

## Notice of Proposed Rulemaking

### About the Standards

The current regulations, “Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings” (40 CFR 192), set standards to protect public health, safety and the environment from radiological and nonradiological hazards associated with uranium and thorium ore processing and its wastes. EPA issued the standards under the legal authority of the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA). The standards were originally issued in 1983 and last revised in 1995.

### Why is EPA proposing changes?

In the years since the rule was originally issued, in-situ recovery (ISR) has become the prominent method of uranium extraction in the U.S. The current regulations do not explicitly address the alteration of ground water that occurs during the ISR process. EPA is proposing to add a new Subpart to 40 CFR 192 that will establish ground water restoration and monitoring requirements at ISR facilities. EPA is also proposing to correct a few outdated references and make minor changes to correct typographical errors.

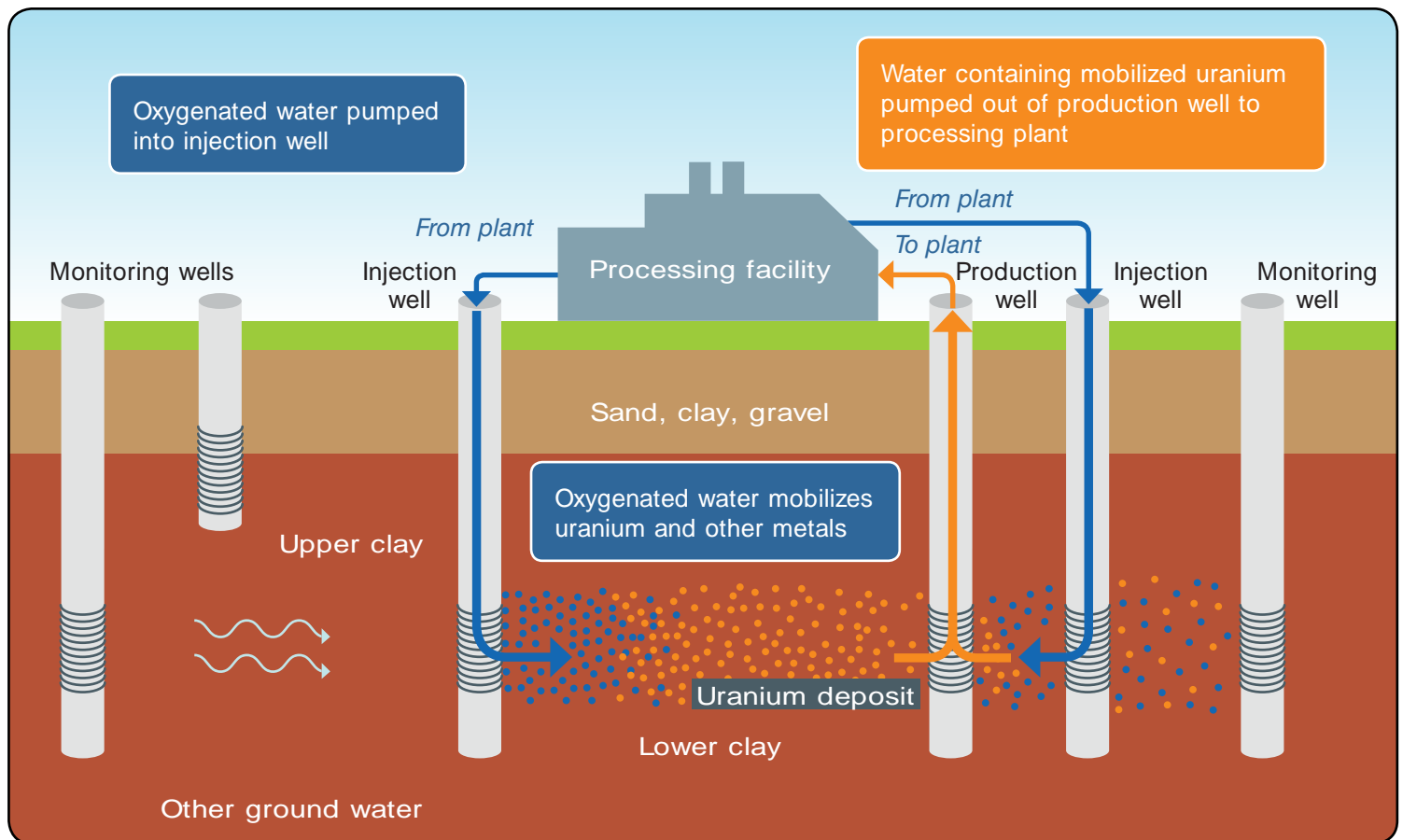


Figure 1: ISR Extraction Process for Uranium

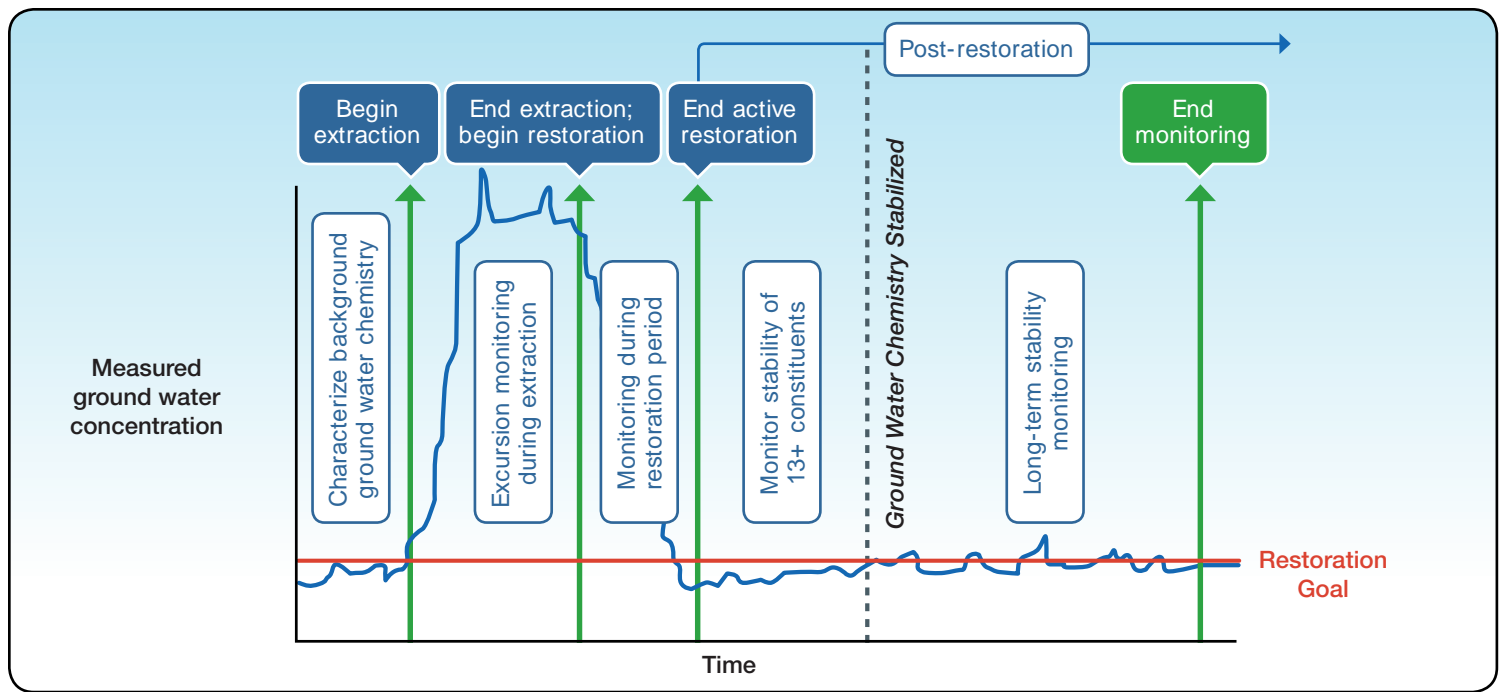


Figure 2: ISR Phases and Proposed Monitoring Requirements

## In-situ recovery (ISR) and ground water

In the ISR process, fluids are injected into an ore-bearing aquifer to mobilize uranium. Extraction wells then collect the ground water, which is processed at the surface to obtain the uranium. The fluids injected to mobilize uranium also mobilize minerals and metals like arsenic and lead, and change the chemistry of the aquifer from its original state. Ground water from the altered aquifers could migrate (an “excursion”) over time and contaminate nearby ground water.

## What is proposed for ISR Facilities?

The proposed new Subpart of 40 CFR 192 would establish ground water restoration goals and monitoring requirements at ISR facilities. Specific provisions of the new Subpart include:

**Requirements to characterize background ground water chemistry:** The proposed rule describes how ISR facilities are to characterize ground water chemistry before beginning uranium recovery operations.

**Requirements to meet restoration goals for 13 constituents:** The proposed rule would require compliance with whichever standard is most protective from the Safe Drinking Water Act (SDWA), the Resource Conservation and Recovery Act (RCRA), or UMT CRA for each of 13 ground water

constituents. The 13 ground water constituents are: arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, nitrate (as nitrogen), molybdenum, radium, total uranium and gross alpha particle activity. If the water in the aquifer meets the ground water standards before ISR operations begin, it would have to be restored to meet them again after operations have stopped. If the constituent concentrations already exceed standards before operations begin, the operator would have to restore the ground water chemistry to original, pre-operational concentrations. If background concentrations or ground water protection standards cannot be achieved, ISR operators can request an Alternate Concentration Limit (ACL), provided that they meet certain criteria and conditions.

### Requirements for long-term stability monitoring:

The proposed rule would require ISR operators to monitor ground water for 30 years after demonstrating that the ground water chemistry has been restored and is stable. Under this proposal, the 30-year monitoring period could be shortened if monitoring data and geochemical modeling show that the ground water chemistry has been restored, has remained stable for at least three consecutive years, and is likely to remain stable into the future. Statistical analyses would have to demonstrate ground water stability at a confidence level of 95 percent.

## How You Can Participate

You are welcome to submit written comments on this proposed rulemaking. The public will have 120 days to submit comments on this Notice of Proposed Rulemaking starting the day of its publication in the Federal Register. Be sure to identify your submission by Docket ID No. EPA-HQ-OAR-2012-0788. You can submit comments by email, by regular mail, online or in-person. Detailed instructions for submission of comments are in the Federal Register notice. You can download the text at: <http://www.epa.gov/radiation/laws/192.html>