April 7, 2011

MEMORANDUM FOR RICHARD PROVENCHER
MANAGER, IDAHO OPERATIONS OFFICE

FROM: FRANK MARCINOWSKI
DEPUTY ASSISTANT SECRETARY FOR
TECHNICAL AND REGULATORY SUPPORT

SUBJECT: Revision of the Disposal Authorization Statement
for the Idaho Comprehensive Environmental
Response, Compensation, and Liability Act
Disposal Facility

The Low-Level Waste Disposal Facility Federal Review Group (LFRG) has conducted a
review of the performance assessment (PA) for the Idaho Comprehensive Environmental
Response, Compensation, and Liability Act Disposal Facility (ICDF). The independent
review of the PA, performed by a review team chartered by the LFRG, was in accordance
with the requirements of the Department of Energy Radioactive Waste Management
Order 435.1.

The attached compliance evaluation was prepared by the LFRG based on the input from
their review team report and the expert opinions of the LFRG membership. The LFRG
used the review team report and the compliance evaluation to develop a revised disposal
authorization statement (DAS) outlining the LFRG's recommendations for disposal
operations and the conditions with which the ICDF must comply.

I have accepted the LFRG recommendation for approval of continued disposal
authorization for the ICDF. Therefore, the Idaho Operations Office is authorized to
continue operation of the ICDF subject to the conditions in the attached revision to the
previously approved DAS. The conditions of approval defined in the revised DAS must
be satisfied by the Idaho National Laboratory (INL) to assure continued authorization of
the facility. Failure by the INL to comply with the conditions should be reported by the
Idaho Operations Office to the LFRG Co-Chairs, and based upon the resulting
recommendation to me, could result in revocation of the authorization and the immediate
shutdown of the disposal facility.

The required plan for maintenance of the PA currently under development should include
the resolution of any issues identified by the review team not yet addressed. Resolution
of the issues is to be reported to the LFRG via annual reports or other written
communication.
If your staff has any questions regarding this action or the process for working with the LFRG on meeting the conditions, please contact Mr. Steven C. Golian, Alternate Co-Chair, at (301) 903-7791.

Attachments

cc: Nicole Hernandez, ID
    Mary Willeox, ID
    Martin Letourneau, EM-41
    Pramod Mallick, EM-31
    Steven Golian, EM-41
    Maureen O'Dell, EM-41

The Low-Level Waste Disposal Facility Federal Review Group (LFRG) concludes that the Performance Assessment for the Idaho Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Disposal Facility Landfill (DOE/ID-10978), hereafter referred to as the ICDF PA, at the Idaho National Laboratory Site is acceptable with conditions. This conclusion is based on the ICDF PA, the Review Team Report for the ICDF PA, and the resolutions described in Appendix B of that report.

No key issues were identified by the review team. Eighteen secondary issues were identified; however, none required resolution prior to final acceptance of the PA. Secondary issues not already addressed through post-review revisions made to the PA will be tracked and resolved via the ICDF PA maintenance program. The waste acceptance criteria (WAC) limits for four radionuclides (Cs-137, Pa-231, Sr-90, U-232), which are currently based on the CERCLA analyses and not the 435.1 PA, will need to be lowered based on the results of the PA. Several notable strengths of the PA were also identified.

For the ICDF PA, the point of compliance during the operational and institutional control periods, for the all pathways and air pathway performance measures, is at the Site boundary. However, for the water resources impact assessment, the point of compliance remains the point of highest projected dose or concentration beyond a 100-m buffer zone surrounding the disposed waste during the operational and institutional control periods. For both the radon performance objective and the inadvertent intruder performance measures, the points of compliance are the disposal facility surface for all time periods and the disposal facility after the assumed loss of active institutional controls 100 years after facility closure, respectively.

As shown in the performance objective summary table below, all performance objectives/measures are satisfied. The PA was judged to provide a reasonable expectation that the Department of Energy’s Radioactive Waste Management Manual 435.1-1 performance objectives and performance measures will not be exceeded.
Comparison of the Performance Objectives and the ICDF Landfill Performance Assessment Results for the Institutional Control and Compliance Period

<table>
<thead>
<tr>
<th>Performance Objective and/or Measure</th>
<th>Performance Objective downgradient of ICDF Landfill</th>
<th>Compliance Period (2119-3018)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All pathways (DOE 0435.1 Chg 1)</td>
<td>25 mrem/yr EDE</td>
<td>8.1E-04 mrem/yr</td>
</tr>
<tr>
<td>Atmospheric (40 CFR 61, Subpart H)</td>
<td>10 mrem/yr EDE (entire INL Site)</td>
<td>5.8E-03 mrem/yr</td>
</tr>
<tr>
<td>Atmospheric (40 CFR 61, Subpart Q)</td>
<td>20 pCi·m⁻²·s⁻¹ radon flux (at surface of disposal facility)</td>
<td>0.6 pCi·m⁻²·s⁻¹</td>
</tr>
<tr>
<td>Acute inadvertent intruder (DOE 0435.1 Chg 1)</td>
<td>500 mrem EDE</td>
<td>1.7 mrem @ ICDF Landfill</td>
</tr>
<tr>
<td>Chronic inadvertent intruder (DOE 0435.1 Chg 1)</td>
<td>100 mrem/yr EDE</td>
<td>0.7 mrem/yr @ ICDF Landfill</td>
</tr>
<tr>
<td>Groundwater protection (40 CFR 141) IDAPA 58.01.11 and IDAPA 58.01.08)</td>
<td>Beta-gamma dose equivalent ≤4 mrem/yr (based on federal MCL)</td>
<td>7.4E-04 mrem/yr</td>
</tr>
<tr>
<td></td>
<td>1.7E-09 mrem/yr</td>
<td>0 mrem/yr</td>
</tr>
<tr>
<td></td>
<td>&lt;1E-10 pCi/L</td>
<td>&lt;1E-10 pCi/L</td>
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<td></td>
<td>&lt;1E-10 pCi/L</td>
<td>&lt;1E-10 pCi/L</td>
</tr>
<tr>
<td></td>
<td>0 µg/L</td>
<td>&lt;1E-10 µg/L</td>
</tr>
<tr>
<td></td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>1.4E-06 pCi/L</td>
<td>9.3E-07 pCi/L</td>
</tr>
</tbody>
</table>

a. Beta-gamma effective dose equivalent ≤4 mrem/yr (IDAPA 58.01.11, State of Idaho Ground Water Quality Rule).
b. Beta-gamma dose equivalent ≤4 mrem/yr (based on federal MCL) (IDAPA 58.01.08, State of Idaho Rules for Public Drinking Water Systems).
c. Concentrations less than 1E-10 are essentially zero.
d. Not applicable, uranium not evaluated for IDAPA 58.01.11 State of Idaho Ground Water Quality Rule.
e. Not applicable, Sr-90 was screened out during evaluation of the groundwater pathway due to its relatively short half-life and its low mobility in the subsurface.

As Low As Reasonably Achievable (ALARA) Analysis

The ICDF PA demonstrated that the projected releases of radionuclides to the environment will be maintained ALARA.
Disposal Authorization Statement
for the
Idaho National Laboratory
Idaho Comprehensive Environmental Response, Compensation, and Liability Act Disposal Facility

Revision No. 1
Effective Date: April 7, 2011

Background

The issuance of a disposal authorization statement (DAS), which serves as the Federal Permit for the design, construction, operation, monitoring, and closure of a low-level waste disposal facility, is a requirement under the Department of Energy's (DOE's) Radioactive Waste Management Manual 435.1-1. The DAS for the Idaho Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Disposal Facility ICDF (Revision No. 0) was granted in July 2003. The 2003 DAS was issued based on a review of the performance assessment (PA), composite analysis (CA) and a compliance demonstration document that cross-walked the process conducted under CERCLA for the ICDF landfill to the requirements under DOE O 435.1. This revised DAS is issued based on a review of the facility's current PA and CA documentation.

Disposal Authorization Statement

In fulfillment of the requirement of DOE's Radioactive Waste Management Manual 435.1-1, this 2011 DAS (Revision 1) is hereby issued permitting the Idaho Operations Office (ID) to continue to transfer, receive, store, and dispose of low-level radioactive waste at the ICDF. Operation of the facility under the revised DAS requirements shall ensure that the facility does not pose a threat to human health and the environment.

ID shall conduct its low-level radioactive waste disposal program in accordance with the requirements contained in the following documents and any subsequently approved revisions. All of these documents are components of the DOE approved Radioactive Waste Management Basis (RWMB) for the ICDF:

- Performance Assessment for the Idaho CERCLA Disposal Facility, DOE/ID-10978
- Composite Analysis for the INEEL CERCLA Disposal Facility Landfill, DOE/ID-10979
- ICDF Complex Remedial Action Work Plan, DOE/ID-10984
- ICDF Complex Operations and Maintenance Plan, DOE/ID-11000
- ICDF Complex Waste Profile and Verification Sample Guidance, DOE/NE-ID-11175
• Health and Safety Plan for Idaho CERCLA Disposal Facility Operations, INEEL/EXT-01-01318
• ICDF Complex Operational and Monitoring Sampling and Analysis Plan, DOE/ID-11005
• ICDF Complex Groundwater Monitoring Plan, DOE/ID-10955
• INEEL CERCLA Disposal Facility Remedial Design/Construction Work Plan, DOE/ID-10848
• INEEL CERCLA Disposal Facility Design Inventory, EDF-ER-264
• Waste Tracking Plan for the Idaho CERCLA Disposal Facility Complex, PLN-914
• ICDF Complex Waste Acceptance Criteria, DOE/ID-10881, Rev 9, Mat2010

This revised DAS is subject to all applicable rules and orders now or hereafter in effect and to the conditions specified below. Also, this authorization is applicable to any subsequent revisions and additions to the PA and CA provided the revisions and additions are in accordance with the PA and CA maintenance program. Applicable permits and reports that comprise the RWMB shall be approved and continue to be maintained current according to the applicable DOE orders and regulations.

Facility Construction and Design

The design features of disposal units in the ICDF shall conform to the conceptual model used in the PA. Significant changes in the disposal technology, disposal unit, or waste form shall be evaluated in accordance with the PA/CA maintenance program. If required, design changes shall be submitted to the Low-Level Waste Disposal Facility Federal Review Group (LFRG) for review in accordance with the 2008 LFRG Manual (Revision 3) and, if required, approved by the LFRG.

Radionuclide Limits, Waste Form, and Packaging

Disposal within the ICDF shall be in accordance with the waste acceptance criteria which provide specific radionuclide disposal limits, waste form restrictions, and descriptions of acceptable waste packages. The waste acceptance criteria shall be based on the facility PA and any special analyses if either result in more restrictive limits than those derived under CERCLA analyses. Waste acceptance procedures shall be in place describing requirements for waste characterization, waste certification, and record keeping as well as the process for authorizing deviations from the requirements. All wastes received for disposal at this facility must conform to the waste acceptance procedures or have an authorized deviation. The waste acceptance criteria shall be reviewed and approved through the facility RWMB.
Closure

Closure plans for the ICDF must be revised, if necessary, to accommodate any deviations from the closure concept analyzed in the PA.

Monitoring

Monitoring plans shall be updated, if necessary, to accommodate any deviations from the conceptual model analyzed in the PA. Any required updates to monitoring plans based on the revised PA, and following the issuance of the DAS, must be prepared within one year of issuance of the DAS and submitted to DOE-ID for approval or a justification as to why the existing monitoring plan is consistent with the revised PA should be provided. Monitoring plans shall be evaluated annually as part of the PA maintenance program and an update, if required, should be submitted for approval by DOE-ID as necessary to reflect any changes in facility conditions. Monitoring plans shall include monitoring frequencies and protocols for all the data collection required to assess the continued performance of the disposal facility. The plans shall also require monitoring results be compared to forecasted system behavior, and for the development of any corrective actions if deemed necessary.

PA and CA Maintenance

The PA and CA maintenance program shall follow guidance found in the Maintenance Guide for U.S. Department of Energy Low-Level Waste Disposal Facility Performance Assessments and Composite Analyses (November 10, 1999). Changes in the disposal facility operations (e.g., waste form, disposal unit design, and radionuclide quantity) or on site policy (e.g., land use plan) or strategy (e.g., closure plan remedial actions) and consequent changes in disposal facility controls shall be managed according to the PA and CA maintenance program. Changes and discoveries shall be reviewed consistent with the review thresholds of the LFRG Manual, submitted to the LFRG for review (if required), and considered by the LFRG for approval (if required). ID shall utilize a special analysis process to evaluate conditions (proposed changes and discoveries) that cannot be readily determined to comply with the PA requirements. If after analysis, the facility exceeds the performance objectives/measures, operations will be suspended and the LFRG will be informed immediately. Exceeding one or more of the performance objectives/measures is considered a violation of the DAS.

ID shall perform an annual review of the adequacy of the PA and CA and the status shall be provided to the LFRG.

ICDF PA and CA Conditions

The maintenance program shall include activities to resolve each of the secondary issues identified in the PA review that were not completely addressed in post-review PA revisions. The secondary issues are described in detail in the review team report (Review

**Violation of Operational Requirements**

Operational procedures will be maintained and implemented to ensure the disposal facility is operated in a manner that protects the worker, the public, and the environment. These procedures support the list of documents identified in the “Disposal Authorization Section” of this document. Violation of these procedures will be handled in accordance with the appropriate corrective action programs (Non-Conformance Report, Problem Identification Report, Root Cause Analysis, etc.). The LFRG site representative is responsible for evaluating violations to operating procedures, as appropriate, and informing the LFRG as necessary if there is a potential of violating the DAS. A violation of the DAS has occurred if the performance objectives/measures identified in DOE Radioactive Waste Management Manual 435.1-1 have been exceeded.

[Signature]
Frank Marcinowski
Deputy Assistant Secretary for Technical and Regulatory Support

(Date)