


**Low-Level Waste Disposal Facility Federal Review Group (LFRG)
Review of
Waste Management Area C
Performance Assessment (WMA-C PA)**

Hanford Site

Sherri Ross

LFRG Review Team Lead



LFRG Review of the WMA-C PA

- Team chartered to review the PA for technical acceptability to support DOE publication
 - PA prepared to serve as technical analysis for a future waste determination (WD) per the waste incidental to reprocessing (WIR) evaluation requirements of DOE Manual 435.1-1.
 - WD requires compliance with DOE Manual 435.1-1 Chapter IV plus the performance objectives in 10 CFR 61.40 through 61.44.
 - The evaluation process includes review of the PA by NRC under a consultation role
 - The process will also involve review of the PA by regulators and public



LFRG Review Team

Sherri Ross – Team Lead

James McCarthy – Team Member

Barry Lester – Team Member

Roger Seitz – Team Member

Susan Krenzien – Team Member

Steven Thomas – Team Member

Howard Pope – Team Member

Gregory Shott – Team Member

Beth Moore – Team Member

Ming Zhu – Team Lead Trainee

Justin Marble – Team Lead Trainee





Team Activities

WMA-C PA on LFRG server	January 14, 2016
7 Webinar Discussions	Jan 27 – March 16
Onsite Review	March 21-24, 2016
Outbrief	March 24, 2016
Draft Report to LFRG	June 7, 2016
LFRG Vote Approved	July 6, 2016
Final Report	August 5, 2016
Issues Closed	August 15, 2016
PA approved for publication	August 29, 2016

NRC and Washington Ecology representatives observed the LFRG review

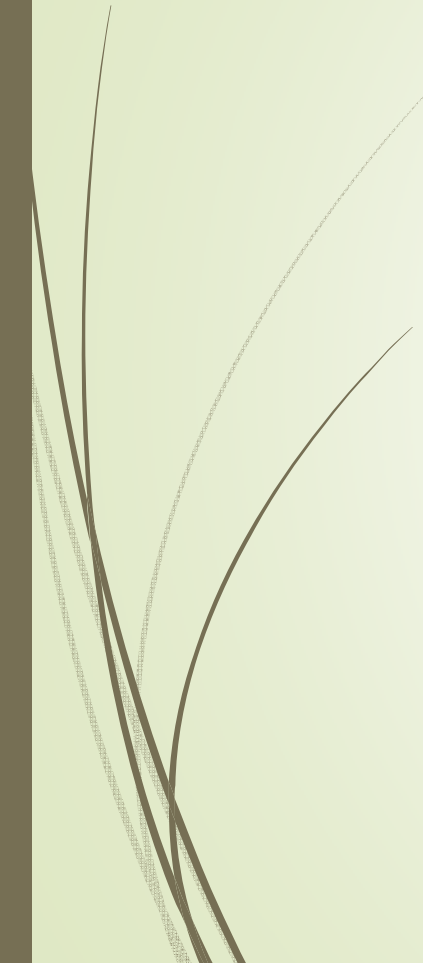


Definitions

- ▶ A **key issue** is a problem or concern that affects the validity or utility of the technical basis documentation.
- ▶ A **secondary issue** is a problem or concern that is of sufficient importance that it needs to be addressed, but does not constitute a key issue.



Observation and Best Management Practices


- ▶ **Observations** typically consist of recommendations to enhance the presentation of information and clarity of the document.
 - ▶ **Best Management** processes, procedures, modeling approaches, etc. that the site has implemented that the LFRG believes are cost effective, technically sound and should be recognized and shared with other sites.
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Results of Our Review

- ▶ 1 Key Issue
- ▶ 27 Secondary Issues
- ▶ 9 Observations
- ▶ 6 Best Management Practices
- ▶ 2 Recommendations

The Key, 26/27 Secondary Issues, and Observations were closed prior to DOE's approval to publish PA.

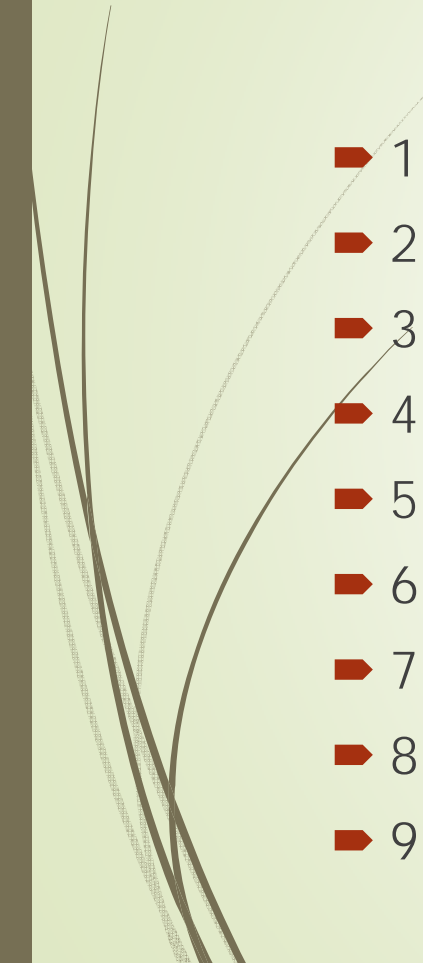


Key Issue - Intrusion Scenarios

- ▶ The intruder scenarios need to consider intrusion into a pipeline after 100 years and intrusion into a tank after 500 years to be consistent with expectations of DOE Order 435.1 and NUREG-1854.
 - ▶ Also, when describing the intrusion scenarios it would be beneficial to add some discussion of the relative likelihood.
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Secondary Issues

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- 1 Review Comment Record and Typographical Errors
 - 2 Large Ra226 Inventory Uncertainty not Addressed
 - 3 Selenium animal fodder plant-soil concentration ratio
 - 4 Atmospheric Dispersion Calculation
 - 5 Point of Assessment and Timing Assumption
 - 6 Additional documents needed for closure / correction in PA
 - 7 Modeling Approach
 - 8 Key Assumptions
 - 9 Closure at 2020



Secondary Issues

- 10 Constituents of Concern Screening based on K_d
- 11 Long term performance evaluation
- 12 Uncertainty analysis based on peak doses
- 13 Grout degradation (Open – to be added to PA Maintenance Plan)
- 14 Context for performance assessment
- 15 Features, Events, and Processes
- 16 Grout Diffusion Coefficient Application of Table 6-4
- 17 Vertical Dispersivity in saturated zone
- 18 Consideration of Degraded Performance



Secondary Issues

- 19 Grout and Cover Design Assumptions
- 20 Input assumptions for grout/cement, including specific values for K_d
- 21 Executive Summary
- 22 Base Case description
- 23 Inhalation Dose Conversion Factor
- 24 Software and Model Quality Assurance
- 25 PA role in WIR evaluation process
- 26 GoldSim Inventory Uncertainty Simulation
- 27 Regression Plots



Observations

- 1 Tank Volume Values
- 2 Clarify of Quote
- 3 Intruder DCFs, Intake and Use Factors
- 4 Dose Assessment Parameter Selection
- 5 Confusing Conclusion
- 6 Grout Durability
- 7 Upper Bound Inventory for Tank C-105
- 8 Tables and Figures Placement
- 9 Chromium Discussion



Best Management Practices

- 1 Webinars
- 2 Use of Sensitivity Analyses to address stakeholder questions
- 3 Groundwater and Vadose Zone Executive Council
- 4 Software Quality Assurance
- 5 Scoping Meetings
- 6 Comprehensive Modeling



Recommendations

- ▶ 1 Clarify in DOE O 435.1 regarding Tank Closure
 - ▶ Current DOE M and G 435.1 does not provide enough direction or guidance between what is required for tank closure plan versus disposal facility requirements
- ▶ 2 Combine Performance Assessments and Waste Determinations
 - ▶ Consider doing a single PA for 200 East and West after WMA-C closure decisions