

December 17, 2004

Mr. Mike McCann  
U.S. Nuclear Regulatory Commission  
Region III  
2443 Warrenville Road  
Suite 210  
Lisle, ILL 60532-4352

**Battelle**  
*The Business of Innovation*

505 King Avenue  
Columbus, Ohio 43201-2693  
(614) 424-6424 Fax (614) 424-5263

Dear Mr. McCann:

**Subject: Submittal of a Field Change request on the DD 93-03 "Volumetric Release Criteria Technical Basis Document" as a license amendment to our SNM-7 License.**

**Battelle is submitting the attached Field Change request to the DD 93-03 "Volumetric Release Criteria Technical Basis Document," which is listed as Attachment 3 of our "Decommissioning Plan-Battelle Memorial Institute Columbus Operations" Revision 5 under our NRC SNM-7 License, as a license amendment request. Battelle is asking that this license amendment request be processed under the categorical exclusion option listed in 10CFR51.22 (c). Battelle has discovered that a transposition error of data in the DD 93-03 document has resulted in the incorrect values of several radionuclides being listed on the document's summary table. Battelle has conducted a documented historical review of the past use of the incorrect radionuclide values at its West Jefferson, Ohio location. The radio-nuclides changes listed on the attached field change have resulted in no cases where the incorrect values have caused any inappropriate releases under our volumetric release criteria technical basis as the radionuclides in question are typically insignificant contributors to our volumetric release calculations. Battelle would like to implement this conservative change to the listed radionuclide values as soon as possible.**

If you have any questions or comments concerning this request please do not hesitate to call me at 614-424-4098.

Sincerely,



Joe Jacobsen  
BCLDP Radiation Safety Officer

DEC 23 2004



APPROVAL FORM PROCEDURE CHANGE

Requester Joe O. Jacobson / BCCOP RSU  
 (Print name & title)

This is an approved change by one of the following methods:

Field Change Effective until NEXT REVISION

Waiver Effective until \_\_\_\_\_

**NOTE:** Waivers may not be used on any documents involved with the TRU Waste Program.

THIS CHANGE APPLIES TO: pg 2+3 of 15 FC #2

<input checked="" type="checkbox"/> Procedure <u>Plan</u>	<input type="checkbox"/> Work Instruction
Doc. No. <u>DD 93-03</u> Rev. <u>0</u>	No. _____ Rev. No. _____
Doc. Title: <u>Volometric Release Criteria Technical Basis Document</u>	Approvals:
Approvals:	_____ / _____ / _____ Print or Type Sign Date
<u>Joe O. Jacobson</u> <u>Joe O. Jacobson</u> <u>11/19/04</u> Print or Type Sign Date Functional Manager	W. I. Originator (Project Manager)
<u>P. Weaver</u> <u>[Signature]</u> <u>11/19/04</u> Independent Sign Date Oversight Manager	_____ / _____ / _____ Print or Type Sign Date
<u>P. Weaver</u> <u>[Signature]</u> <u>11/19/04</u> Quality Engineering Sign Date Manager	W. I. Originator (Work Planning Manager)
<u>Joe O. Jacobson</u> <u>Joe O. Jacobson</u> <u>11/19/04</u> Radiological Sign Date Technical Support Manager	_____ / _____ / _____ Print or Type Sign Date
<u>P. Weaver</u> <u>[Signature]</u> <u>11/19/04</u> DDO Program Sign Date Manager (if required)	D&D Superintendent
	_____ / _____ / _____ Print or Type Sign Date
	Print or Type Sign Date Safety Officer
	_____ / _____ / _____ Print or Type Sign Date
	Print or Type Sign Date Functional Manager
	_____ / _____ / _____ Print or Type Sign Date
	Radiological Sign Date Technical Support Manager
	_____ / _____ / _____ Print or Type Sign Date
	Radiological Sign Date Technical Support Manager

# FIELD CHANGE

DD-93-03  
Revision 0  
Page 2 of 15

## Release Criteria

### Residual Radioactivity Concentrations for Soil

The BCLDP has completed a review of the guidance given in the source documents and has completed environmental pathway and dose analyses for residual soil radioactivity. Residual Radioactivity Concentration criteria for soil and solid volumes to be used by the BCLDP are shown in Table 1, "BCLDP Guidelines for Residual Radioactivity Concentrations for Soil and Solid Volumes". Criteria for residual radioactivity concentrations in soil are defined in a number of references. DOE Order 5400.5, Section IV.a.2 provides generic guidelines for residual concentrations of Ra-226, Ra-228, Th-230, and Th-232. NRC Guidance has been received by the BCLDP as shown in Attachment 1 which contains soil radioactivity concentration guidelines for Co-60, Sr-90, Cs-137, Ra-226, and Ra-228. Attachment 1 contains NRC guidance for soil radioactivity concentration guidelines for natural, enriched and depleted uranium. Table 1 is a compilation of the soil residual radioactivity concentration guidelines to be utilized by the BCLDP generated primarily from the various reference documents mentioned in the above sentences and from soil guidelines generated from computer pathway analyses.

Table 1. BCLDP Guidelines for Residual Radioactivity Concentrations for Soil and Solid Volumes

Radionuclide	Predominant Pathway	King Avenue Concentration (pCi/g)	West Jefferson Concentration (pCi/g)
Natural Uranium	Dust	10 <sup>(1)</sup>	na <sup>(b)</sup>
Enriched Uranium	Dust	30 <sup>(1)</sup>	30 <sup>(1)</sup>
Depleted Uranium	Dust	35 <sup>(1)</sup>	35 <sup>(1)</sup>
Ac-227	Dust	19 <sup>(e)</sup>	19
Am-241	Dust	na	<del>270</del> 30 <sup>(4)</sup>
Am-243	Dust	na	<del>140</del> 30 <sup>(4)</sup>
Ce-144	Water	na	2,100
Cm-243	Water	na	0.79
Cm-244	Water	na	1.0
Co-60	Direct	8 <sup>(2)</sup>	8 <sup>(2)</sup>
Cs-134	Direct	na	33
Cs-137	Direct	15 <sup>(2)</sup>	15 <sup>(2)</sup>
C-14	Water	940	940
Eu-152	Water	na	<del>390</del> 36
Eu-154	Water	na	<del>260</del> 3232

} Field  
Change

11/19/04  
FC#2  
JMS

FC#2  
JMS  
11/19/04

# FIELD CHANGE

DD-93-03  
Revision 0  
Page 3 of 15

Radionuclide	Predominant Pathway	King Avenue Concentration (pCi/g)	West Jefferson Concentration (pCi/g)
Eu-155	Water	na	<del>1,900</del> 1,800
Fe-55	Dust	na	2.7E+07
H-3	Water	41,000	38,000
I-129	Water	na	13
Mn-54	Direct	na	61
Ni-59	Plant	na	1.3E+07
Ni-63	Plant	na	4.9E+06
Np-237	Water	na	0.58
Pa-231	Water	18	18
Pb-210	Dust	140	na
Pu-238	Dust	na	<del>220</del> 25 (4)
Pu-239	Dust	na	<del>290</del> 25 (4)
Pu-240	Dust	na	<del>290</del> 25 (4)
Pu-241	Dust	na	<del>13,000</del> 25 (4)
Pu-242	Dust	na	<del>310</del> 25 (4)
Ra-226	Direct	5 <sup>(2,3)</sup>	na
Ra-228	Direct	5 <sup>(2,3)</sup>	na
Ru-106	Water	na	180
Sb-125	Water	na	<del>1,100</del> 118
Sm-151	Dust	na	6,700
Sr-90	Plant	5 <sup>(2)</sup>	5 <sup>(2)</sup>
Th-228	Direct	29	na
Th-230	Dust	5 <sup>(3)</sup>	na
Th-232	Dust	5 <sup>(3)</sup>	na

FC #2  
500  
11/19/04

Field Change

FC #1  
5052  
11/19/04

Table 1 Notes and References

Notes:

- a. Activity concentrations above natural background concentrations. Where more than one radionuclide is present, the sum of the ratios of the individual radionuclide concentrations to their respective concentration limits shall not exceed 1.
- b. Indicates that this radionuclide is not expected to be found at the indicated site.