



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN 2 2011

OFFICE OF
AIR AND RADIATION

MEMORANDUM

SUBJECT: Advisory Review of the Draft Technical Report: *Considerations Related to Post-Closure Monitoring of Uranium In-Situ Leach/In-Situ Recovery (ISL/ISR) Sites*

FROM: Michael P. Flynn, Director,
Office of Radiation and Indoor Air

TO: Vanessa Vu, Director
Science Advisory Board

This is to request that the Science Advisory Board's augmented Radiation Advisory Committee (RAC) conduct an advisory review of the attached draft *Technical Report: Considerations Related to Post-Closure Monitoring of Uranium In-Situ Leach /In-Situ Recovery (ISL/ISR) Sites* (Technical Report).

Background

In accordance with the Uranium Mill Tailings Radiation Control Act (UMTRCA) section 206, the Environmental Protection Agency (EPA) is authorized to develop standards for the protection of public health, safety, and the environment from radiological and non-radiological hazards associated with residual radioactive materials. Regulatory standards implementing UMTRCA (40 CFR Part 192 Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings) were originally issued in 1983, and last revised in 1995. EPA is currently conducting a review of its regulations for uranium and thorium milling to determine if the existing standards in 40 CFR Part 192 should be updated.

While the existing regulatory standards apply to both conventional mills and unconventional ore processing methods, they were not written in anticipation of new technologies such as heap leaching and in-situ leach/in-situ recovery (ISL/ISR). With ISL/ISR operations expected to be the most common type of new uranium extraction facility in the U.S., and the potential for these facilities to affect groundwater, EPA has prepared the attached draft Technical Report, which addresses considerations involved in establishing groundwater monitoring systems around uranium ISL/ISR operations.

There are several objectives for monitoring an ISL/ISR uranium extraction operation, specifically:

- 1) to establish baseline (pre-mining) groundwater chemical compositions;
- 2) to detect excursions of the injected and mobilized components beyond the well field; and
- 3) to determine when the post-mining/restoration phase groundwater chemistry has "stabilized," *i.e.*, reached concentration levels that are expected to remain constant over time.

EPA is considering including groundwater monitoring requirements as a component of the regulatory standards included in any revision of 40 CFR Part 192. The draft Technical Report is intended to support the technical considerations about monitoring requirements (*e.g.*, sampling protocols, timeframes, statistical tools and techniques) that may be included in revisions to 40 CFR Part 192.

Specific Request

At this time, EPA is seeking advice from the RAC on the technical considerations relevant to establishing monitoring plans to achieve the objectives described above. The Technical Report focuses on these considerations for designing and implementing a monitoring network. After receiving the advisory review, EPA plans to revise the Technical Report and use the information as a basis for updating 40 CFR Part 192 to explicitly address ISL/ISR extraction processes.

Specifically, EPA requests that the RAC provide comments on the following:

- 1) The technical areas described in the report and their relative importance for designing and implementing a monitoring network. Identify any technical considerations that have been omitted or mischaracterized.
- 2) The proposed approaches for characterizing baseline groundwater chemical conditions in the pre-mining phase and proposed approaches for determining the duration of such monitoring to establish baseline conditions.
- 3) The approaches considered for monitoring in the post-mining/restoration phase and the approaches considered for determining when groundwater chemistry has reached a “stable” level.
- 4) Suitable statistical techniques that would be applicable for use with ISL/ISR mining applications (particularly for the areas in Items 2 and 3 above), as well as the subsequent data requirements for their use.

If you have any questions about this request, please contact Mary E. Clark of my staff at (202) 343-9348.

Attachment

cc: Carl Mazza, OAR