072086105	43	7/18/2012 12:46	GAB12474	0.203333333	1.673333333	300	61	502
3072086106	48	7/18/2012 10:23	GAB12474	0.136666667	1.826666667	300	41	548
3072086107	49	7/18/2012 10:23	GAB12474	0.226666667	1.286666667	300	68	386
3072086108	50	7/18/2012 10:23	GAB12474	0.176666667	1.473333333	300	53	442
3072086109	43	7/17/2012 11:19	GAB12474	0.226666667	1.22	300	68	366
3072086110	44	7/17/2012 11:19	GAB12474	0.153333333	1.316666667	300	46	395
3072086111	45	7/17/2012 11:19	GAB12474	0.58	2.346666667	300	174	704
3072086112	46	7/17/2012 11:19	GAB12474	0.266666667	1.003333333	300	80	301
3072086113	47	7/17/2012 11:19	GAB12474	0.093333333	1.193333333	300	28	358
3072086114	48	7/17/2012 11:19	GAB12474	0.223333333	2.083333333	300	67	625
3072086115	49	7/17/2012 11:19	GAB12474	0.163333333	2.1	300	49	630
3072086116	50	7/17/2012 11:19	GAB12474	0.183333333	1.586666667	300	55	476
3072086117	51	7/17/2012 11:19	GAB12474	0.16	1.506666667	300	48	452
3072086118	52	7/17/2012 11:19	GAB12474	0.206666667	1.423333333	300	62	427
3072086119	53	7/17/2012 11:19	GAB12474	0.183333333	1.783333333	300	55	535

*DL*  
*7/21/12*

# 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>
LCSD12474	7/20/2012 4:37:24 PM	13	GAB12474	0.567	4.7778	90.0
LCS12474	7/20/2012 4:37:19 PM	12	GAB12474	0.533	4.8444	90.0



## Batch Report

**Batch Name:** GAB12474B

**Procedure:** GAB Filter Counting

**Calibration:** Water

**Count Date:** 7/18/2012 12:46:31 PM

**Preset Count Time:** 18000

**Count Mode:** Simultaneous

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
3072086105	43	61	502	7/18/2012 12:46:24 PM	300
3072086104	44	37	345	7/18/2012 12:46:24 PM	300
3072086103	45	86	507	7/18/2012 12:46:25 PM	300
3072086102	46	82	308	7/18/2012 12:46:26 PM	300

## Batch Report

Batch Name: GAB12474

Procedure: GAB Filter Counting

Calibration: Water

Count Date: 7/16/2012 1:59:50 PM

Preset Count Time: 18000

Count Mode: Simultaneous

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
3072086109	43	68	366	7/17/2012 11:19:09 AM	300
3072086110	44	46	395	7/17/2012 11:19:09 AM	300
3072086111	45	174	704	7/17/2012 11:19:09 AM	300
3072086112	46	80	301	7/17/2012 11:19:09 AM	300
3072086113	47	28	358	7/17/2012 11:19:09 AM	300
3072086114	48	67	625	7/17/2012 11:19:09 AM	300
3072086115	49	49	630	7/17/2012 11:19:09 AM	300
3072086116	50	55	476	7/17/2012 11:19:09 AM	300
3072086117	51	48	452	7/17/2012 11:19:10 AM	300
3072086118	52	62	427	7/17/2012 11:19:10 AM	300
3072086119	53	55	535	7/17/2012 11:19:10 AM	300

## Batch Report

**Batch Name:** GAB12474      **Count Date:** 7/18/2012 10:23:40 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)
3072086106	48	41	548	7/18/2012 10:23:33 AM	300
3072086107	49	68	386	7/18/2012 10:23:33 AM	300
3072086108	50	53	442	7/18/2012 10:23:34 AM	300
3072086100	51	38	431	7/18/2012 10:23:34 AM	300
3072086101	52	67	387	7/18/2012 10:23:34 AM	300
458989	53	31	405	7/18/2012 10:23:34 AM	300

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

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
GAB	33	462474	GAB12474	90	7/18/12 0905	G	N/A	N/A
	34	300102532 PWS						
	3A	20102533						
GAB	43	LOS#1-124US	GAB124US	90	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						
	52	101						
	53	458989						
GRB	32	3561420001	GAB12434	1000	7/18/12 1300	G	N/A	N/A
	35	1 2						
GAB	37	3072080049	GAB	100	7/18/12 1215	DL	2	N/A
GAB	44	3072080500	GAB12469	110	7/18/12 1420	M	2	
	15	3072080000		140				
	16	005		120	7/18/12 1415			
	17	006		110				
	18	007						
	19	009		120	1442			
	20	010		100	1416			
	21	018						
	23	458984	GAB12470	100	1442			

- 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
GRA	32	307K53001	GRA12043	90	7/15/12 0045	C	N/A	N/A
	35	Z		110				
	1	416-1732		90				
	2	W0 12073						
	3	W0P J						
	4	307308086100						
	5	J 718 32067100						
	6	MVB	AMC 602-102					
	7	W01						
	8	L						
	9	J 3						
	10	J 4						
GRA	43	30720806105	GRA12474	300	7-18-12 1240	MWB	N/A	
	44	104						
	45	103						
	46	102						
GRA	47	458990	GRA12475	300	7/14/10 2049	BTH	N/A	POTENTIAL IN RANGE OF
	48	30720806100						Time of count
	49	121						
	50	122						
	51	123						
	52	124						
	53	125						
	54	126						

- 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	RL	2	
	36	013	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	3012080109	GAS 12474	300	7/17/12 1130	RL		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



# **Gross Alpha and Beta Sample Analysis Data**



# Quality Control Review



Batch RADC/12475 HBN 91045  
 Rule 9000 I Status WP  
 Create Date 6/28/2012 Analyst MBT

## 1 458990-BLANK for HBN 91045 [RADC/1247

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

### Prep Information

Procedure 9000 I Batch RADC/12475 Prep Date 7/14/2012 20:49 Dilution  
 Method EPA 900.0m HBN 91045 Hold Date 12/25/2012 23:59 Analyst MBT  
 Schedule 2795675 Instru NONE CC OK \*

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 20:49 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/25/2012 23:59 Analyst MBT  
 Schedule 2795675 File CC OK \*

Analyte	CC	Posted		Result	MDL	RDL
		Result				
Rad Chemistry	OK					
Gross Alpha	OK	-0.223U ± 0.273 (0.674)	pCi/sa	-0.223U ± 0.273 (0.674)		pCi/sam
Gross Beta	OK	0.168U ± 0.320 (0.670)	pCi/sa	0.168U ± 0.320 (0.670)		pCi/sam

## 2 3072086120-SU6-BIAS-1

Type PS Matrix Wipe Collected 6/21/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth  
 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12475 Prep Date 7/14/2012 20:49 Dilution  
 Method EPA 900.0m HBN 91045 Hold Date 12/18/2012 23:59 Analyst MBT  
 Schedule 2785555 Instru NONE CC OK \*

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 20:49 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/18/2012 23:59 Analyst MBT  
 Schedule 2785555 File CC OK \*

Analyte	CC	Posted		Result	MDL	RDL	Reg. Limits	
		Result					Low	High
Rad Chemistry	OK							dpm/sa
Gross Alpha	OK	0.756 ± 0.366 (0.563)	pCi/sa	0.756 ± 0.366 (0.563)				dpm/sa
Gross Beta	OK	1.87 ± 0.498 (0.611)	pCi/sa	1.87 ± 0.498 (0.611)				dpm/sa

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

# Quality Control Review



Batch RADC/12475 HBN 91045  
 Rule 9000 I Status WP  
 Create Date 6/28/2012 Analyst MBT

## 3 3072086121-SU09-BIAS-2

Type PS Matrix Wipe Collected 6/21/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12475 Prep Date 7/14/2012 20:49 Dilution  
 Method EPA 900.0m HBN 91045 Hold Date 12/18/2012 23:59 Analyst MBT  
 Schedule 2785557 Instru NONE CC OK \*  
 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 20:49 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/18/2012 23:59 Analyst MBT  
 Schedule 2785557 File CC OK \*

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.172U ± 0.310 (0.650)	pCi/sa 0.172U ± 0.310 (0.650)		dpm/sa		
Gross Beta	OK	-0.544U ± 0.384 (0.835)	pCi/sa -0.544U ± 0.384 (0.835)		dpm/sa		

## 4 3072086122-SU-07-BIAS1

Type PS Matrix Wipe Collected 6/22/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12475 Prep Date 7/14/2012 20:49 Dilution  
 Method EPA 900.0m HBN 91045 Hold Date 12/19/2012 23:59 Analyst MBT  
 Schedule 2785559 Instru NONE CC OK \*  
 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 20:49 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/19/2012 23:59 Analyst MBT  
 Schedule 2785559 File CC OK \*

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.043U ± 0.384 (0.844)	pCi/sa 0.043U ± 0.384 (0.844)		dpm/sa		
Gross Beta	OK	0.128U ± 0.293 (0.615)	pCi/sa 0.128U ± 0.293 (0.615)		dpm/sa		

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

# Quality Control Review



Batch RADC/12475 HBN 91045  
 Rule 9000 I Status WP  
 Create Date 6/28/2012 Analyst MBT

**5 3072086123-SU-13-BIAS1**

Type PS Matrix Wipe Collected 6/22/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

**Prep Information**

Procedure 9000 I Batch RADC/12475 Prep Date 7/14/2012 20:49 Dilution  
 Method EPA 900.0m HBN 91045 Hold Date 12/19/2012 23:59 Analyst MBT  
 Schedule 2785561 Instru NONE CC OK \*

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 20:49 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/19/2012 23:59 Analyst MBT  
 Schedule 2785561 File CC OK \*

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		
Gross Beta	OK	0.214U ± 0.317 (0.652)	pCi/sa 0.214U ± 0.317 (0.652)		dpm/sa		

**6 3072086124-SU-12-BIAS1**

Type PS Matrix Wipe Collected 6/22/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

**Prep Information**

Procedure 9000 I Batch RADC/12475 Prep Date 7/14/2012 20:49 Dilution  
 Method EPA 900.0m HBN 91045 Hold Date 12/19/2012 23:59 Analyst MBT  
 Schedule 2785563 Instru NONE CC OK \*

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 20:49 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/19/2012 23:59 Analyst MBT  
 Schedule 2785563 File CC OK \*

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	0.209U ± 0.313 (0.645)	pCi/sa 0.209U ± 0.313 (0.645)		dpm/sa		
Gross Beta	OK	-0.106U ± 0.394 (0.845)	pCi/sa -0.106U ± 0.394 (0.845)		dpm/sa		

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

# Quality Control Review



Batch RADC/12475 HBN 91045  
 Rule 9000 I Status WP  
 Create Date 6/28/2012 Analyst MBT

## 7 3072086125-SU-09-BIAS1

Type PS Matrix Wipe Collected 6/22/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12475 Prep Date 7/14/2012 20:49 Dilution  
 Method EPA 900.0m HBN 91045 Hold Date 12/19/2012 23:59 Analyst MBT  
 Schedule 2785565 Instru NONE CC OK \*

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 20:49 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/19/2012 23:59 Analyst MBT  
 Schedule 2785565 File CC OK \*

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.979U ± 0.386 (0.965)	pCi/sa -0.979U ± 0.386 (0.965)		dpm/sa		
Gross Beta	OK	0.265U ± 0.348 (0.725)	pCi/sa 0.265U ± 0.348 (0.725)		dpm/sa		

## 8 3072086126-SU-08-BIAS1

Type PS Matrix Wipe Collected 6/22/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmouth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12475 Prep Date 7/14/2012 20:49 Dilution  
 Method EPA 900.0m HBN 91045 Hold Date 12/19/2012 23:59 Analyst MBT  
 Schedule 2785567 Instru NONE CC OK \*

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 20:49 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/19/2012 23:59 Analyst MBT  
 Schedule 2785567 File CC OK \*

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.131U ± 0.338 (0.787)	pCi/sa -0.131U ± 0.338 (0.787)		dpm/sa		
Gross Beta	OK	0.021U ± 0.344 (0.734)	pCi/sa 0.021U ± 0.344 (0.734)		dpm/sa		

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



# Quality Control Review



Batch RADC/12475 HBN 91045  
 Rule 9000 I Status WP  
 Create Date 6/28/2012 Analyst MBT

## 11 3072086129-283-1st FLOOR-BACK-RESIDUE

Type PS Matrix Wipe Collected 6/22/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12475 Prep Date 7/14/2012 20:49 Dilution  
 Method EPA 900.0m HBN 91045 Hold Date 12/19/2012 23:59 Analyst MBT  
 Schedule 2785573 Instru NONE CC OK \*

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 20:49 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/19/2012 23:59 Analyst MBT  
 Schedule 2785573 File CC OK \*

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.039U ± 0.231 (0.545)	pCi/sa -0.039U ± 0.231 (0.545)		dpm/sa		
Gross Beta	OK	0.152U ± 0.331 (0.693)	pCi/sa 0.152U ± 0.331 (0.693)		dpm/sa		

## 12 3072086130-SU-15-BIAS1

Type PS Matrix Wipe Collected 6/22/2012 00:01 % Moisture  
 Client RTI WO 3072086 Work ID Fort Monmonth 1207074 Location

### Prep Information

Procedure 9000 I Batch RADC/12475 Prep Date 7/18/2012 10:20 Dilution  
 Method EPA 900.0m HBN 91045 Hold Date 12/19/2012 23:59 Analyst MBT  
 Schedule 2785575 Instru NONE CC OK \*

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 10:20 Dilution  
 Method EPA 900.0m Col ID Hold Date 12/19/2012 23:59 Analyst MBT  
 Schedule 2785575 File CC OK \*

Analyte	CC	Posted Result	Result	MDL	RDL	Reg. Limits	
						Low	High
Rad Chemistry	OK				dpm/sa		
Gross Alpha	OK	-0.081U ± 0.217 (0.531)	pCi/sa -0.081U ± 0.217 (0.531)		dpm/sa		
Gross Beta	OK	0.219U ± 0.316 (0.652)	pCi/sa 0.219U ± 0.316 (0.652)		dpm/sa		

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







Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12475  
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
458990	1.00000	S	9.0000	9.0000	0.00	43	7/14/2012 20:49	0.1233	1.2200	300	0.1620	1.1560	1000	dpm
3072086120	1.00000	S	9.0000	9.0000	0.00	44	7/14/2012 20:49	0.2433	1.8733	300	0.1110	0.9900	1000	dpm
3072086121	1.00000	S	9.0000	9.0000	0.00	45	7/14/2012 20:49	0.1700	1.5167	300	0.1410	1.7460	1000	dpm
3072086122	1.00000	S	9.0000	9.0000	0.00	46	7/14/2012 20:49	0.2400	1.0433	300	0.2330	0.9840	1000	dpm
3072086123	1.00000	S	9.0000	9.0000	0.00	47	7/14/2012 20:49	0.1333	1.2767	300	0.0940	1.1670	1000	dpm
3072086124	1.00000	S	9.0000	9.0000	0.00	48	7/14/2012 20:49	0.2033	2.0467	300	0.1650	2.0860	1000	dpm
3072086125	1.00000	S	9.0000	9.0000	0.00	49	7/14/2012 20:49	0.1667	1.4133	300	0.3330	1.3450	1000	dpm
3072086126	1.00000	S	9.0000	9.0000	0.00	50	7/14/2012 20:49	0.1833	1.4633	300	0.2050	1.4600	1000	dpm
3072086127	1.00000	S	9.0000	9.0000	0.00	51	7/14/2012 20:49	0.1567	1.4567	300	0.1500	1.3750	1000	dpm
3072086128	1.00000	S	9.0000	9.0000	0.00	52	7/14/2012 20:49	0.1500	1.2333	300	0.1070	1.1480	1000	dpm
3072086129	1.00000	S	9.0000	9.0000	0.00	53	7/14/2012 20:49	0.1000	1.4667	300	0.1070	1.3970	1000	dpm
3072086130	1.00000	S	9.0000	9.0000	0.00	47	7/18/2012 10:20	0.0800	1.2633	300	0.0940	1.1670	1000	dpm
LCS12475	1.00000	S	9.0000	9.0000	0.00	43	7/16/2012 12:14	0.6000	6.3000	90	0.1620	1.1560	1000	dpm
LCSD12475	1.00000	S	9.0000	9.0000	0.00	44	7/16/2012 12:14	0.6556	6.0444	90	0.1110	0.9900	1000	dpm

*Qu 7/18/12*

Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12475  
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
458990	-0.223	0.270	0.273	0.674	0.252	dpm/S	-0.039	0.00	0.000000	-0.039	17.36%	1
3072086120	0.756	0.340	0.366	0.563	0.207	dpm/S	0.132	0.00	0.000000	0.132	17.51%	1
3072086121	0.172	0.309	0.310	0.650	0.241	dpm/S	0.029	0.00	0.000000	0.029	16.90%	1
3072086122	0.043	0.384	0.384	0.844	0.319	dpm/S	0.007	0.00	0.000000	0.007	16.42%	1
3072086123	0.229	0.264	0.268	0.531	0.194	dpm/S	0.039	0.00	0.000000	0.039	17.20%	1
3072086124	0.209	0.311	0.313	0.645	0.241	dpm/S	0.038	0.00	0.000000	0.038	18.31%	1
3072086125	-0.979	0.344	0.386	0.965	0.369	dpm/S	-0.166	0.00	0.000000	-0.166	16.99%	1
3072086126	-0.131	0.337	0.338	0.787	0.296	dpm/S	-0.022	0.00	0.000000	-0.022	16.59%	1
3072086127	0.037	0.284	0.284	0.632	0.235	dpm/S	0.007	0.00	0.000000	0.007	17.88%	1
3072086128	0.239	0.269	0.272	0.539	0.198	dpm/S	0.043	0.00	0.000000	0.043	17.97%	1
3072086129	-0.039	0.231	0.231	0.545	0.200	dpm/S	-0.007	0.00	0.000000	-0.007	17.78%	1
3072086130	-0.081	0.216	0.217	0.531	0.194	dpm/S	-0.014	0.00	0.000000	-0.014	17.20%	1
LCS12475	2.522	0.933	1.036	1.310	0.421	dpm/S	0.438	0.00	0.000000	0.438	17.36%	1
LCSD12475	3.111	0.963	1.112	1.105	0.346	dpm/S	0.545	0.00	0.000000	0.545	17.51%	1

*MBT 7/18/12*

*7/18/12*

Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12475  
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
458990	0.168	0.319	0.320	0.670	0.263	dpm/S	0.064	0.00	-0.010903	0.075	44.46%	1
3072086120	1.869	0.369	0.498	0.611	0.239	dpm/S	0.883	0.00	0.038704	0.845	45.20%	1
3072086121	-0.544	0.371	0.384	0.835	0.330	dpm/S	-0.229	0.00	0.007697	-0.237	43.55%	1
3072086122	0.128	0.293	0.293	0.615	0.241	dpm/S	0.059	0.00	0.002051	0.057	44.76%	1
3072086123	0.214	0.314	0.317	0.652	0.256	dpm/S	0.110	0.00	0.011422	0.098	45.90%	1
3072086124	-0.106	0.394	0.394	0.845	0.334	dpm/S	-0.039	0.00	0.010343	-0.050	46.97%	1
3072086125	0.265	0.345	0.348	0.725	0.285	dpm/S	0.068	0.00	-0.048772	0.117	44.19%	1
3072086126	0.021	0.344	0.344	0.734	0.289	dpm/S	0.003	0.00	-0.006077	0.009	45.41%	1
3072086127	0.175	0.339	0.341	0.710	0.279	dpm/S	0.082	0.00	0.001868	0.080	45.63%	1
3072086128	0.160	0.311	0.313	0.650	0.255	dpm/S	0.085	0.00	0.012404	0.073	45.67%	1
3072086129	0.152	0.330	0.331	0.693	0.272	dpm/S	0.070	0.00	-0.001922	0.072	47.12%	1
3072086130	0.219	0.313	0.316	0.652	0.256	dpm/S	0.096	0.00	-0.004066	0.100	45.90%	1
LCS12475	11.292	1.176	2.337	1.253	0.439	dpm/S	5.144	0.00	0.123503	5.020	44.46%	1
LCSD12475	10.831	1.132	2.244	1.146	0.400	dpm/S	5.054	0.00	0.159266	4.895	45.20%	1

Maria



Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12475  
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 Eff: ax + b			Beta-to-Alpha Xtalk: ax + b			Alpha Bkg	Beta Bkg	Alpha Bkg	Beta Bkg	BKG 1 Date: 6/3/2012	BKG 2 Date: 7/13/2012
	a	b	c	d									e	a	b	c	d	e						
1					1.4256E-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	0.8670	0.0600	0.8670		
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						3.2495E-01		4.4544E-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		4.5385E-01						0.1620	0.4690	0.1620	0.4690		
12					1.5319E-01						3.7376E-01		4.5830E-01						0.0890	0.3780	0.0890	0.3780		
13					1.4959E-01						4.0742E-01		3.9032E-01						0.0500	0.3330	0.0500	0.3330		
14					1.5721E-01						3.5898E-01		4.4635E-01						0.0690	0.3800	0.0690	0.3800		
15					1.5605E-01						3.4723E-01		4.4658E-01						0.0620	0.4950	0.0620	0.4950		
16					1.5365E-01						3.5438E-01		4.3920E-01						0.0610	0.3910	0.0610	0.3910		
17					1.5472E-01						3.2964E-01		4.4691E-01						0.1370	0.3860	0.1370	0.3860		
18					1.5273E-01						3.6020E-01		4.4422E-01						0.0630	0.3920	0.0630	0.3920		
19					1.5393E-01						3.9255E-01		4.5782E-01						0.0770	0.4570	0.0770	0.4570		
20					1.5610E-01						3.6978E-01		4.4321E-01						0.0970	0.3820	0.0970	0.3820		
21					1.5130E-01						4.0476E-01		4.5533E-01						0.0780	0.3780	0.0780	0.3780		
22					1.5360E-01						3.9282E-01		4.3554E-01						0.0570	0.4180	0.0570	0.4180		
23					1.5639E-01						3.6878E-01		4.4612E-01						0.0750	0.4570	0.0750	0.4570		
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		
26					1.5743E-01						3.3781E-01		4.5458E-01						0.1490	0.4370	0.1490	0.4370		
27					1.5803E-01						3.3826E-01		4.4883E-01						0.0740	0.2680	0.0740	0.2680		

*Multiple*

*7/18/12  
DSC*

Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Test Code: Alpha Beta  
Matrix: IP  
Batch ID: 12475  
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	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
28					1.5336E-01						3.4325E-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					1.5353E-01						3.5204E-01				4.4881E-01					0.0890	0.3870	0.0900	0.3660
32					1.5823E-01						3.3321E-01				4.6019E-01					0.0540	0.4120	0.0530	0.3980
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					1.4938E-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					1.8176E-01						2.5395E-01				4.5470E-01					0.2530	12.5520	0.2530	12.5520
41					#N/A						#N/A				#N/A					2.7170	866.8100	2.7170	366.8100
42					1.4541E-01						4.8586E-01				3.3592E-01					0.2050	9.9000	0.2050	9.9000
43					1.7364E-01						2.8197E-01				4.4459E-01					0.1620	1.1560	0.1520	1.1560
44					1.7507E-01						2.9247E-01				4.5198E-01					0.1110	0.9900	0.1110	0.9900
45					1.6896E-01						2.6541E-01				4.3590E-01					0.1410	1.7460	0.1410	1.7460
46					1.6416E-01						2.9296E-01				4.4755E-01					0.2330	0.9940	0.2330	0.9940
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					1.6992E-01						2.9322E-01				4.4190E-01					0.3330	1.3450	0.3330	1.3450
50					1.6594E-01						2.8046E-01				4.5406E-01					0.2050	1.4600	0.2050	1.4600
51					1.7880E-01						2.8023E-01				4.5625E-01					0.1500	1.3750	0.1500	1.3750
52					1.7970E-01						2.8847E-01				4.5689E-01					0.1070	1.1480	0.1070	1.1480
53					1.7780E-01						2.7454E-01				4.7119E-01					0.1070	1.3870	0.1070	1.3870

*Om 7/18/12*

2/16/12  
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Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

**CSU Analysis for Preparation**

**Planchet Weighing**

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

**Volume Aliquot**

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

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  
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Pace Analytical Services  
Gross Alpha and Gross Beta  
Analysis

Counts

alpha

beta

SAMPLE_ID	Det#	BEG_DATE	BATCH_ID	ACPM	BCPM	CNT_TIME	alpha	beta
458990	43	#####	GAB12475	0.123	1.22	300	37	366
3072086120	44	#####	GAB12475	0.243	1.873	300	73	562
3072086121	45	#####	GAB12475	0.17	1.517	300	51	455
3072086122	46	#####	GAB12475	0.24	1.043	300	72	313
3072086123	47	#####	GAB12475	0.133	1.277	300	40	383
3072086124	48	#####	GAB12475	0.203	2.047	300	61	614
3072086125	49	#####	GAB12475	0.167	1.413	300	50	424
3072086126	50	#####	GAB12475	0.183	1.463	300	55	439
3072086127	51	#####	GAB12475	0.157	1.457	300	47	437
3072086128	52	#####	GAB12475	0.15	1.233	300	45	370
3072086129	53	#####	GAB12475	0.1	1.467	300	30	440
3072086130	47	#####	GAB12475	0.08	1.263	300	24	379
LCS12475	43	#####	GAB12475	0.6	6.3	90	54	567
LCSD12475	44	#####	GAB12475	0.656	6.044	90	59	544

7/18/12





# Batch Report

Count Date: 7/14/2012 8:49:18 PM

Preset Count Time: 18000

Count Mode: Simultaneous

Batch Name: GAB12475

Procedure: GAB Filter Counting

Calibration: Water

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
458990	43	37	366	7/14/2012 8:49:12 PM	300
3072086120	44	73	562	7/14/2012 8:49:12 PM	300
3072086121	45	51	455	7/14/2012 8:49:12 PM	300
3072086122	46	72	313	7/14/2012 8:49:12 PM	300
3072086123	47	40	383	7/14/2012 8:49:13 PM	300
3072086124	48	61	614	7/14/2012 8:49:13 PM	300
3072086125	49	50	424	7/14/2012 8:49:13 PM	300
3072086126	50	55	439	7/14/2012 8:49:13 PM	300
3072086127	51	47	437	7/14/2012 8:49:13 PM	300
3072086128	52	45	370	7/14/2012 8:49:14 PM	300
3072086129	53	30	440	7/14/2012 8:49:14 PM	300
3072086130	47	24	379	7/18/2012 10:20:55 AM	300
LCS#3-12475	43	54	567	7/16/2012 12:14:28 PM	90
LCS#4-12475	44	59	544	7/16/2012 12:14:29 PM	90

7/14/12  
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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 027	LAB12405	300	7-13-12 0800	MST	N/A	N/A
	52	↓ 28	↓	↓	↓	↓	↓	↓
	53	↓ 29	↓	↓	↓	↓	↓	↓
LAB	43	LCS3 12475	LAB12475	90	7-10-12 1205	MST	N/A	N/A
	44	↓ 4	↓	↓	↓	↓	↓	↓
	45	LCS1-12400	LAB12400	↓	↓	↓	↓	↓
	46	LCS2-12400	↓	↓	↓	↓	↓	↓
LAB	2	307254001	LAB12573	1000	7/10/12 1500	g	N/A	N/A
	3	↓ 726001	↓	↓	↓	↓	↓	↓
	6	307279001	LAB12558	↓	7/10/12 1500	↓	↓	↓
	7	↓ 72903	↓	↓	↓	↓	↓	↓
	8	↓ 72921	↓	↓	↓	↓	↓	↓
	9	↓ 002	↓	↓	↓	↓	↓	↓
	10	↓ 729000	↓	↓	↓	↓	↓	↓

- 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
GAB	33	462474	GAB12477	90	7/18/12 0905	G	N/A	N/A
	34	3301002327ND						
	36	20102333						
GAB	43	LOS#1-12405	GAB12405	90	7-18-12 1017	MBT	N/A	N/A
	44	LOS#3-12405						
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						
	52	101						
	53	458989						
GAB	32	3561420001	GAB12432	1000	7/18/12 1300	G	N/A	N/A
	35	2						
GAB	21	3072080019	GAB	100	7/18/12 1215	OL	2	N/A
GAB	14	3072080100	GAB12409	110	7/18/12 1420	M	2	
	15	3072080000		140				
	16	005		120	7/18/12 1415			
	17	006		110				
	18	007			1442			
	19	008		120	1416			
	20	010		120				
	21	018			1442			
	23	458989	GAB12470	100	1416			

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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
GRA	32	307K33001	GAB12443	90	7/15/12 0045	C	N/A	N/A
	35	1 Z		110				
	1	410-1732		90				
	2	W0 R043						
	3	W0P J						
	4	30730800110						
	5	J 718 3207110						
	6	MB	AMK GRP 102					
	7	W01						
	8	2						
	9	3						
	10	4						
GRA	43	3072080105	GAB12474	300	7-18-12 1240	WUB	N/A	N/A
	44	104						
	45	103						
	46	102						
GRA	47	458890	GAB12475	300	7/14/10 2049	BTH	N/A	ENTERED IN RUNLOG
	48	3072030100						time of count
	49	121						
	50	122						
	51	123						
	52	124						
	53	125						
	54	126						

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)
			$\mu_A$	$\mu_B$	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:  $\gamma$ -impurities <0.1%. 5.00249 g 0.1M HCl solution with approximately 30  $\mu$ 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 Nuclide: Th-230 Std Conc.: 4719.33 dpm/g  
 Parent Source: 81003-493 Prepared By: SLC  
 Parent Conc: 3833.13 Bq/g Prep Date: 6/14/12  
 Reference Date: 11/5/2009 12:00 Calibration Solution Expiration Date: 6/14/17

Balance ID: 88914 Conversions: 60 dpm = 1 dps  
 Diluent: 1.0 N HNO<sub>3</sub> + DI (0.5 N HNO<sub>3</sub>) 1 Bq = 1 dps  
 Diluent IDs: DL12-1111 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 HNO<sub>3</sub> + DI water

**Eckert & Ziegler** Atlanta, GA 30318 USA  
**Analytcs** 404-352-8677  
 Th-230 4.893g  
 SRS: 81003-493 Activity: 0.52 μCi  
 Date: 11/05/09 12:00 EST Exp: XXXXXX  
 PO#: PI-12089, Item 8  
 5.02201 g 0.5M HNO<sub>3</sub> solution  
 QA: MM



Dilution Calculations:

$$1.0722 \text{ g} \left| \frac{3833.13 \text{ Bq}}{g} \right| \frac{60 \text{ dpm}}{\text{Bq}} \left| \frac{\text{---}}{52.2516 \text{ g}} \right|$$

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

Vial initial  
 18.8665  
 17.7943

Container Tare Weight: 37.4418 Balance ID: \_\_\_\_\_  
 Container + Standard Final Weight: 89.6934

Standard Final Disposal (circle one) Consumed Destroyed Discarded  
 Analyst initials: \_\_\_\_\_ Date: \_\_\_\_\_

**CERTIFICATE OF CALIBRATION**  
Standard Radionuclide Source

81003-493

Th-230 5 mL Liquid in Flame Sealed Vial

**Customer:** Pace Analytical Services, Inc.  
**P.O. No.:** PI-12089, Item 8

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated by liquid scintillation counting. Radionuclide purity and calibration were checked by germanium gamma-ray spectrometry and liquid scintillation counting. The nuclear decay rate and assay date for this source are given below. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 1, February, 1979, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Isotope	Half-Life, Days	Activity (Bq)	Uncertainty*, %			Reference Date (12:00 PM EST)
			$u_A$	$u_B$	U	
Th-230	2.763E+07	1.925E+04	0.1	0.9	1.8	11/05/2009

\*Uncertainty: U - Relative expanded uncertainty,  $k = 2$ . See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

**Comments:**

Impurities:  $\gamma$ -impurities <0.1%,  $\alpha$ -impurities <0.04%. 5.02201 g 0.5M HNO<sub>3</sub> solution, carrier free.

Source Prepared by: N. E. Kasate  
N. E. Kasate, Radiochemist

QA Approved: D. M. Montgomery  
D. M. Montgomery, QA Manager

Date: 11-6-09



### Gross Alpha Calibration for Filters and Smears

Jun-12

Detector ID	Source Name	Th-230 12-028 Mass (g)	Source dpm	Source CPM	Alpha Eff. cpm/dpm	Det Alpha BKG	Source Beta CPM	Det Beta BKG	Alpha to beta Cross talk Eff
1	GAF-20120629-N1	0.1012	477.6	68.150	0.1426	0.064	22.820	0.804	0.3234
2	GAF-20120629-N5	0.1007	475.2	73.840	0.1552	0.062	20.910	0.701	0.2739
3	GAF-20120629-N2	0.1000	471.9	71.180	0.1507	0.060	22.650	0.667	0.3091
4	GAF-20120629-N3	0.1008	475.7	68.790	0.1444	0.112	20.680	0.605	0.2923
7	GAF-20120629-N4	0.1006	474.8	74.670	0.1571	0.107	19.060	0.689	0.2464
8	GAF-20120629-N6	0.1008	475.7	67.130	0.1409	0.096	21.370	0.631	0.3094
9	GAF-20120629-N6	0.1008	475.7	64.050	0.1345	0.055	22.580	0.637	0.3429
11	GAF-20120629-N1	0.1012	477.6	72.293	0.1510	0.162	29.540	0.469	0.4030
12	GAF-20120629-N2	0.1000	471.9	72.387	0.1532	0.089	27.400	0.378	0.3738
13	GAF-20120629-N3	0.1008	475.7	71.213	0.1496	0.050	29.327	0.333	0.4074
14	GAF-20120629-N1	0.1012	477.6	75.153	0.1572	0.069	27.327	0.380	0.3589
15	GAF-20120629-N2	0.1000	471.9	73.727	0.1560	0.082	26.067	0.495	0.3472
16	GAF-20120629-N3	0.1008	475.7	73.153	0.1536	0.061	26.293	0.391	0.3544
17	GAF-20120629-N4	0.1006	474.8	73.593	0.1547	0.137	24.600	0.386	0.3296
18	GAF-20120629-N5	0.1007	475.2	72.847	0.1527	0.063	26.527	0.382	0.3602
19	GAF-20120629-N2	0.1000	471.9	72.720	0.1539	0.077	28.247	0.457	0.3826
20	GAF-20120629-N1	0.1012	477.6	74.650	0.1561	0.097	27.950	0.382	0.3698
21	GAF-20120629-N1	0.1012	477.6	72.340	0.1513	0.078	29.627	0.378	0.4048
22	GAF-20120629-N2	0.1000	471.9	72.547	0.1536	0.057	28.893	0.418	0.3928
23	GAF-20120629-N3	0.1008	475.7	74.473	0.1564	0.075	27.893	0.457	0.3688
25	GAF-20120629-N3	0.1008	475.7	75.753	0.1590	0.127	27.267	0.411	0.3551
26	GAF-20120629-N4	0.1006	474.8	74.993	0.1574	0.149	25.687	0.437	0.3378
27	GAF-20120629-N4	0.1006	474.8	75.100	0.1580	0.074	25.667	0.288	0.3383
28	GAF-20120629-N6	0.1008	475.7	73.987	0.1554	0.081	25.700	0.333	0.3432
29	GAF-20120629-N3	0.1008	475.7	73.167	0.1536	0.084	25.587	0.322	0.3457
30	GAF-20120629-N4	0.1006	474.8	73.647	0.1550	0.072	26.273	0.409	0.3515
31	GAF-20120629-N5	0.1007	475.2	73.053	0.1535	0.089	26.053	0.367	0.3520
32	GAF-20120629-N6	0.1008	475.7	75.327	0.1582	0.054	25.493	0.412	0.3332
33	GAF-20120629-N4	0.1006	474.8	76.750	0.1615	0.090	26.950	0.387	0.3465
34	GAF-20120629-N3	0.1008	475.7	76.747	0.1612	0.076	26.073	0.404	0.3348
36	GAF-20120629-N4	0.1006	474.8	71.087	0.1495	0.093	26.007	0.407	0.3606
37	GAF-20120629-N4	0.1006	474.8	75.913	0.1598	0.042	24.513	0.319	0.3189
38	GAF-20120629-N6	0.1008	475.7	72.673	0.1525	0.110	25.573	0.399	0.3469
39	GAF-20120629-N1	0.1012	477.6	84.202	0.1761	0.078	35.832	12.476	0.2776
40	GAF-20120629-N2	0.1000	471.9	86.031	0.1818	0.253	34.336	12.552	0.2540
42	GAF-20120629-N5	0.1007	475.2	69.311	0.1454	0.205	44.167	9.900	0.4959
43	GAF-20120629-N4	0.1006	474.8	82.599	0.1736	0.162	24.401	1.156	0.2820
44	GAF-20120629-N5	0.1007	475.2	83.913	0.1751	0.111	25.324	0.990	0.2925
45	GAF-20120629-N6	0.1008	475.7	80.517	0.1690	0.141	23.079	1.746	0.2654
46	GAF-20120629-N6	0.1008	475.7	78.325	0.1642	0.233	23.862	0.984	0.2930
47	GAF-20120629-N1	0.1012	477.6	82.254	0.1720	0.094	25.026	1.167	0.2904
48	GAF-20120629-N2	0.1000	471.9	86.594	0.1831	0.165	25.407	2.086	0.2698
49	GAF-20120629-N3	0.1008	475.7	81.172	0.1699	0.333	25.048	1.345	0.2932
50	GAF-20120629-N4	0.1006	474.8	78.986	0.1659	0.205	23.555	1.460	0.2805
51	GAF-20120629-N1	0.1012	477.6	85.544	0.1788	0.150	25.305	1.375	0.2802
52	GAF-20120629-N2	0.1000	471.9	84.912	0.1797	0.107	25.611	1.148	0.2885
53	GAF-20120629-N3	0.1008	475.7	84.689	0.1778	0.107	24.618	1.397	0.2745

	Alpha Cts	Beta Cts	Ct Time
39	GAF-20120629-N1	10100	4298
40	GAF-20120629-N2	10100	4031
42	GAF-20120629-N3	10100	6436
43	GAF-20120629-N4	10101	2984
44	GAF-20120629-N5	10100	3070
45	GAF-20120629-N6	10100	2895
46	GAF-20120629-N6	10100	3077
47	GAF-20120629-N1	10100	3073
48	GAF-20120629-N2	10102	2964
49	GAF-20120629-N3	10101	3117
50	GAF-20120629-N4	10100	3012
51	GAF-20120629-N1	10101	2988
52	GAF-20120629-N2	10102	3047
53	GAF-20120629-N3	10100	2936

*M 7/21/12*

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	1422.900	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%

*Calculated*

Cycle 1 of 1

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

Elapsed Time: 150:00

Guard: 821.5 cpm

*Calculated*

<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

<b>SAMPLE_ID</b>	<b>Count Start:</b>	<b>DET#</b>	<b>BATCH_ID</b>	<b>Alpha cpm</b>	<b>Beta cpm</b>	<b>Ct. Time (min)</b>
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

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
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

<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	7/11/2012 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

<b>SAMPLE_ID</b>	<b>Count Start:</b>	<b>DET#</b>	<b>BATCH_ID</b>	<b>Alpha cpm</b>	<b>Beta cpm</b>	<b>Ct. Time (min)</b>
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

SAMPLE_ID	Count Start:	DET#	BATCH_ID	Alpha cpm	Beta cpm	Ct. Time (min)
GAF-20120629-N6	7/3/2012 1:37:00 PM	32	FilterCal	75.327	25.4933	150.0
GBF-20120629-N2	7/3/2012 9:52:17 AM	32	FilterCal	1.000	1477.0000	10.0

# Pace Analytical Protean GFPC System Count Data

<u>SAMPLE ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GBF-20120629-N4	7/2/2012 11:00:28 AM	33	FilterCal	0.600	1478.3000	10.0
GAF-20120629-N4	7/2/2012 9:15:53 AM	33	FilterCal	76.750	26.9500	20.0

# Pace Analytical Protean GFPC System Count Data

<u>SAMPLE_ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH_ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N3	7/2/2012 1:50:53 PM	34	FilterCal	76.747	26.0733	150.0
GBF-20120629-N5	7/2/2012 11:00:14 AM	34	FilterCal	0.500	1459.9000	10.0

# Pace Analytical Protean GFPC System Count Data

<u>SAMPLE_ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH_ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N4	7/2/2012 1:51:09 PM	36	FilterCal	71.087	26.0067	150.0
GBF-20120629-N5	7/2/2012 9:29:29 AM	36	FilterCal	0.000	1412.4000	10.0
GBF-20120629-N4	7/2/2012 9:16:09 AM	36	FilterCal	0.300	1458.3000	10.0



# Pace Analytical Protean GFPC System Count Data

<u>SAMPLE_ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH_ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N4	7/2/2012 9:43:05 AM	37	FilterCal	75.913	24.5133	150.0
GBF-20120629-N4	7/2/2012 9:29:44 AM	37	FilterCal	0.600	1441.8000	10.0

# Pace Analytical Protean GFPC System Count Data

<u>SAMPLE_ID</u>	<u>Count Start:</u>	<u>DET#</u>	<u>BATCH_ID</u>	<u>Alpha cpm</u>	<u>Beta cpm</u>	<u>Ct. Time (min)</u>
GAF-20120629-N6	7/2/2012 1:51:25 PM	38	FilterCal	72.673	25.5733	150.0
GBF-20120629-N6	7/2/2012 10:59:58 AM	38	FilterCal	0.800	1432.1000	10.0



## Batch Report

Batch Name: GAF Cal  
Procedure: GAB Filter Counting  
Calibration: Water

Count Date: 7/9/2012 2:56:48 PM

Preset Count Time: 9000

Count Mode: Simultaneous

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
39-GAF20120629-N1	39	10100	4298	7/9/2012 2:56:42 PM	119.95
40-GAF20120629-N2	40	10100	4031	7/9/2012 2:56:42 PM	117.4
42-GAF20120629-N3	42	9128	7355	7/9/2012 2:56:42 PM	150
43-GAF20120629-N4	43	10101	2984	7/9/2012 2:56:43 PM	122.29
44-GAF20120629-N5	44	10100	3070	7/9/2012 2:56:43 PM	121.23
45-GAF20120629-N6	45	10100	2895	7/9/2012 2:56:43 PM	125.44

## Batch Report

**Batch Name:** GAF CAL 2      **Count Date:** 7/10/2012 10:39:50 AM  
**Procedure:** GAB Filter Counting      **Preset Count Time:** 9000  
**Calibration:** Water      **Count Mode:** Simultaneous

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
47-GAF20120629-N1	47	10100	3073	7/10/2012 10:39:46 AM	122.79
48-GAF20120629-N2	48	10102	2964	7/10/2012 10:39:46 AM	116.66
49-GAF20120629-N3	49	10101	3117	7/10/2012 10:39:46 AM	124.44
50-GAF20120629-N4	50	10100	3012	7/10/2012 10:39:46 AM	127.87
42-GAF20120629-N5	42	10100	6436	7/10/2012 10:39:45 AM	145.72

## Batch Report

Batch Name: GAF CAL 4

Procedure: GAB Filter Counting

Calibration: Water

Count Date: 7/10/2012 1:34:52 PM

Preset Count Time: 9000

Count Mode: Simultaneous

Sample ID

DetectorName

Alpha Counts

Beta Counts

Count Date/Time

Count Duration  
(minutes)

46-GAF20120629-N6

46

10100

3077

7/10/2012 1:34:49 PM

128.95

## Batch Report

**Batch Name:** GAF CAL 3

**Procedure:** GAB Filter Counting

**Calibration:** Water

**Count Date:** 7/10/2012 12:52:40 PM

**Preset Count Time:** 9000

**Count Mode:** Simultaneous

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
51-GAF20120629-N1	51	10101	2988	7/10/2012 12:52:37 PM	118.08
52-GAF20120629-N2	52	10102	3047	7/10/2012 12:52:37 PM	118.97
53-GAF20120629-N3	53	10100	2936	7/10/2012 12:52:37 PM	119.26



## Batch Report

Batch Name: GBF Cal      Count Date: 7/9/2012 2:00:28 PM

Procedure: GAB Filter Counting

Preset Count Time: 900

Calibration: Water

Count Mode: Simultaneous

Sample ID	DetectorName	Alpha Counts	Beta Counts	Count Date/Time	Count Duration (minutes)
39-GBF20120629-N1	39	110	10508	7/9/2012 2:00:24 PM	7.05
40-GBF20120629-N2	40	42	10517	7/9/2012 2:00:24 PM	7.15
41-GBF20120629-N3	41	1	10504	7/9/2012 2:00:24 PM	12.02
42-GBF20120629-N4	42	9	10514	7/9/2012 2:00:24 PM	9.69
43-GBF20120629-N5	43	126	10516	7/9/2012 2:00:24 PM	7.24
44-GBF20120629-N6	44	69	10509	7/9/2012 2:00:25 PM	7.19
45-GBF20120629-N5	45	77	10519	7/9/2012 2:31:09 PM	7.39
46-GBF20120629-N6	46	70	10508	7/9/2012 2:31:09 PM	7.26
47-GBF20120629-N1	47	90	10511	7/9/2012 2:31:10 PM	7.08
48-GBF20120629-N2	48	90	10514	7/9/2012 2:31:10 PM	6.97
49-GBF20120629-N3	49	59	10506	7/9/2012 2:31:10 PM	7.24
50-GBF20120629-N4	50	63	10520	7/9/2012 2:31:10 PM	7.18
51-GBF20120629-N5	51	86	10510	7/9/2012 2:40:13 PM	7.05
52-GBF20120629-N6	52	79	10502	7/9/2012 2:40:13 PM	7.11
53-GBF20120629-N1	53	68	10517	7/9/2012 2:40:13 PM	6.9

## Background Report

**Batch Name:** Batch\_1884  
**Procedure:** BACKGROUND  
**Calibration:** DAILY BKG CHECK

**Count Date:** 7/6/2012 2:38:20 PM  
**Preset Count Time:** 60000  
**Count Mode:** Simultaneous

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
51	1.5000E-001 +/- 1.2247E-002	1.3750E+000 +/- 3.7081E-002

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
52	1.0700E-001 +/- 1.0344E-002	1.1480E+000 +/- 3.3882E-002

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
53	1.0700E-001 +/- 1.0344E-002	1.3970E+000 +/- 3.7376E-002

**Batch Name:** Batch\_1886  
**Procedure:** BACKGROUND  
**Calibration:** DAILY BKG CHECK

**Count Date:** 7/6/2012 2:38:19 PM  
**Preset Count Time:** 60000  
**Count Mode:** Simultaneous

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
43	1.6200E-001 +/- 1.2728E-002	1.1560E+000 +/- 3.4000E-002

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
44	1.1100E-001 +/- 1.0536E-002	9.9000E-001 +/- 3.1464E-002

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
45	1.4100E-001 +/- 1.1874E-002	1.7460E+000 +/- 4.1785E-002

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
46	2.3300E-001 +/- 1.5264E-002	9.8400E-001 +/- 3.1369E-002

**Batch Name:** Batch\_1885  
**Procedure:** BACKGROUND  
**Calibration:** DAILY BKG CHECK

**Count Date:** 7/6/2012 2:38:16 PM  
**Preset Count Time:** 60000  
**Count Mode:** Simultaneous

Calculated Background (cpm)		
Detector Name	Alpha Bkg Rate (cpm)	Beta Bkg Rate (cpm)
47	9.4000E-002 +/- 9.6954E-003	1.1670E+000 +/- 3.4161E-002



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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			7/3/12 1650			
CAF	20	CAF-20120629-N1	Filtered	20	7/3/12	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	nd	nd
	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
GABF	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	GA Cal 20120629-N10	GA Cal C	15	7/2/12 1330	R	NA	
CAP	19	CAP-20120629-N2	Filter Cal	150	7/2/12	R	NA	
	34	-N3						
	36	-N4						
	37	-N6						
	38	-N5						
	14	-N1						
	40	40-GA20120629-N10	GA Cal D	15	7/2/12	R	NA	
	41	-N10						
	42	-N10						
	47	-N10						
	48	-N10						
	49	-N10						
	50	-N10						

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

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	FILCAL	3	7/3/12 1056	Ch	NA	
GBF	14	GBF20120629-N1	FILCAL	10	7/3/12 1042			
TAR	20	TAR20120614-N3	TARCAL	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	FILCAL	150	1337			
	14				1425			

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

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

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
	15	CAF-20100629-N2	Filter Cal	150	7/3/12 1402	R	nd	nd
	29	- N3			1456			
	30	- N4			1425			
	31	- N5			↓			
SR	1	MB	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						
UMB	11	3072341001	6AB1205Z					
	12	391						
	13	421						
	14	W012252						
	15	W01						
	16	3072341001						
	17	460307	6AB12534					
	19	W013524						
	22	W01						
	24	3072347021						

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







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

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
6B	52	52-6870020614-N16	6800E	15	7/10/12	AN	NA	
	53	-N7						
	43	-N4			7/10/12 1030	AN	NA	
	44	-N1						
	45	-N2						
	46	-N3						
	51	-N8						
	52	-N5						
	53	-N6						
	43	-N3			7/10/12 1039	AN	NA	
	44	-N4						
	45	-N1						
	46	-N2						
	51	-N7						
	52	-N8						
	53	-N5						
	43	-N2			7/10/12 1055	AN	NA	
	44	-N3						
	45	-N4						
	46	-N1						
	51	-N6						
	52	-N7						
	53	-N8						
	42	40-6870020614-N5	CAF Cal	200	7/10/12	AN	NA	Accurate

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

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

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
CAF	47	47-CAF20100629-N1	CAF cal	150	7/10/12 1039	A	NA	not
	48	-N2						
	49	-N3						
	50	-N4						
GB	43	43-GB20120614-N5	GB cal	15	7/10/12 1107			
	44	-N6						
	45	-N7						
	46	-N8						
	51	-N1						
	52	-N2						
	53	-N3						
	43	-N8			1123			
	44	-N5						
	45	-N6						
	46	-N7						
	51	-N4						
	52	-N1						
	53	-N2						
	43	-N7			1:51			
	44	-N8						
	45	-N5						
	46	-N6						
	51	-N3						
	52	-N4						

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

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

Logbook ID 24-R002-3

Analysis	Detector #	Sample ID	Batch ID	Count Time (min)	Count Start date/time	Analyst	Re-Analysis Code	Comments
GAS	11	GA 00120614 -N03	GACal	23	7/11/12 1053	AL	nd	
	12	-N04		23	7/11/12 1030-1050			
	13	-N05						
	14	-N05						
	15	-N06			1130			
	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	nd	
GAS	49	LS41-12455	12455	90	7/10/12 1438	AL	nd	
	50	LS42-12455						
GAS	43	48962	12455					
	44	3072058021	12455	300	7/10/12	AL	nd	
	45	092						
	46	033						
	47	024						

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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 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
AP	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
GF	2	GAF-20120609-N5	GAF04	210	7/11/12 11:26	R	NA	
	8	- N6		↓				
	21	- N1		150				
	22	- N2		↓				
	27	- N4		↓				
	20	458971	GAB12459	120	7/11/12 17:10		NA	NA
	23	3072058101			↓			
	13	3072060001			17:18			
	19				20:53			
	13							
	14							
	15							
	16							
	18							
	19							
	20							
	23							
	27							
	28							
	30							
	31							
	32							
	33							
	35							
	36							
	37							

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

Peer Review REL Date: 7/12/12

# **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: 12-018  
 Parent Source: 85228-493  
 Parent Conc: 3741.9175 Bq/g  
 Reference Date: 7/13/2011 12:00

Nuclide: Th-230

Std Conc.: 26.497 pCi/ml  
 Prepared By: JAL  
 Prep Date: 4/25/12  
 Expiration Date: 4/25/17

Balance ID: 88919  
 Diluent: 0.5 M HNO<sub>3</sub>  
 Diluent IDs: DL12-1111 (1.0M HNO<sub>3</sub>)

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

**Dilution Description:**

diluted 0.0655g of 85228-493 to 250.0ml w/ 0.5M HNO<sub>3</sub>  
 (0.5M HNO<sub>3</sub> made by diluting 1.25ml of 1.0M HNO<sub>3</sub> to 250ml w/ DI water)  
 JAL 4/25/12

**Dilution Calculations:**

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

Container Tare Weight: \_\_\_\_\_  
 Container + Standard Final Weight: \_\_\_\_\_

Balance ID: \_\_\_\_\_

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:  $\gamma$ -impurities < 0.1 %,  $\alpha$ -impurities < 0.01%. 5.09899 grams 0.5M HNO<sub>3</sub> solution.

Source Prepared by: \_\_\_\_\_

Z. Dimitrova, Radiochemist

QA Approved: \_\_\_\_\_

J. D. McCorvey, QA Manager Alternate

Date: \_\_\_\_\_

13-74/4-11





# Pace Analytical Services, Inc.-PGH

## Radiological Standards Dilution Logbook

Logbook ID: 2-R056-0

Standard ID: 12-014  
 Parent Source: 1404-58-1  
 Parent Conc: 714.1 Bq/g  
 Reference Date: 12/12/09 1400

Nuclide: Sr90

Std Conc.: 47.02 pCi/ml  
 Prepared By: JLK  
 Prep Date: 2/27/2012  
 Expiration Date: 2/27/2017

Balance ID: 88919  
 Diluent: 0.1 N HCl  
 Diluent IDs: 042-0130

Conversions: 60 dpm = 1 dps  
 1 Bq = 1 dps  
 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:**

$$0.6091 \text{ g} \left/ \frac{714.1 \text{ Bq}}{\text{g}} \right/ \frac{60 \text{ dpm}}{\text{Bq}} \left/ \frac{2.22 \text{ dpm}}{\text{pCi}} \right/ \frac{1}{250.0 \text{ ml}} = 47.02 \text{ pCi/ml}$$

(Sr90)

- 94.045 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

<b>Radionuclide:</b> Sr-90	<b>Customer:</b> PACE ANALYTICAL
<b>Half-life:</b> 28.5 ± 0.2 years	<b>P.O. No.:</b> PI-12091
<b>Catalog No.:</b> 7090	<b>Reference Date:</b> 1-Dec-09 12:00 PST
<b>Source No.:</b> 1404-58-1	<b>Contained Radioactivity:</b> 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 <sub>2</sub> 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

<b>SAMPLE ID</b>	<b>Count Start:</b>	<b>DET#</b>	<b>BATCH ID</b>	<b>Alpha cpm</b>	<b>Beta cpm</b>	<b>Ct. Time (min)</b>
LBKG 22	8/30/2009 15:41:14	22	LONG BKG	0.027	0.3600	1000.0
LBKG 21	8/30/2009 15:41:06	21	LONG BKG	0.063	0.3680	1000.0
LBKG 20	8/30/2009 15:41:01	20	LONG BKG	0.042	0.3370	1000.0
LBKG 19	8/30/2009 15:40:56	19	LONG BKG	0.023	0.4950	1000.0
LBKG 18	8/30/2009 15:40:49	18	LONG BKG	0.060	0.3700	1000.0
LBKG 17	8/30/2009 15:40:44	17	LONG BKG	0.049	0.3300	1000.0
LBKG 16	8/30/2009 15:40:41	16	LONG BKG	0.040	0.3910	1000.0
LBKG 15	8/30/2009 15:40:41	15	LONG BKG	0.051	0.4110	1000.0
LBKG 14	8/30/2009 15:40:41	14	LONG BKG	0.027	0.3950	1000.0
LBKG 13	8/30/2009 15:40:25	13	LONG BKG	0.046	0.2750	1000.0
LBKG 12	8/30/2009 15:40:22	12	LONG BKG	0.094	0.3450	1000.0
LBKG 11	8/30/2009 15:40:19	11	LONG BKG	0.016	0.3850	1000.0

Background Measurement  
 C:\UMS\UTL0001\LB83010.BDT

Background Measurement Parameters:

User: JLK  
 Preset Time: 1000:00  
 Alpha Preset Error: 0.0%  
 Voltage : 1650

Instrument Name: LB770PC  
 Cycles: 1  
 Beta Preset Error: 0.0%

Category List (cps)	Alpha		Beta	
	Lower	Upper	Lower	Upper
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:  
 Start Time: 08/30/2009 15:51:05  
 Elapsed Time: 1000:00  
 Guard: 846.3 cpm

	Alpha (cpm)	Cat	Beta (cpm)	Cat
1	0.0830 (±11.0%)	1	0.8790 (±3.37%)	1
2	0.0320 (±17.7%)	1		3
3	0.0590 (±13.0%)	1	0.9610 (±3.23%)	1
4	0.0790 (±11.3%)	1	0.7180 (±3.73%)	1
5	0.0500 (±14.1%)	1	2.6760 (±1.93%)	3
6	0.0890 (±10.6%)	1	1.0260 (±3.12%)	2
7	0.0850 (±10.8%)	1	0.6610 (±3.89%)	1
8	0.0550 (±13.5%)	1	0.6450 (±3.94%)	1
9	0.0470 (±14.6%)	1	0.6430 (±3.94%)	1
10	0.0410 (±15.6%)	1	0.7740 (±3.59%)	1



# Pace Waltz Mill Protean System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	10/11/2009 17:28:45	38	LONG BKG	0.039	0.3770	1000.0
LONG BKG 37	10/11/2009 17:28:40	37	LONG BKG	0.125	0.3810	1000.0
LONG BKG 36	10/11/2009 17:28:35	36	LONG BKG	0.058	0.3520	1000.0
LONG BKG 35	10/11/2009 17:28:30	35	LONG BKG	0.149	0.3430	1000.0
LONG BKG 34	10/11/2009 17:28:25	34	LONG BKG	0.080	0.4090	1000.0
LONG BKG 33	10/11/2009 17:28:20	33	LONG BKG	0.090	0.3660	1000.0
LONG BKG 32	10/11/2009 17:28:16	32	LONG BKG	0.033	0.3330	1000.0
LONG BKG 31	10/11/2009 17:28:11	31	LONG BKG	0.056	0.4010	1000.0
LONG BKG 30	10/11/2009 17:28:05	30	LONG BKG	0.072	0.3260	1000.0
LONG BKG 29	10/11/2009 17:28:01	29	LONG BKG	0.035	0.2740	1000.0
LONG BKG 28	10/11/2009 17:27:56	28	LONG BKG	0.040	0.2910	1000.0
LONG BKG 27	10/11/2009 17:27:51	27	LONG BKG	0.035	0.3150	1000.0
LONG BKG 26	10/11/2009 17:27:46	26	LONG BKG	0.036	0.4840	1000.0
LONG BKG 25	10/11/2009 17:27:45	25	LONG BKG	0.104	0.4190	1000.0
LONG BKG 24	10/11/2009 17:27:45	24	LONG BKG	0.042	0.3440	1000.0
LONG BKG 23	10/11/2009 17:27:45	23	LONG BKG	0.045	0.5210	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	10/11/2009 17:27:31	22	LONG BKG	0.035	0.3600	1000.0
LBKG 21	10/11/2009 17:27:27	21	LONG BKG	0.070	0.3980	1000.0
LBKG 20	10/11/2009 17:27:24	20	LONG BKG	0.041	0.3310	1000.0
LBKG 19	10/11/2009 17:27:24	19	LONG BKG	0.023	0.4500	1000.0
LBKG 18	10/11/2009 17:27:24	18	LONG BKG	0.060	0.3860	1000.0
LBKG 17	10/11/2009 17:27:11	17	LONG BKG	0.034	0.3660	1000.0
LBKG 16	10/11/2009 17:27:11	16	LONG BKG	0.035	0.4130	1000.0
LBKG 15	10/11/2009 17:27:11	15	LONG BKG	0.056	0.3850	1000.0
LBKG 14	10/11/2009 17:27:11	14	LONG BKG	0.044	0.3630	1000.0
LBKG 13	10/11/2009 17:26:59	13	LONG BKG	0.024	0.3190	1000.0
LBKG 12	10/11/2009 17:26:55	12	LONG BKG	0.087	0.3490	1000.0
LBKG 11	10/11/2009 17:26:33	11	LONG BKG	0.023	0.4130	1000.0

Background Measurement  
 C:\UMS\UTL0001\LB101109.BDT

Background Measurement Parameters:

User: JLK  
 Preset Time: 1000:00  
 Alpha Preset Error: 0.0%  
 Voltage : 1650

Instrument Name: LB770PC  
 Cycles: 1  
 Beta Preset Error: 0.0%

Category List (cps)

	Alpha		Beta	
	Lower	Upper	Lower	Upper
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 10/11/2009 17:17:32

Elapsed Time: 1000:00  
 Guard: 847.1 cpm

	Alpha (cpm)	Cat	Beta (cpm)	Cat
1	0.0450 (±14.9%)	1	0.7530 (±3.64%)	1
2	0.0310 (±18.0%)	1	0.5300 (±4.34%)	1
3	0.0260 (±19.6%)	1	0.6120 (±4.04%)	1
4	0.0770 (±11.4%)	1	0.6990 (±3.78%)	1
5	0.0350 (±16.9%)	1	4.8510 (±1.44%)	3
6	0.0470 (±14.6%)	1	0.9270 (±3.28%)	1
7	0.0710 (±11.9%)	1	0.6550 (±3.91%)	1
8	0.0370 (±16.4%)	1	0.5680 (±4.20%)	1
9	0.0570 (±13.2%)	1	0.5940 (±4.10%)	1
10	0.0330 (±17.4%)	1	0.8550 (±3.42%)	1





# Pace Waltz Mill Protean System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	11/17/2009 16:47:20	38	LONG BKG	0.040	0.3340	1000.0
LONG BKG 37	11/17/2009 16:47:09	37	LONG BKG	0.164	0.3290	1000.0
LONG BKG 36	11/17/2009 16:47:04	36	LONG BKG	0.067	0.3430	1000.0
LONG BKG 35	11/17/2009 16:46:59	35	LONG BKG	0.093	0.4140	1000.0
LONG BKG 34	11/17/2009 16:46:55	34	LONG BKG	0.082	0.4290	1000.0
LONG BKG 33	11/17/2009 16:46:51	33	LONG BKG	0.088	0.3710	1000.0
LONG BKG 32	11/17/2009 16:46:46	32	LONG BKG	0.029	0.3820	1000.0
LONG BKG 31	11/17/2009 16:46:41	31	LONG BKG	0.074	0.3770	1000.0
LONG BKG 30	11/17/2009 16:46:34	30	LONG BKG	0.064	0.4120	1000.0
LONG BKG 29	11/17/2009 16:46:29	29	LONG BKG	0.024	0.2660	1000.0
LONG BKG 28	11/17/2009 16:46:24	28	LONG BKG	0.049	0.2750	1000.0
LONG BKG 27	11/17/2009 16:46:19	27	LONG BKG	0.052	0.3610	1000.0
LONG BKG 26	11/17/2009 16:46:14	26	LONG BKG	0.047	0.4500	1000.0
LONG BKG 25	11/17/2009 16:46:11	25	LONG BKG	0.090	0.4010	1000.0
LONG BKG 24	11/17/2009 16:46:06	24	LONG BKG	0.045	0.3630	1000.0
LONG BKG 23	11/17/2009 16:46:02	23	LONG BKG	0.032	0.4810	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	11/17/2009 16:45:58	22	LONG BKG	0.034	0.3710	1000.0
LBKG 21	11/17/2009 16:45:55	21	LONG BKG	0.054	0.4140	1000.0
LBKG 20	11/17/2009 16:45:50	20	LONG BKG	0.034	0.3550	1000.0
LBKG 19	11/17/2009 16:45:46	19	LONG BKG	0.021	0.4590	1000.0
LBKG 18	11/17/2009 16:45:40	18	LONG BKG	0.084	0.4080	1000.0
LBKG 17	11/17/2009 16:45:37	17	LONG BKG	0.049	0.3460	1000.0
LBKG 16	11/17/2009 16:45:33	16	LONG BKG	0.033	0.3850	1000.0
LBKG 15	11/17/2009 16:45:30	15	LONG BKG	0.043	0.4140	1000.0
LBKG 14	11/17/2009 16:45:27	14	LONG BKG	0.045	0.4060	1000.0
LBKG 13	11/17/2009 16:45:24	13	LONG BKG	0.029	0.3150	1000.0
LBKG 12	11/17/2009 16:45:20	12	LONG BKG	0.088	0.3430	1000.0
LBKG 11	11/17/2009 16:45:17	11	LONG BKG	0.033	0.4390	1000.0

Background Measurement  
 C:\UMS\UTL0001\LB111709.BDT

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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

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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

<b>SAMPLE ID</b>	<b>Count Start:</b>	<b>DET#</b>	<b>BATCH ID</b>	<b>Alpha cpm</b>	<b>Beta cpm</b>	<b>Ct. Time (min)</b>
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

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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
<del>LONG BKG 30</del>	<del>3/6/2010 17:59:17</del>	<del>110</del>	<del>LONG BKG</del>	<del>0.000</del>	<del>0.0000</del>	<del>0.0</del>
LONG BKG 27	3/6/2010 17:59:08	27	LONG BKG	0.044	0.3060	1000.0
LONG BKG 26	3/6/2010 17:59:04	26	LONG BKG	0.088	0.4290	1000.0
LONG BKG 25	3/6/2010 17:59:00	25	LONG BKG	0.139	0.4450	1000.0
LONG BKG 24	3/6/2010 17:58:56	24	LONG BKG	0.047	0.3650	1000.0

*2/3/8/10*

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 23	3/6/2010 17:58:51	23	LONG BKG	0.048	0.4840	1000.0
LBKG 22	3/6/2010 17:58:47	22	LONG BKG	0.038	0.4160	1000.0
LBKG 21	3/6/2010 17:58:43	21	LONG BKG	0.073	0.3900	1000.0
LBKG 20	3/6/2010 17:58:39	20	LONG BKG	0.090	0.3780	1000.0
LBKG 19	3/6/2010 17:58:34	19	LONG BKG	0.040	0.5010	1000.0
LBKG 18	3/6/2010 17:58:28	18	LONG BKG	0.054	0.3910	1000.0
LBKG 17	3/6/2010 17:58:24	17	LONG BKG	0.068	0.3770	1000.0
LBKG 16	3/6/2010 17:58:21	16	LONG BKG	0.035	0.4510	1000.0
LBKG 15	3/6/2010 17:58:18	15	LONG BKG	0.062	0.3940	1000.0
LBKG 13	3/6/2010 17:58:14	13	LONG BKG	0.034	0.3250	1000.0
LBKG 14	3/6/2010 17:58:12	14	LONG BKG	0.052	0.4190	1000.0
LBKG 12	3/6/2010 17:58:06	12	LONG BKG	0.098	0.3760	1000.0
LBKG 11	3/6/2010 17:57:58	11	LONG BKG	0.044	0.3990	1000.0

Background Measurement  
C:\UMS\UTL0001\030610LB.BDT

Background Measurement Parameters:

User: JLK Instrument Name: LB770PC  
Preset Time: 1000:00 Cycles: 1  
Alpha Preset Error: 0.0% Beta Preset Error: 0.0%  
Voltage : 1650

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 03/06/2010 18:08:21 Elapsed Time: 1000:00  
Guard: 856.5 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0940 (±10.3%)	1	0.8160 (±3.50%)	1
2	0.0340 (±17.1%)	1	0.6560 (±3.90%)	1
3	0.0380 (±16.2%)	1	0.5850 (±4.13%)	1
4	0.0850 (±10.8%)	1	0.6390 (±3.96%)	1
5	0.0440 (±15.1%)	1	1.8560 (±2.32%)	2
6	0.0720 (±11.8%)	1	1.8410 (±2.33%)	2
7	0.1080 (±9.62%)	1	0.6660 (±3.87%)	1
8	0.0520 (±13.9%)	1	0.5820 (±4.15%)	1
9	0.0340 (±17.1%)	1	0.5810 (±4.15%)	1
10	0.0370 (±16.4%)	1	0.7840 (±3.57%)	1

Sample Measurement  
 C:\UMS\UTL0001\GAB4436.SDT

Cycle 2 of 2 (1/1 in group 2 of 2)  
 Start Time: 03/08/2010 14:46:37  
 Comment: GAB4466  
 User: JMC

Elapsed Time: 1000:00

Guard: 867.5 cpm

	Spl #	Sample Name	Alpha (raw cpm)	MDA	MRA	Beta (raw cpm)	MDA	MRA
1	4487	3023567001	0.1110 (±9.49%)	0.0006	0.0003	1.0190 (±3.13%)	0.0023	0.0011
2	4487	LONGBACKGROUND	0.0500 (±14.1%)	0.0005	0.0003	0.6160 (±4.03%)	0.0019	0.0009
3	4487	3023581001	0.5500 (±4.26%)	0.0007	0.0003	2.5670 (±1.97%)	0.0020	0.0010
4	4488	3023583001	0.3740 (±5.17%)	0.0009	0.0004	1.7200 (±2.41%)	0.0021	0.0010
5	4488	302379002	0.0570 (±13.2%)	0.0006	0.0003	2.5310 (±1.99%)	0.0076	0.0038
6	4731	EMPTY	0.1220 (±9.05%)	undef.	undef.	1.8390 (±2.33%)	undef.	undef.
7	4488	3023798001	0.5120 (±4.42%)	0.0009	0.0004	1.2740 (±2.80%)	0.0022	0.0011
8	4531	3023799001	0.4380 (±4.78%)	0.0009	0.0004	1.2470 (±2.83%)	0.0022	0.0011
9	4531	3023811001	0.1010 (±9.95%)	0.0007	0.0003	0.8730 (±3.38%)	0.0022	0.0011
10	4531	3023822001	0.0590 (±13.0%)	0.0006	0.0003	0.8950 (±3.34%)	0.0024	0.0012

# Pace Waltz Mill Protean System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 12	4/11/2010 15:08:40	12	LONG BKG	0.111	0.3460	1000.0
LBKG 11	4/11/2010 15:08:36	11	LONG BKG	0.034	0.3860	1000.0
LONG BKG 38	4/10/2010 20:06:41	38	LONG BKG	0.049	0.4350	1000.0
LONG BKG 37	4/10/2010 20:06:37	37	LONG BKG	0.138	0.3870	1000.0
LONG BKG 36	4/10/2010 20:06:32	36	LONG BKG	0.069	0.4040	1000.0
LONG BKG 35	4/10/2010 20:06:27	35	LONG BKG	0.101	0.3790	1000.0
LONG BKG 34	4/10/2010 20:06:23	34	LONG BKG	0.045	0.4160	1000.0
LONG BKG 33	4/10/2010 20:06:19	33	LONG BKG	0.080	0.3520	1000.0
LONG BKG 32	4/10/2010 20:06:15	32	LONG BKG	0.040	0.3850	1000.0
LONG BKG 31	4/10/2010 20:06:09	31	LONG BKG	0.091	0.3820	1000.0
LONG BKG 30	4/10/2010 20:06:02	30	LONG BKG	0.080	0.4110	1000.0
LONG BKG 29	4/10/2010 20:05:57	29	LONG BKG	0.044	0.2880	1000.0
LONG BKG 28	4/10/2010 20:05:53	28	LONG BKG	0.057	0.2530	1000.0
LONG BKG 27	4/10/2010 20:05:49	27	LONG BKG	0.045	0.3400	1000.0
LONG BKG 26	4/10/2010 20:05:44	26	LONG BKG	0.094	0.3870	1000.0
LONG BKG 25	4/10/2010 20:05:41	25	LONG BKG	0.137	0.4220	1000.0

*Handwritten signature and date: 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/initials*

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

<b>SAMPLE ID</b>	<b>Count Start:</b>	<b>DET#</b>	<b>BATCH ID</b>	<b>Alpha cpm</b>	<b>Beta cpm</b>	<b>Ct. Time (min)</b>
LONG BKG 34	6/6/2010 13:39:58	34	LONG BKG	0.058	0.4540	1000.0
LONG BKG 33	6/6/2010 13:39:53	33	LONG BKG	0.078	0.3940	1000.0
LONG BKG 32	6/6/2010 13:39:50	32	LONG BKG	0.046	2.8850	1000.0
LONG BKG 31	6/6/2010 13:39:46	31	LONG BKG	0.088	0.3940	1000.0
LONG BKG 30	6/6/2010 13:39:41	30	LONG BKG	0.071	0.5610	1000.0
LONG BKG 29	6/6/2010 13:39:37	29	LONG BKG	0.035	0.3410	1000.0
LONG BKG 28	6/6/2010 13:39:32	28	LONG BKG	0.048	0.4820	1000.0
LONG BKG 27	6/6/2010 13:39:24	27	LONG BKG	0.043	0.3340	1000.0
LONG BKG 26	6/6/2010 13:39:18	26	LONG BKG	0.078	0.6330	1000.0
LONG BKG 25	6/6/2010 13:39:14	25	LONG BKG	0.108	0.6440	1000.0
LONG BKG 24	6/6/2010 13:39:10	24	LONG BKG	0.219	0.4850	1000.0
LONG BKG 23	6/6/2010 13:39:05	23	LONG BKG	0.056	0.7210	1000.0

Background Measurement  
 C:\UMS\UTL0001\060610LB.BDT

Instrument Name: LB770PC  
 Cycles: 1  
 Beta Preset Error: 0.0%

Background Measurement Parameters:

User: JLK  
 Preset Time: 1000:00  
 Alpha Preset Error: 0.0%  
 Voltage : 1650

Category List (cps)

	Alpha		Beta	
	Lower	Upper	Lower	Upper
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 06/06/2010 13:44:35

Elapsed Time: 1000:00  
 Guard: 853.5 cpm

	Alpha (cpm)	Cat	Beta (cpm)	Cat
1	0.0360 (±16.7%)	1	0.8190 (±3.49%)	1
2	0.0550 (±13.5%)	1		3
3	0.0240 (±20.4%)	1	0.6540 (±3.91%)	1
4	0.0650 (±12.4%)	1	0.6360 (±3.97%)	1
5	0.0700 (±12.0%)	1	7.3800 (±1.16%)	3
6	0.0420 (±15.4%)	1	1.4300 (±2.64%)	2
7	0.0780 (±11.3%)	1	0.6750 (±3.85%)	1
8	0.0580 (±13.1%)	1	0.5450 (±4.28%)	1
9	0.0440 (±15.1%)	1	0.5860 (±4.13%)	1
10	0.0350 (±16.9%)	1	0.8020 (±3.53%)	1



# Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 37	7/18/2010 17:44:37	37	LONG BKG	0.199	0.4060	1000.0
LONG BKG 38	7/18/2010 17:44:33	38	LONG BKG	0.101	0.4180	1000.0
LONG BKG 36	7/18/2010 17:44:24	36	LONG BKG	0.376	0.4820	1000.0
LONG BKG 35	7/18/2010 17:44:20	35	LONG BKG	0.173	2.4830	1000.0
LONG BKG 34	7/18/2010 17:44:15	34	LONG BKG	0.044	0.4160	1000.0
LONG BKG 33	7/18/2010 17:44:12	33	LONG BKG	0.114	0.3930	1000.0
LONG BKG 32	7/18/2010 17:44:07	32	LONG BKG	0.042	1.1800	1000.0
LONG BKG 31	7/18/2010 17:44:02	31	LONG BKG	0.090	0.4130	1000.0
LONG BKG 30	7/18/2010 17:43:53	30	LONG BKG	0.069	0.4620	1000.0
LONG BKG 29	7/18/2010 17:43:49	29	LONG BKG	0.043	0.3460	1000.0
LONG BKG 28	7/18/2010 17:43:45	28	LONG BKG	0.047	0.4000	1000.0
LONG BKG 27	7/18/2010 17:43:39	27	LONG BKG	0.069	0.3190	1000.0
LONG BKG 25	7/18/2010 17:43:35	25	LONG BKG	0.184	0.6130	1000.0
LONG BKG 26	7/18/2010 17:43:31	26	LONG BKG	0.078	0.5520	1000.0
LONG BKG 24	7/18/2010 17:43:23	24	LONG BKG	0.099	0.4710	1000.0
LONG BKG 23	7/18/2010 17:43:20	23	LONG BKG	0.060	0.7220	1000.0

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	7/18/2010 17:43:17	22	LONG BKG	0.093	0.5020	1000.0
LBKG 21	7/18/2010 17:43:13	21	LONG BKG	0.085	0.4870	1000.0
LBKG 20	7/18/2010 17:43:10	20	LONG BKG	0.081	0.4400	1000.0
LBKG 19	7/18/2010 17:43:07	19	LONG BKG	0.026	0.5700	1000.0
LBKG 17	7/18/2010 17:43:01	17	LONG BKG	0.067	0.4170	1000.0
LBKG 12	7/18/2010 17:42:57	12	LONG BKG	0.088	0.5110	1000.0
LBKG 18	7/18/2010 17:42:54	18	LONG BKG	0.047	0.4420	1000.0
LBKG 16	7/18/2010 17:42:47	16	LONG BKG	0.056	0.4160	1000.0
LBKG 15	7/18/2010 17:42:44	15	LONG BKG	0.057	0.4970	1000.0
LBKG 14	7/18/2010 17:42:41	14	LONG BKG	0.051	0.4200	1000.0
LBKG 13	7/18/2010 17:42:38	13	LONG BKG	0.049	0.3100	1000.0
LBKG 11	7/18/2010 17:42:31	11	LONG BKG	0.046	0.4550	1000.0



Background Measurement  
 C:\UMS\UTL0001\071810LB.BDT

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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: 07/18/2010 17:13:39 Elapsed Time: 1000:00  
 Guard: 838.7 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0610 (±12.8%)	1	0.7670 (±3.61%)	1
2	0.0810 (±11.1%)	1		3
3	0.0250 (±20.0%)	1	0.5970 (±4.09%)	1
4	0.0920 (±10.4%)	1		3
5	0.0690 (±12.0%)	1	1.2910 (±2.78%)	2
6	0.0400 (±15.8%)	1	1.2870 (±2.79%)	2
7	0.0890 (±10.6%)	1		3
8	0.0320 (±17.7%)	1	0.6556 (±4.12%)	1
9	0.0330 (±17.4%)	1	0.6010 (±4.08%)	1
10	0.0490 (±14.3%)	1	0.8730 (±3.38%)	1

# Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	8/22/2010 12:56:40	38	LONG BKG	0.099	0.4520	1000.0
LONG BKG 37	8/22/2010 12:56:32	37	LONG BKG	0.204	0.4190	1000.0
LONG BKG 36	8/22/2010 12:56:24	36	LONG BKG	0.340	0.4520	1000.0
LONG BKG 35	8/22/2010 12:56:17	35	LONG BKG	0.191	3.3550	1000.0
LONG BKG 34	8/22/2010 12:56:07	34	LONG BKG	0.080	0.4350	1000.0
LONG BKG 33	8/22/2010 12:56:02	33	LONG BKG	0.136	0.4310	1000.0
LONG BKG 32	8/22/2010 12:55:56	32	LONG BKG	0.052	0.3680	1000.0
LONG BKG 31	8/22/2010 12:55:50	31	LONG BKG	0.088	0.4390	1000.0
LONG BKG 30	8/22/2010 12:55:44	30	LONG BKG	0.203	0.5160	1000.0
LONG BKG 29	8/22/2010 12:55:39	29	LONG BKG	0.129	0.3790	1000.0
LONG BKG 28	8/22/2010 12:55:35	28	LONG BKG	0.078	0.4500	1000.0
LONG BKG 27	8/22/2010 12:55:29	27	LONG BKG	0.033	0.3110	1000.0
LONG BKG 26	8/22/2010 12:55:22	26	LONG BKG	0.088	0.5820	1000.0
LONG BKG 25	8/22/2010 12:55:19	25	LONG BKG	0.128	0.6170	1000.0
LONG BKG 24	8/22/2010 12:55:14	24	LONG BKG	0.083	0.4770	1000.0
LONG BKG 23	8/22/2010 12:55:09	23	LONG BKG	0.045	0.7190	1000.0

Tuesday, August 24, 2010

Page 1 of 2

*Handwritten:* 7/13/10

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Cl. Time (min)
LBKG 21	8/22/2010 12:55:00	21	LONG BKG	0.116	0.4660	1000.0
LBKG 22	8/22/2010 12:54:55	22	LONG BKG	0.064	0.4840	1000.0
LBKG 20	8/22/2010 12:54:38	20	LONG BKG	0.080	0.4400	1000.0
LBKG 19	8/22/2010 12:54:34	19	LONG BKG	0.055	0.5670	1000.0
LBKG 18	8/22/2010 12:54:25	18	LONG BKG	0.029	0.4680	1000.0
LBKG 17	8/22/2010 12:54:22	17	LONG BKG	0.069	0.3970	1000.0
LBKG 16	8/22/2010 12:54:18	16	LONG BKG	0.055	0.4060	1000.0
LBKG 15	8/22/2010 12:54:13	15	LONG BKG	0.081	0.5790	1000.0
LBKG 14	8/22/2010 12:54:09	14	LONG BKG	0.028	0.4140	1000.0
LBKG 13	8/22/2010 12:54:05	13	LONG BKG	0.034	0.2710	1000.0
LBKG 12	8/22/2010 12:54:02	12	LONG BKG	0.103	0.5490	1000.0
LBKG 11	8/22/2010 12:53:59	11	LONG BKG	0.028	0.4800	1000.0

Tuesday, August 24, 2010

*Auditorio*

Background Measurement Parameters:

User: SHS	Instrument Name: LB770PC
Preset Time: 1000:00	Cycles: 1
Alpha Preset Error: 0.0%	Beta Preset Error: 0.0%
Voltage : 1650	

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

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

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0370 (±16.4%)	1	0.8060 (±3.52%)	1
2	0.0180 (±23.6%)	1	0.6230 (±4.01%)	1
3	0.0260 (±19.6%)	1	0.5920 (±4.11%)	1
4	0.0620 (±12.7%)	1	0.7770 (±3.59%)	1
5	0.0600 (±12.9%)	1	1.0970 (±3.02%)	2
6	0.0430 (±15.2%)	1	1.4590 (±2.62%)	2
7	0.0790 (±11.3%)	1	0.6490 (±3.93%)	1
8	0.0600 (±12.9%)	1	0.6540 (±3.91%)	1
9	0.0450 (±14.9%)	1	0.5670 (±4.20%)	1
10	0.0340 (±17.1%)	1	0.8030 (±3.53%)	1

*DL 8/22/10*

# Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	9/20/2010 20:28:25	38	LONG BKG	0.064	0.4540	1000.0
LONG BKG 37	9/20/2010 20:28:19	37	LONG BKG	0.254	0.4950	1000.0
LONG BKG 36	9/20/2010 20:28:12	36	LONG BKG	0.327	0.5440	1000.0
LONG BKG 35	9/20/2010 20:28:06	35	LONG BKG	0.182	0.8160	1000.0
LONG BKG 34	9/20/2010 20:27:58	34	LONG BKG	0.081	0.4310	1000.0
LONG BKG 33	9/20/2010 20:27:53	33	LONG BKG	0.247	0.4620	1000.0
LONG BKG 32	9/20/2010 20:27:47	32	LONG BKG	0.058	0.9380	1000.0
LONG BKG 31	9/20/2010 20:27:41	31	LONG BKG	0.108	0.4040	1000.0
LONG BKG 30	9/20/2010 20:27:28	30	LONG BKG	0.200	0.5470	1000.0
LONG BKG 29	9/20/2010 20:27:23	29	LONG BKG	0.058	0.3920	1000.0
LONG BKG 28	9/20/2010 20:27:19	28	LONG BKG	0.095	0.5120	1000.0
LONG BKG 27	9/20/2010 20:27:13	27	LONG BKG	0.051	0.3280	1000.0
LONG BKG 26	9/20/2010 20:27:05	26	LONG BKG	0.126	0.5430	1000.0
LONG BKG 25	9/20/2010 20:27:00	25	LONG BKG	0.125	0.5780	1000.0
LONG BKG 24	9/20/2010 20:27:00	24	LONG BKG	0.070	0.4860	1000.0
LONG BKG 23	9/20/2010 20:26:49	23	LONG BKG	0.053	0.6160	1000.0

<b>SAMPLE ID</b>	<b>Count Start:</b>	<b>DET#</b>	<b>BATCH ID</b>	<b>Alpha cpm</b>	<b>Beta cpm</b>	<b>Ct. Time (min)</b>
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	
	<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: 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

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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

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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

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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

*JFH 12/1/10*

Background Measurement  
 C:\UMS\UTL0001\DB120110.BDT

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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

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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:* 11/13/11 HAP



Background Measurement  
 C:\UMS\UTL0001\LB030811.BDT

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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

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Background Measurement Parameters:

Comment: LNGBKG

User: JMC

Instrument Name: LB770PC

Preset Time: 1000:00

Cycles: 1

Alpha Preset Error: 0.0%

Beta Preset Error: 0.0%

Voltage : 1650

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 04/08/2011 12:46:13

Elapsed Time: 1000:00

Guard: 843.1 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0270 (±19.2%)	1	0.7144 (±3.94%)	1
2	0.0340 (±17.1%)	1	0.6355 (±4.18%)	1
3	0.0810 (±11.1%)	1	0.5655 (±4.43%)	1
4	0.0660 (±12.3%)	1	0.5300 (±4.58%)	1
5	0.0310 (±18.0%)	1	4.4280 (±1.50%)	3
6	0.0630 (±12.6%)	1		3
7	0.0880 (±10.7%)	1	0.5530 (±4.25%)	1
8	0.0310 (±18.0%)	1	0.5840 (±4.14%)	1
9	0.0400 (±15.8%)	1	0.5570 (±4.24%)	1
10	0.0290 (±18.6%)	1	0.7710 (±3.60%)	1

*4/24/11*

# Pace Analytical Protean GFPC System Count Data

SAMPLE_ID	Count Start:	DET#	BATCH_ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 38	5/8/2011 8:25:09 AM	38	LONG BKG	0.060	0.4190	1000.0
LONG BKG 37	5/8/2011 8:25:05 AM	37	LONG BKG	0.044	0.3540	1000.0
LONG BKG 36	5/8/2011 8:25:02 AM	36	LONG BKG	0.082	0.3520	1000.0
LONG BKG 35	5/8/2011 8:24:58 AM	35	LONG BKG	0.097	0.4710	1000.0
LONG BKG 34	5/8/2011 8:24:53 AM	34	LONG BKG	0.057	0.3790	1000.0
LONG BKG 33	5/8/2011 8:24:50 AM	33	LONG BKG	0.083	0.3870	1000.0
LONG BKG 32	5/8/2011 8:24:45 AM	32	LONG BKG	0.052	0.4810	1000.0
LONG BKG 31	5/8/2011 8:24:41 AM	31	LONG BKG	0.087	0.4550	1000.0
LONG BKG 30	5/8/2011 8:24:38 AM	30	LONG BKG	0.134	0.4080	1000.0
LONG BKG 29	5/8/2011 8:24:34 AM	29	LONG BKG	0.075	0.3350	1000.0
LONG BKG 28	5/8/2011 8:24:31 AM	28	LONG BKG	0.046	0.4700	1000.0
LONG BKG 27	5/8/2011 8:24:29 AM	27	LONG BKG	0.049	0.3780	1000.0
LONG BKG 26	5/8/2011 8:24:29 AM	26	LONG BKG	0.092	0.5920	1000.0
LONG BKG 25	5/8/2011 8:24:17 AM	25	LONG BKG	0.158	0.6550	1000.0
LONG BKG 24	5/8/2011 8:24:11 AM	24	LONG BKG	0.115	0.5030	1000.0
LONG BKG 23	5/8/2011 8:24:07 AM	23	LONG BKG	0.105	0.6480	1000.0

Monday, May 09, 2011

*Om 5/9/11*

Page 1 of 2

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	5/8/2011 8:24:02 AM	22	LONG BKG	0.072	0.5120	1000.0
LBKG 21	5/8/2011 8:23:57 AM	21	LONG BKG	0.105	0.4710	1000.0
LBKG 20	5/8/2011 8:23:53 AM	20	LONG BKG	0.104	0.4690	1000.0
LBKG 19	5/8/2011 8:23:48 AM	19	LONG BKG	0.102	0.5720	1000.0
LBKG 18	5/8/2011 8:23:42 AM	18	LONG BKG	0.088	0.5010	1000.0
LBKG 17	5/8/2011 8:23:38 AM	17	LONG BKG	0.112	0.4260	1000.0
LBKG 14	5/8/2011 8:23:34 AM	14	LONG BKG	0.082	0.4710	1000.0
LBKG 16	5/8/2011 8:23:28 AM	16	LONG BKG	0.098	0.5140	1000.0
LBKG 15	5/8/2011 8:23:07 AM	15	LONG BKG	0.119	0.6140	1000.0
LBKG 13	5/8/2011 8:22:53 AM	13	LONG BKG	0.038	0.2950	1000.0
LBKG 12	5/8/2011 8:22:52 AM	12	LONG BKG	0.131	0.5430	1000.0
LBKG 11	5/8/2011 8:22:48 AM	11	LONG BKG	0.095	0.4060	1000.0

*Om 5/9/11*  
*5/9/11*



# Pace Analytical Protean GFPC System Count Data

SAMPLE_ID	Count Start:	DET#	BATCH_ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 32	6/7/2011 1:24:42 PM	32	LONG BKG	0.067	0.3820	1000.0
LONG BKG 38	6/6/2011 5:32:12 PM	38	LONG BKG	0.102	0.4460	1000.0
LONG BKG 35	6/6/2011 5:32:06 PM	35	LONG BKG	0.098	0.4580	1000.0
LONG BKG 31	6/6/2011 5:12:21 PM	31	LONG BKG	0.096	0.4520	1000.0
LONG BKG 34	6/6/2011 4:56:42 PM	34	LONG BKG	0.079	0.4500	1000.0
LONG BKG 37	6/6/2011 4:55:11 PM	37	LONG BKG	0.048	0.3230	1000.0
LONG BKG 36	6/6/2011 4:55:03 PM	36	LONG BKG	0.067	0.3650	1000.0
LONG BKG 33	6/6/2011 4:23:20 PM	33	LONG BKG	0.112	0.3840	1000.0
LONG BKG 30	6/4/2011 3:02:57 PM	30	LONG BKG	0.129	0.3820	1000.0
LONG BKG 28	6/4/2011 3:02:53 PM	28	LONG BKG	0.051	0.4000	1000.0
LONG BKG 27	6/4/2011 3:02:48 PM	27	LONG BKG	0.046	0.3500	1000.0
LONG BKG 29	6/4/2011 2:16:22 PM	29	LONG BKG	0.063	0.3380	1000.0
LONG BKG 26	6/4/2011 2:16:17 PM	26	LONG BKG	0.104	0.6000	1000.0
LONG BKG 25	6/4/2011 2:16:13 PM	25	LONG BKG	0.175	0.6510	1000.0
LONG BKG 24	6/4/2011 2:16:09 PM	24	LONG BKG	0.090	0.4690	1000.0
LONG BKG 23	6/4/2011 2:16:05 PM	23	LONG BKG	0.098	0.5760	1000.0



SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 22	6/4/2011 2:16:00 PM	22	LONG BKG	0.094	0.5200	1000.0
LBKG 21	6/4/2011 2:15:57 PM	21	LONG BKG	0.101	0.4710	1000.0
LBKG 20	6/4/2011 2:15:53 PM	20	LONG BKG	0.115	0.4580	1000.0
LBKG 19	6/4/2011 2:15:50 PM	19	LONG BKG	0.034	0.6200	1000.0
LBKG 18	6/4/2011 2:15:44 PM	18	LONG BKG	0.071	0.5260	1000.0
LBKG 17	6/4/2011 2:15:41 PM	17	LONG BKG	0.094	0.3990	1000.0
LBKG 16	6/4/2011 2:15:37 PM	16	LONG BKG	0.112	0.5220	1000.0
LBKG 15	6/4/2011 2:15:34 PM	15	LONG BKG	0.112	0.6320	1000.0
LBKG 14	6/4/2011 2:15:31 PM	14	LONG BKG	0.093	0.4500	1000.0
LBKG 13	6/4/2011 2:15:28 PM	13	LONG BKG	0.044	0.2740	1000.0
LBKG 12	6/4/2011 2:15:26 PM	12	LONG BKG	0.117	0.5820	1000.0
LBKG 11	6/4/2011 2:15:23 PM	11	LONG BKG	0.063	0.4340	1000.0

Background Measurement  
C:\UMS\UTL0001\LB60411.BDT

Background Measurement Parameters:

User: JLK Instrument Name: LB770PC  
Preset Time: 1000:00 Cycles: 1  
Alpha Preset Error: 0.0% Beta Preset Error: 0.0%  
Voltage : 1650

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 06/04/2011 15:04:42 Elapsed Time: 1000:00  
Guard: 831.8 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0460 (±14.7%)	1	0.8040 (±3.53%)	1
2	0.0330 (±17.4%)	1	0.7120 (±3.75%)	1
3	0.0440 (±15.1%)	1	0.5870 (±4.13%)	1
4	0.0750 (±11.5%)	1	0.5960 (±4.10%)	1
5	0.0410 (±15.6%)	1	4.0090 (±1.58%)	3
6	0.0650 (±12.4%)	1		3
7	0.0900 (±10.5%)	1	0.6220 (±4.01%)	1
8	0.0390 (±16.0%)	1		3
9	0.0790 (±11.3%)	1	0.6060 (±4.06%)	1
10	0.0340 (±17.1%)	1	0.8290 (±3.47%)	1

*JLK 6/7/11*

Background Measurement Parameters:

User: JLK	Instrument Name: LB770PC
Preset Time: 1000:00	Cycles: 1
Alpha Preset Error: 0.0%	Beta Preset Error: 0.0%
Voltage : 1650	

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 07/09/2011 13:21:37	Elapsed Time: 1000:00
	Guard: 828.2 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0420 (±15.4%)	1	0.7840 (±3.57%)	1
2	0.0770 (±11.4%)	1	0.6300 (±3.98%)	1
3	0.0390 (±16.0%)	1	0.5710 (±4.18%)	1
4	0.0860 (±10.8%)	1	0.6310 (±3.98%)	1
5	0.0390 (±16.0%)	1	5.0160 (±1.41%)	3
6	0.0370 (±16.4%)	1		3
7	0.1120 (±9.45%)	1	0.6180 (±4.02%)	1
8	0.0480 (±14.4%)	1	0.6230 (±4.01%)	1
9	0.0430 (±15.2%)	1	0.5790 (±4.16%)	1
10	0.0300 (±18.3%)	1	0.7180 (±3.73%)	1

*Sept 7/11/11*

# Pace Analytical Protean GFPC System Count Data

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LBKG 21	7/9/2011 5:00:45 PM	21	LONG BKG	0.097	0.5310	1000.0
LBKG 22	7/9/2011 5:00:40 PM	22	LONG BKG	0.102	0.4930	1000.0
LBKG 20	7/9/2011 5:00:35 PM	20	LONG BKG	0.085	0.4660	1000.0
LBKG 19	7/9/2011 5:00:32 PM	19	LONG BKG	0.072	0.5600	1000.0
LBKG 18	7/9/2011 5:00:28 PM	18	LONG BKG	0.084	0.4380	1000.0
LBKG 17	7/9/2011 5:00:26 PM	17	LONG BKG	0.116	0.4140	1000.0
LBKG 16	7/9/2011 5:00:26 PM	16	LONG BKG	0.107	0.4590	1000.0
LBKG 15	7/9/2011 5:00:26 PM	15	LONG BKG	0.098	0.6800	1000.0
LONG BKG 34	7/9/2011 4:57:14 PM	34	LONG BKG	0.052	0.3910	1000.0
LONG BKG 28	7/9/2011 4:57:09 PM	28	LONG BKG	0.065	0.4020	1000.0
LONG BKG 33	7/9/2011 4:56:40 PM	33	LONG BKG	0.275	0.4520	1000.0
LONG BKG 32	7/9/2011 4:56:35 PM	32	LONG BKG	0.061	0.3830	1000.0
LONG BKG 31	7/9/2011 4:56:30 PM	31	LONG BKG	0.100	0.4250	1000.0
LONG BKG 30	7/9/2011 4:56:25 PM	30	LONG BKG	0.175	0.3990	1000.0
LONG BKG 29	7/9/2011 4:56:21 PM	29	LONG BKG	0.065	0.3630	1000.0
LONG BKG 28	7/9/2011 4:56:14 PM	110	LONG BKG	0.000	0.0000	0.0

*on 7/11/11*

*LRH 7/11/11*

*... working has an effect...*

SAMPLE ID	Count Start:	DET#	BATCH ID	Alpha cpm	Beta cpm	Ct. Time (min)
LONG BKG 27	7/9/2011 4:56:10 PM	27	LONG BKG	0.061	0.3470	1000.0
LONG BKG 26	7/9/2011 4:56:05 PM	26	LONG BKG	0.099	0.5970	1000.0
LONG BKG 25	7/9/2011 4:56:01 PM	25	LONG BKG	0.181	0.6430	1000.0
LONG BKG 24	7/9/2011 4:55:56 PM	24	LONG BKG	0.101	0.4700	1000.0
LONG BKG 23	7/9/2011 4:55:52 PM	23	LONG BKG	0.073	0.5870	1000.0
LBKG 13	7/9/2011 3:55:24 PM	13	LONG BKG	0.059	0.2860	1000.0
LBKG 14	7/9/2011 3:41:32 PM	14	LONG BKG	0.068	0.4650	1000.0
LBKG 12	7/9/2011 3:41:28 PM	12	LONG BKG	0.126	0.5860	1000.0
LBKG 11	7/9/2011 3:41:25 PM	11	LONG BKG	0.090	0.4370	1000.0
LONG BKG 38	7/9/2011 3:41:18 PM	38	LONG BKG	0.081	0.4620	1000.0
LONG BKG 37	7/9/2011 3:41:14 PM	37	LONG BKG	0.067	0.2880	1000.0
LONG BKG 36	7/9/2011 3:41:09 PM	36	LONG BKG	0.079	0.3430	1000.0
LONG BKG 35	7/9/2011 3:41:04 PM	35	LONG BKG	0.104	0.5030	1000.0

LONG BKG 27  
LONG BKG 26  
LONG BKG 25  
LONG BKG 24  
LONG BKG 23  
LBKG 13  
LBKG 14  
LBKG 12  
LBKG 11  
LONG BKG 38  
LONG BKG 37  
LONG BKG 36  
LONG BKG 35

*Handwritten signature*

Background Measurement  
 C:\UMS\UTL0001\LB80911.BDT

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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: 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

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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	
	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

*LBKG 15*

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	
	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: 10/01/2011 11:26:23 Elapsed Time: 1000:00  
 Guard: 850.6 cpm

	Alpha (cpm)	Cat	Beta (cpm)	Cat
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

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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*





# 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*

Background Measurement  
 C:\UMS\UTL0001\LB122311.BDT

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Background Measurement Parameters:

User: RMK	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: 12/23/2011 20:19:05	Elapsed Time: 1000:00
	Guard: 851.3 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0600 (±12.9%)	1	0.8490 (±3.43%)	1
2	0.0470 (±14.6%)	1	0.5700 (±4.19%)	1
3	0.0390 (±16.0%)	1	0.5790 (±4.16%)	1
4	0.0790 (±11.3%)	1	0.6120 (±4.04%)	1
5	0.0360 (±16.7%)	1	2.8460 (±1.87%)	3
6	0.0680 (±12.1%)	1		3
7	0.0970 (±10.2%)	1	0.7210 (±3.72%)	1
8	0.0540 (±13.6%)	1	0.5750 (±4.17%)	1
9	0.0440 (±15.1%)	1	0.5790 (±4.16%)	1
10	0.0570 (±13.2%)	1	0.7550 (±3.64%)	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	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

<b>SAMPLE_ID</b>	<b>Count Start:</b>	<b>DET#</b>	<b>BATCH_ID</b>	<b>Alpha cpm</b>	<b>Beta cpm</b>	<b>Ct. Time (min)</b>
LBKG 16	12/23/2011 7:45:13 PM	16	LONG BKG	0.064	0.3730	1000.0
LBKG 14	12/23/2011 7:45:07 PM	14	LONG BKG	0.045	0.3750	1000.0
LBKG 13	12/23/2011 7:45:04 PM	13	LONG BKG	0.051	0.3090	1000.0
LBKG 11	12/23/2011 7:45:04 PM	11	LONG BKG	0.094	0.4530	1000.0
LONG BKG 37	12/23/2011 3:09:59 PM	37	LONG BKG	0.066	0.3130	1000.0
LONG BKG 36	12/23/2011 3:09:59 PM	36	LONG BKG	0.084	0.3480	1000.0
LONG BKG 35	12/23/2011 3:09:44 PM	35	LONG BKG	0.055	0.3900	1000.0
LONG BKG 34	12/23/2011 3:09:39 PM	34	LONG BKG	0.102	0.4420	1000.0
LONG BKG 32	12/23/2011 3:09:32 PM	32	LONG BKG	0.056	0.3440	1000.0
LONG BKG 29	12/23/2011 3:09:26 PM	29	LONG BKG	0.067	0.3000	1000.0
LBKG 15	12/23/2011 3:09:17 PM	15	LONG BKG	0.052	0.4730	1000.0
LBKG 12	12/23/2011 3:09:13 PM	12	LONG BKG	0.099	0.3440	1000.0

Background Measurement  
 C:\UMS\UTL0001\LB020312.BDT

Background Measurement Parameters:

User: JLK	Instrument Name: LB770PC
Preset Time: 1000:00	Cycles: 1
Alpha Preset Error: 0.0%	Beta Preset Error: 0.0%
Voltage : 1650	

Category List (cps)

	Alpha		Beta	
	<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
1	0.00000	0.3	0.00000	1.0
2	0.3	0.6	1.0	2.0
3	0.6	Infinity	2.0	Infinity

Cycle #1:

Start Time: 02/03/2012 14:05:37

Elapsed Time: 1000:00

Guard: 836.5 cpm

	<u>Alpha (cpm)</u>	<u>Cat</u>	<u>Beta (cpm)</u>	<u>Cat</u>
1	0.0430 (±15.2%)	1	0.8620 (±3.41%)	1
2	0.0680 (±12.1%)	1	0.6720 (±3.86%)	1
3	0.0570 (±13.2%)	1	0.6150 (±4.03%)	1
4	0.0730 (±11.7%)	1	0.5940 (±4.10%)	1
5	0.0440 (±15.1%)	1	2.3680 (±2.05%)	3
6	0.0770 (±11.4%)	1		3
7	0.0880 (±10.7%)	1	0.6190 (±4.02%)	1
8	0.0400 (±15.8%)	1	0.5620 (±4.22%)	1
9	0.0360 (±16.7%)	1	0.5980 (±4.09%)	1
10	0.0490 (±14.3%)	1	0.8110 (±3.51%)	1

*JEA  
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
<del>LONG BKG-27</del>	<del>3/12/2012 2:31:06 PM</del>	<del>27</del>	<del>LONG BKG</del>	<del>0.055</del>	<del>0.3080</del>	<del>1000.0</del>
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
<del>LONG BKG-32</del>	<del>3/11/2012 6:22:50 PM</del>	<del>32</del>	<del>LONG BKG</del>	<del>0.065</del>	<del>0.4150</del>	<del>1000.0</del>

*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

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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: 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
<del>LONG BKG 27</del>	<del>3/12/2012 2:31:06 PM</del>	<del>27</del>	<del>LONG BKG</del>	<del>0.055</del>	<del>0.3080</del>	<del>1000.0</del>
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
<del>LONG BKG 32</del>	<del>6/3/2012 4:51:54 PM</del>	<del>32</del>	<del>LONG BKG</del>	<del>0.054</del>	<del>0.4120</del>	<del>1000.0</del>
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*