

# Rocky Flats Coalition of Local Governments

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February 8, 2005

Ms. Norma Castaneda  
US Department of Energy  
10808 Highway 93, Unit A, MV72  
Golden, CO 80403-8200

Dear Ms. Castaneda,

On behalf of the Board of Directors of the Rocky Flats Coalition of Local Governments, I am submitting the following comments on the *Draft Interim Measure/Interim Remedial Action for Groundwater at the Rocky Flats Environmental Technology Site*. The Coalition appreciates the opportunity to provide feedback on this important remedial action document.

## **Independent Review (IR)**

The Coalition appreciates the effort required to generate this document. The Site has briefed the Board numerous times over the last several years on components of the Site's groundwater (GW) strategy which forms the basis of this IM/IRA. Some of these components are:

- Extensive GW well monitoring network
- *The Site-Wide Water Balance Modeling Report*
- *Fate and Transport Modeling of Volatile Organic Compounds*
- Actinide Migration Evaluation panel recommendations
- Extensive computer modeling of current and anticipated post-closure GW flow
- Post-closure Land Configuration Design

The Board believes the GW components listed above have had adequate independent review. Nonetheless the Coalition believes there are additional GW issues which may require independent review, including:

- Ensuring GW remediation decisions are protective of surface water;
- Verifying remediation objectives and decisions comply with regulatory requirements;
- Verifying the potential GW pathways;
- Evaluating the effectiveness of the existing plume treatment systems;
- Assessing the remediation alternatives that are evaluated in this IM/IRA; and
- Assessing whether the controls DOE will utilize post-closure are appropriate.

Until we gain further insight into these additional GW issues we will relegate our comments on this IM/IRA to the following key topic areas:

- Analysis of Alternatives/Project Approach Sections of the IM/IRA
- Long Term Stewardship Considerations

### **Analysis of Alternatives/Project Approach**

We understand the Site is using EPA guidance on presumptive remedies for potential shallow GW remediation. The potential GW remediation will target plumes containing the ten analytes of interest presented in the IM/IRA. The Site has selected four standard remediation alternatives as possible alternatives analysis candidates for each of the IM/IRA's five contaminated GW plumes. The five plumes were selected by the screening process presented in the IM/IRA. The four remediation alternatives are:

- Soil source removal/excavation
- *In-Situ* enhanced biodegradation
- Phytoremediation
- Passive groundwater collection and treatment

The IM/IRA specifies the remediation alternatives which were selected for alternatives analysis for each plume. These alternatives were then evaluated against the criteria of effectiveness, implementability, and cost. Based on the comparison of selected alternatives against the specified criteria, a preferred alternative was selected for each of the five plumes.

#### Phytoremediation - Downgradient East Trenches and Downgradient Solar Ponds Plumes

The preferred alternative for the downgradient East Trenches and Solar Ponds plumes is phytoremediation. The Coalition has concerns over the effectiveness of this proposed remedy for these two plumes.

Phytoremediation utilizes deep-rooted plant species -- poplar/willow/cottonwood trees are suggested in the IM/IRA -- to provide a pathway for uptake of GW/transported contaminants into the plant species. This method, which has been used at other CERCLA sites, does have important limitations. As stated many times in the IM/IRA as well as in EPA documents, its effectiveness is limited to the plant's growing season, which is subject to climatic conditions. Certainly in our high altitude arid environment the growing season is limited compared to warmer/wetter climates. During the dormant periods of the plant, very little GW uptake occurs.

As stated in the IM/IRA, phytoremediation also requires several years for the selected plant species to become established and function at their peak uptake rates. According to the IM/IRA, during the maturation time of the remedy (excluding the first year), any dead or dying plants will not be replaced leaving a lower density network of trees in the treatment areas. The time of year is also critical for tree planting. If poplar trees are selected they can only be planted in early spring or late fall to increase their chances of survival. Finally, the IM/IRA does not address how much contaminated GW will flow through the treatment area during the dormant period thus bypassing uptake by plant roots.

Given these facts, the Coalition has a number of questions about the effectiveness of this approach:

- Has the Site selected a large enough area for the deep-rooted plants to ensure that contaminated GW flowing through this area will be taken up by the plants during their growing season?
- Will contaminated GW bypassing the plant roots result in contaminants reaching surface water downgradient of the two plumes at concentrations above the Surface Water Preliminary Remediation Goals?
- If so, do current models predict what contaminant concentrations may be for the analytes of interest in the surface water?
- If several years of remedy performance monitoring post-closure indicates phytoremediation is not effective, how will DOE's Office of Legacy Management respond?

We recognize there were specific reasons why the existing treatment system was sited in its current location. Nevertheless, given the concerns with utilizing phytoremediation, the Coalition questions why extending the existing East Trenches passive GW collection system closer to South Walnut Creek was not considered for alternatives analysis. The Coalition believes that the rejection of extending the existing GW treatment system for alternatives analysis is incorrect. We are therefore requesting that the Site include the treatment system extension as a remedial option for alternatives analysis in the IM/IRA.

The Coalition has similar concerns regarding the alternatives analysis of the downgradient portion of the Solar Ponds Plume. Only one alternative, phytoremediation, was chosen for alternatives analysis. Two other remedial action options, extension of the existing GW treatment system and source removal, were rejected for consideration by alternatives analysis. The whole purpose of the alternatives analysis section of an IM/IRA document is to fairly evaluate proposed remedial action options against specified criteria to come up with a preferred alternative candidate. To only have one option evaluated is not an "Analysis of Alternatives" (title of IM/IRA Section 6.0).

#### 903 Pad/Ryan's Pit Plume

The IM/IRA describes an investigative process that will occur to better characterize the VOC contamination in the 903 Pad/Ryan's Pit plume. This characterization process is described in Appendix H of the IM/IRA. The Coalition is supportive of the investigative process to further characterize VOC contamination in this area.

The IM/IRA assumes the VOC contamination is similar to other areas of the Site and presents two remediation alternatives for analysis, source removal and *In-situ* enhanced biodegradation. *In-situ* enhanced biodegradation is selected as the preferred alternative. However, the characterization strategy presented in Appendix H is not consistent with the selection of *In-situ* enhanced biodegradation as the sole preferred alternative. As stated in Section 1.4 of Appendix H:

- "If VOC contamination is present above action levels (ALs) in the upper 3 feet, a removal action will be triggered."
- "If VOC contamination is present above ALs at elevations greater than 3 feet below final grade, and if action is indicated by the Subsurface Soil Risk Screen, then HRC (an amendment used in *In-situ* enhanced biodegradation) or other appropriate material will be inserted at this location and depth at the manufacturer's recommended application rate."

The strategy set forth in Appendix H would suggest that, depending on VOC contamination depth, the preferred remediation alternative would be a combination of source removal and *In-situ* enhanced biodegradation. The Coalition requests that the Site modify the preferred alternative to include the possibility of source removal depending on VOC ALs.

### **Long Term Stewardship Considerations**

One of the Coalition's core beliefs is the necessity for comprehensive long-term stewardship (LTS) planning. With closure looming we are again disappointed that the IM/IRA lacks any real clarity of the type and extent of LTS controls that will be used to implement the remedy. Although the IM/IRA includes a LTS section, like most Site remedial action documents it is somewhat generic when it comes to specific LTS plans. More specific details are relegated to future documents. An example from page 7-14 in the IM/IRA is quoted as follows:

“Additionally, these requirements will ultimately be captured (along with post-closure care requirements from other accelerated actions at Rocky Flats) in post-closure regulatory documents, which may include the final Corrective Action/Record of Decision (CAD/ROD) for Rocky Flats, any post-closure RFCA-type agreement, and any post-closure RCRA permit or other enforceable mechanism.”

Detailed LTS implementation needs to be incorporated into the remedial actions at the Site as they are planned and executed. We would encourage the Site to engage the Coalition in the decision process as LTS planning unfolds.

Finally, the Coalition is concerned about lack of mention of contingency planning in case of post-closure GW remedy system failures. The Coalition hopes that all five plume treatment systems will prove effective at protecting post-closure surface water. However, if one or more of the proposed remedies proves ineffective, then a tremendous burden will be placed on DOE to find an effective replacement. This is especially troublesome if adequate funding is not readily available for future remedy repair/replacement. The Coalition believes that substantive contingency planning should be incorporated into this IM/IRA since its remedial actions extend into the post-closure future. In addition, the Coalition believes that DOE must somehow devise a funding mechanism to ensure timely, future remedial repair/replacement.

### **General Comment**

Sections 1.4 and 3.5 of the IM/IRA discuss both groundwater and surface water regulatory criteria in a somewhat confusing manner. Surface water standards, Tier I and II groundwater action levels, SWPRGs, and 10xSWPRGs are all mentioned. The Coalition believes the readability of the IM/IRA could be improved by adding a concise analysis of the how these various regulatory criteria interrelate and ultimately affect the quality of surface water leaving the Site.

As always, thank you for the opportunity to comment on this important document and for your continuing commitment to work with the Coalition on the safe and timely closure of Rocky Flats. If you have any questions about the Coalition's comments, please call me at (303) 412-1200.

Sincerely,

/s/

David M. Abelson  
Executive Director

cc: Joe Legare, DOE  
Steve Gunderson, CDPHE  
Mark Aguilar, EPA  
Karen Lutz, DOE  
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Rocky Flats Coalition of Local Governments  
Rocky Flats Citizens Advisory Board