

# B. KOH & ASSOCIATES, INC.

*Environmental Restoration  
Radioactive Waste Management*

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August 6, 1998

Mr. Robert Nelson  
United States Nuclear Regulatory Commission  
US Nuclear Regulatory Commission  
11555 Rockville Pike  
Washington DC 20555

RE: Request to Use the B. Koh & Associates, Inc. Mobile Gamma Spectroscopy Laboratory  
for Analysis of the Kiski Valley Sewage Treatment Plant Lagoon Samples

Dear Mr. Nelson:

This letter is in response to our telephone conversation on July 31, 1998 regarding our request to use the B. Koh & Associates, Inc. mobile gamma spectroscopy laboratory located at the Bert Avenue Remediation Project Site, Newburgh Heights, Ohio to analyze the Kiski Valley STP lagoon samples. Per our conversation, the justification for our request is provided below.

On June 23 through 25, 1998, 92 subsurface borehole locations were sampled from the Kiski Valley Sewage Treatment Plant Lagoon using a Geoprobe Sampling System. The subsurface samples were cut into 1' segments, inventoried (594 samples total), and documented on chain-of-custody sheets. One hundred-thirty (130) 1' samples have been selected for U-238 analysis via gamma spectroscopy. Six samples will be selected for isotopic uranium analysis to determine the Total U (U-238, U-234, U-235) to U-238 ratio. This ratio will then be used to correct the U-238 concentration (pCi/g, dry weight) obtained from the gamma spectroscopy analysis to determine a total uranium concentration.

The gamma system we are using is a low energy, planar, intrinsic germanium detector. This system is housed in a 12' x 40' mobile laboratory trailer presently located at the Bert Avenue Remediation Project, Newburgh Heights, approximately four miles from Cleveland, Ohio. The mobile laboratory is being used to analyze soil samples for depleted uranium in support of onsite disposal of the radioactively contaminated soil.

The remediation work, including the operation of the mobile gamma spectroscopy laboratory, is controlled via a Site Radiological Control Program. The program consists of a Radiological Control Plan and associated technical and administrative procedures. The program has been reviewed and accepted by NRC-HQ (Mr. Timothy Johnson, Project Manager) and NRC Region III (Mr. David Nelson).

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08/06/98 10:00 AM

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With respect to the operation of the mobile laboratory, the following technical and administrative controls have been established.

Activities	Controlling Document
Sample Collection, Control and Preservation	<ul style="list-style-type: none"> <li>• FP*-9 - Sample Identification and Tracking</li> <li>• FP-10 - Sample Container Preparation and Preservation</li> <li>• FP-27 - Sample Tracking</li> <li>• FP-28 - Soil Sample Preparation for Gamma Spectroscopy</li> </ul>
Analysis	<ul style="list-style-type: none"> <li>• FP-23 - Gamma Spectral Analysis for Solid Material</li> </ul>
Calibration of Instruments	<ul style="list-style-type: none"> <li>• FP-19 - Calibration and Maintenance of Instruments</li> <li>• Radiological Control Plan, Section 12.0</li> </ul>
Check Source	<ul style="list-style-type: none"> <li>• FP-22 - Radioactivity Check Source Accountability</li> </ul>
Contamination Control	<ul style="list-style-type: none"> <li>• FP-30 - Surface Contamination Program</li> <li>• Radiological Control Plan, Section 11.0</li> </ul>
Airborne Radioactivity	<ul style="list-style-type: none"> <li>• FP-31 - Airborne Radioactivity Program</li> <li>• Radiological Control Plan, Section 10.0</li> </ul>
Surveys	<ul style="list-style-type: none"> <li>• FP-32 - General Radiological Surveys</li> <li>• Radiological Control Plan, Section 12.0</li> </ul>
Qualification of Personnel	<ul style="list-style-type: none"> <li>• QA Plan</li> </ul>
Training	<ul style="list-style-type: none"> <li>• QA Plan</li> <li>• Radiological Control Plan, Section 5.0</li> </ul>
TLD	<ul style="list-style-type: none"> <li>• FP-16 - TLD Issuance and Tracking.</li> <li>• Radiological Control Plan, Section 9.0</li> </ul>
Medical Surveillance	<ul style="list-style-type: none"> <li>• Radiological Control Plan, Section 14.0</li> </ul>
Bioassay	<ul style="list-style-type: none"> <li>• Radiological Control Plan, Section 10.0</li> </ul>
*FP = Field Procedure	

A copy of the table of contents for the Radiological Control Plan is enclosed to illustrate the comprehensiveness of the plan.

The gamma spectroscopy analysis is being performed by qualified personnel (senior radiological control technicians trained by the Laboratory Manager of Outreach Laboratory, Tulsa, Oklahoma) using a calibrated gamma spectroscopy system and approved procedure(s).

Handling and control of samples are performed in accordance with FP-9, FP-10, FP-27 and FP-28, which include chain-of-custody of all samples. Preparation of samples are handled in a ventilated hood, as required.

Analysis of the sample, including documentation, recordkeeping and QA/QC requirements are performed in accordance with FP-23.

With respect to personnel exposure, both internal and external, and contamination control, the following requirements are established:

- All personnel must successfully pass a written radiation worker test, provide a medical clearance, and participate in our bioassay (urine) program. At this time, they will receive their TLD to measure external direct exposure. TLDs are issued quarterly, while medical examination and bioassay (to monitor for internal uptake) are required annually or upon employment termination.
- Control of contamination is demonstrated through weekly radiological survey of the mobile laboratory work areas. Periodically, personnel and work area air monitoring of the mobile laboratory is to be performed to confirm the air concentration for uranium is below 10 CFR 20 guidelines.
- Both radiological control/protection and QA audits are performed of the laboratory operations to ensure compliance with the Site Radiological Control and QA Program.

Specific controls regarding personnel exposure and contamination control are contained in FP-30, FP-31, FP-32, FP-16 and the Radiological Control Plan.

It should be noted that inspection of the gamma spectroscopy system and our analytical protocol have been performed by (Mr. Peter Lee, PhD; David Nelson; and J. Houseman, NRC Region III). In addition, this laboratory has been used to provide analytical support for the Metcoa Cleanup Project (Pulaski, PA). Mr. Mark Roberts, NRC Region I, has reviewed its operation.

Based on the above, we are confident that the analysis of the Kiski Valley STP Lagoon samples can be performed in a safe and reliable manner at the Bert Avenue Site location.

As discussed in our teleconference, while moving the mobile laboratory to the Kiski Valley STP location would be the most desirable option, Bert Avenue remediation activities constraints prohibit us from moving the laboratory to Kiski and then moving it back to the Bert Avenue Site. Thus, we propose to bring the Kiski samples to the Bert Avenue Site for analysis.

If our mobile laboratory at Bert Avenue can be used for the analysis of the Kiski Valley STP Lagoon samples, the following benefits to Kiski Valley would be realized:

- Reduced price for onsite sampling versus offsite laboratory analysis.
- Analysis time could be reduced by about two weeks.

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August 6, 1998

- Earlier data availability would allow a more timely evaluation of the data by Kiski Valley, NRC, PADEP and support a more timely preparation of an acceptable and defensible remediation plan.

Thank you for your consideration of our request. If you have any questions regarding the use of the laboratory at the Bert Avenue Site, please feel free to contact Mr. Tim Johnson, NRC-HQ and/or Mr. David Nelson, NRC Region III.

If you have any specific questions regarding the operation of the laboratory or the Radiological Control Plan, please don't hesitate to call me at (716) 592-3431.

Very truly yours,



Theodore G. Adams  
Project Manager

cc: B. Koh  
B. Kossak  
T. Johnson  
D. Nelson  
D. Raffel

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F. S.

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# *Radiological Control Plan*



Chemetron Corporation, Inc.  
Cuyahoga Heights and  
Newburgh Heights, Ohio

Revision 2  
November 1996

Prepared by:  
B. Koh & Associates, Inc.

**RADIOLOGICAL CONTROL PLAN**  
**Chemetron Corporation, Inc.**

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**PROJECT NAME AND SITE LOCATION**

Chemetron Corporation, Inc. Remediation Project  
Cuyahoga Heights and Newburgh Heights, Ohio

**APPROVED**

Chemetron Corporation, Inc.

**PROJECT MANAGER**

*Barry Koh*

\_\_\_\_\_  
Name (Please Print Clearly or Type)

*Barry Koh* / *11/22/96*  
\_\_\_\_\_  
Signature / Date

**TECHNICAL MANAGER**

*THEODORE G. ADAMS*

\_\_\_\_\_  
Name (Please Print Clearly or Type)

*Theodore G. Adams* / *11/22/96*  
\_\_\_\_\_  
Signature / Date

**PROJECT RADIATION SAFETY OFFICER**

*THEODORE G. ADAMS*

\_\_\_\_\_  
Name (Please Print Clearly or Type)

*Theodore G. Adams* / *11/22/96*  
\_\_\_\_\_  
Signature / Date

**RADIOLOGICAL CONTROL PLAN**  
**Chemetron Corporation, Inc.**

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