ORISE
OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

RECEIVED
REGION 1
2009 AUG 24 PM 1:24

August 21, 2009

Mr. Bruce Watson
U. S. Nuclear Regulatory Commission
11545 Rockville Pike
Mail Stop: T-7E18
Rockville, Maryland 20852

ORISE CONTRACT NO. DE-AC05-06OR23100
SUBJECT: ANALYTICAL RESULTS FOR 16 SOIL SAMPLES ASSOCIATED WITH THE ARMY RAD YARD, ABERDEEN, MARYLAND (INSPECTION REPORT #03004552/2008001) [RFTA NO. 09-001] DCN: 1800-LR-01-0

Dear Mr. Watson:

The Oak Ridge Institute for Science and Education (ORISE) received a request on July 14, 2009 from Dennis Lawyer, NRC Region I, to perform additional analyses on 16 soil samples associated with the Army Rad Yard, Aberdeen, Maryland. ORISE received the samples on May 28, 2008 in conjunction with a request for gamma spec analysis. The associated report was submitted to Dennis Lawyer on June 11, 2008. The new 303 form contained a request to analyze the samples for total radiostrontium (Sr) with a minimum detectable concentration (MDC) of 0.17 pCi/g and for technetium-99 (Tc-99) with a MDC of 0.19 pCi/g. The samples had been dried as part of the original analysis. The ORISE procedure requires analysis of a wet sample when unqualified results are desired. Analysis of a dry sample using the ORISE Tc-99 procedure can cause underestimation of the Tc-99 concentrations. The sample identifications are presented in Table 1, the Sr results are presented in Table 2, and the Tc-99 results are presented in Table 3. The pertinent procedure references are in the data table.

ORISE's Quality Control (QC) requirements were met for these analyses. The QC files are available for your review upon request.

My contact information is listed below. You may also contact Wade Ivey at 865.576.9184 with any questions or comments.

Sincerely,

Dale Condra

Dale Condra, Manager
Laboratory

RDC/WPI:bf/rns

c: T. Carter, NRC/FSME/DWMEP T-8F5
T. Patterson, NRC/FSME/TWFN 8D4
D. Lawyer, NRC Region I
E. Abelquist, ORISE
T. Vitkus, ORISE
File 1800

Distribution approval and concurrence:	Initials
Technical Management Team Member	ENB
Quality Manager	CTP

P. O. Box 117
Oak Ridge, TN 37831

Voice: 865.241.3242 Fax: 865.241.3248 E-mail: Dale.Condra@orau.org

TABLE 1

SAMPLE IDENTIFICATIONS AND COLLECTION DATA ARMY RAD YARD ABERDEEN, MARYLAND

ORISE Sample ID	NRC Region I Sample ID	Collection Date	Collection Time
1800S0001	SU1-012-04	5/22/08	09:32
1800S0002	SU3-015-01	5/22/08	10:19
1800S0003	SU3-013-01	5/22/08	10:32
1800S0004	SU7-014-01	5/22/08	10:54
1800S0005	SU3-014-01	5/22/08	11:09
1800S0006	SU5-N1-01	5/22/08	11:35
1800S0007	SU5-N1-02	5/22/08	11:45
1800S0008	SU12-N1-01	5/22/08	11:50
1800S0009	SU6-N1-01	5/22/08	11:55
1800S0010	SU6-N1-02	5/22/08	12:00
1800S0011	SU9-N1-01	5/22/08	12:20
1800S0012	SU8-N1-01	5/22/08	12:30
1800S0013	SU2-N1-01	5/22/08	12:45
1800S0014	SU12-N2-01	5/22/08	12:55
1800S0015	SU4-N1-01	5/22/08	13:05
1800S0016	SU2-N1-02	5/22/08	12:50

TABLE 2

TOTAL STRONTIUM CONCENTRATIONS IN SOIL SAMPLES BY LOW BACKGROUND BETA COUNTING AP4, REVISION 14; CP3, REVISION 2 ARMY RAD YARD ABERDEEN, MARYLAND

ORISE Sample ID	NRC Region I Sample ID	Radionuclide Concentrations, TPUs, and MDCs[a] (pCi/g dry weight)
1800S0001	SU1-012-04	0.11 ± 0.08[b] , 0.13
1800S0002	SU3-015-01	0.06 ± 0.08 , 0.14
1800S0003	SU3-013-01	0.03 ± 0.08 , 0.15
1800S0004	SU7-014-01	0.05 ± 0.09 , 0.15
1800S0005	SU3-014-01	0.06 ± 0.09 , 0.15
1800S0006	SU5-N1-01	0.18 ± 0.09 , 0.14
1800S0007	SU5-N1-02	0.17 ± 0.09 , 0.15
1800S0008	SU12-N1-01	0.08 ± 0.09 , 0.15
1800S0009	SU6-N1-01	0.07 ± 0.08 , 0.13
1800S0010	SU6-N1-02	0.04 ± 0.08 , 0.13
1800S0011	SU9-N1-01	0.04 ± 0.08 , 0.13
1800S0012	SU8-N1-01	0.13 ± 0.08 , 0.13
1800S0013	SU2-N1-01	0.05 ± 0.07 , 0.12
1800S0014	SU12-N2-01	0.10 ± 0.08 , 0.13
1800S0015	SU4-N1-01	0.01 ± 0.07 , 0.13
1800S0016	SU2-N1-02	0.02 ± 0.07 , 0.13

[a]The MDCs are after the comma.

[b]Uncertainties represent the 95% confidence level, based on total propagated uncertainties.

TABLE 3

TECHNETIUM-99 CONCENTRATIONS IN SOIL SAMPLES BY CHROMATOGRAPHIC SEPARATION AND LIQUID SCINTILLATION ANALYSIS AP5, REVISION 17; CP4, REVISION 3 ARMY RAD YARD ABERDEEN, MARYLAND

ORISE Sample ID	NRC Region I Sample ID	Radionuclide Concentrations[a], TPUs, and MDCs[b] (pCi/g dry weight)
1800S0001	SU1-012-04	-0.01 ± 0.12[c] , 0.20
1800S0002	SU3-015-01	0.01 ± 0.12 , 0.20
1800S0003	SU3-013-01	0.06 ± 0.12 , 0.20
1800S0004	SU7-014-01	0.00 ± 0.12 , 0.20
1800S0005	SU3-014-01	-0.04 ± 0.12 , 0.20
1800S0006	SU5-N1-01	-0.05 ± 0.13 , 0.22
1800S0007	SU5-N1-02	-0.05 ± 0.12 , 0.20
1800S0008	SU12-N1-01	-0.09 ± 0.08 , 0.14
1800S0009	SU6-N1-01	0.15 ± 0.11 , 0.19
1800S0010	SU6-N1-02	0.08 ± 0.11 , 0.17
1800S0011	SU9-N1-01	0.10 ± 0.11 , 0.19
1800S0012	SU8-N1-01	0.13 ± 0.22 , 0.17
1800S0013	SU2-N1-01	0.14 ± 0.11 , 0.18
1800S0014	SU12-N2-01	0.28 ± 0.25 , 0.17
1800S0015	SU4-N1-01	-0.19 ± 0.08 , 0.15
1800S0016	SU2-N1-02	0.05 ± 0.10 , 0.17

[a]The samples were analyzed dry.

[b]The MDCs are after the comma.

[c]Uncertainties represent the 95% confidence level, based on total propagated uncertainties.