

Rocky Flats Environmental Technology Site. Actinide Migration Evaluation
Meetings February 10-12, 2003
Advisory Group Greg Choppin, David Clark, David Janecky, Leonard Lane,
Annie Kersting

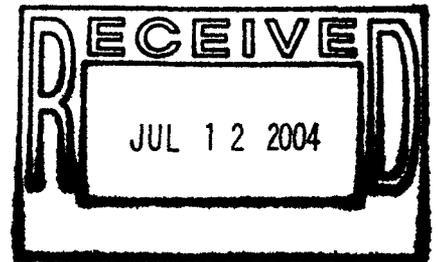
Summary and Recommendations for Path Forward

The general areas of discussion included the following three topics

- Transition to Stewardship
- Remediation and modeling of 903 pad area
- Role of colloids in transport of transuranium actinides

Progress and Integration

The AME Advisors are pleased with the increased recognition and broad agreement on the present importance of transition to stewardship planning and actions



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Results and Discussions

Project Status / Site News

Building D&D and site remediation continues on an active pace at Rocky Flats. The Solar ponds continue to be of interest to AME, following remedial actions, which pushed in the berms and covered the site with onsite soil containing low levels of actinide contamination. This has raised issues for building site fill sources and the use of contaminated soil. We are pleased that Ian Paton has the important role of "ambassador" to site configuration planning efforts, including focus on identification of uncontaminated fill sources required for the ~300,000 cubic yards of fill necessary for completion of building 771 remediation. The solar ponds site has not yet been revegetated, with plans for implementation focused on March. A key issue is interim protection of the soil surface from wind and water until vegetation is established on the site. Another important issue is the potential for exotic plants in "soil guard" materials and FWS intentions for use of native vegetation in site management.

The Water Program group efforts on water balance, surface water sampling team and erosion modeling continue to be critical to remediation efforts. Development of more detailed modeling (60' grid spacing from previous 200') of water balance envelopes for the site has focused on two areas: the industrial area with extension to include the original dump, and the present landfill. Extension of data compilations and modeling for VOCs is a key near-term focus. Uranium continues to be of interest, but contamination. The AME Advisors recognize a need to pull together complete evaluation of all the collected uranium analyses and geochemical evaluations. Sampling locations and wells need to be evaluated with respect to flow models from the water balance studies, and integrated with stewardship planning.

New OPWL plans proposing to change removal plan basis to 10' depth rather than 6'. The technical justification and evaluation of the basis for this should be developed.

Colloid White Paper

The presentation by A. Kersting reported progress on preparation of the AME white paper on colloids at RFETS. There is recognition that the mobility of transuranium actinides in natural, oxic waters, both surface and subsurface, is strongly dominated by particle transport including actinide colloids and colloids on which actinides are sorbed. This has been found to be the case internationally in all studies where proper filtration methods were used to differentiate between colloids and truly soluble species.

Recognition of the ubiquitous presence of transuranium actinide colloids in RFETS waters requires the use of models for colloid migration rather than those based on migration of soluble molecular/ionic species. The white paper is to include discussion of the effects of colloids in erosion and actinide mobility.

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modeling at RFETS It should also include discussions on using such colloid behavior to "close" the Water Pathways documentation

903 Pad Area Erosion Modeling and Actinide Transport Study [IJI]

The erosion (WEPP modeling) and contaminant transport (Actinide Mobility modeling) simulation technology is being used to evaluate three site remediation scenarios The first scenario, Scenario 1, is essentially the FY2000 and FY2002 erosion modeling studies of pre-remediation conditions as a baseline analysis

Scenario 2 is the current site remediation plan and includes Industrial Area and 903 Pad reconfiguration and revegetation and with the soil contaminations reduced to the RFCA < 50 pCi/g limits Scenario 3 is the same as Scenario 2 but includes additional erosion control measures and analysis of erosion and actinide transport in the south Buffer Zone (903 Pad Lip area) after its remediation, probably by soil-vacuum technology In all of the scenarios vegetation is assumed to be re-established quickly and successfully and in Scenario 3 the soil vacuuming of the 903 Lip area is assumed to maintain healthy, viable vegetative cover

The AME Advisors recommend that RFETS personnel familiar with re-vegetation – erosion control technology be consulted to determine probability of successful revegetation from success/failure of previous revegetation efforts We recommend that an additional scenario of unsuccessful or partially successful revegetation be included in the analysis to provide a more realistic range of erosion and actinide mobility estimates following remediation efforts

AME Transition to Stewardship: White Paper

Draft copies of a white paper entitled "AME Group Strategy Document for A Transition to Stewardship at Rocky Flats" and a companion presentation entitled "Transition to Stewardship at Rocky Flats" were distributed to the AME Advisors The draft presentation was reviewed, enhanced, and edited to address near-term transition issues affecting subsequent Site performance between now and closure These comments and corrections, as well as others dealing with specific examples from the Site, will be incorporated into the presentation and used to revise the white paper

903 pad remediation

The advisors were fascinated by the progress reported by Lane Butler for 903 Pad remediation Documentation on the L8 excavation cell included the finding that there was actinide contamination extending to at least 8 foot depths This finding raises further questions about the original contamination releases, subsequent treatments and pad area structure (see documents and information requested, below) The AME Advisors recommend that characterization of the

adjacent excavation cells M1, M2 & M3 as remediation proceeds on the pad will be essential to understanding the results from cell L8 and planning completion of further characterization of that cell. These results will also define enhancements to the strategic approach for any future excavation cell(s) that exhibit similar contamination depth distributions. In particular, characterization must define concentration gradients vertically to cut-offs below 10s of pCi/g, whether or not the contamination is removed below selected depths. Such characterization is necessary to provide a solid technical basis for understanding of the vertical distribution of actinide contamination.

Documents Provided to Advisory Group

Rocky Flats envision January 29, 2003, v9/2
Articles on Pu contamination at LANL – Journal North & Energy Daily
Draft colloids white paper & presentation
Draft response to Leroy Moore
INEEL/EXT-02-01125 Ancillary Basis for Risk Analysis of the Subsurface
Disposal Area
Rocky Flats Environmental Technology Site, Data Reporting Package 0301035
RAD [numbers from 903pad]
Lane Butler – 903 RFCLOG viewgraphs
Draft stewardship Whitepaper & presentation

Documents and Information Requested for Advisory Group

Information on air and site monitoring for solar ponds area Note that it was not revegetated and that it is creating noticeable results in air samplers
Information on revegetation time scale & schedule, ecology group + species composition, coupled with climate + wind processes + water erosion (latter two with year sequence processes) – this is critical to planning for 903 pad + lip + other areas
More detailed info on 903 pad remediation and resulting data – depth distribution, pictures of cell floor at lift stages and comparison with HPGe

Requests for Future Presentations and Information

903 pad remediation – Actinide and VOCs contamination characterization, structure observations and strategic approaches

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Participants in AMS technical meetings

<u>Name</u>	<u>Organization</u>
David Clark	Los Alamos
David Janecky	LANL
Leonard Lane	Tucson
Greg Choppin	Florida State
Annie Kersting	LLNL
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Robert Nininger	K-H
John Stover	DOE/RFFO
David Shelton	K-H
Lane Butler	K-H
Steve Gunderson	CDPHE
Gary Kleeman	EPA
John Corsi	K-H
John Rampe	DOE/RFFO
Rick DiSalvo	DOE/RFFO

Future Meetings

May 19-20
August 4-6

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