

## 2017 Notice of Proposed Rulemaking

### About the Standards

"Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings (40 CFR 192)" establish standards for protection of the public health, safety, and environment from radiological and non-radiological hazards associated with uranium and thorium ore processing, and their associated wastes. EPA issued the standards under the legal authority of the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA).

In-situ recovery (ISR) has become the predominant method of uranium extraction in the United States. EPA is proposing new standards for consistent and sustainable protection of groundwater at ISR sites. Groundwater is a scarce resource that is under increasing pressure, particularly in the arid West. The Nuclear Regulatory Commission (NRC) and its Agreement States would be responsible for implementing the proposed standards.

### 2017 Re-proposal

The EPA initially proposed new health and environmental protection standards for uranium in-situ recovery (ISR) facilities on January 26, 2015; however, the EPA has decided to re-propose the rule and seek additional public to comment on changes to the original proposal, including changes in the regulatory framework and approach, based on public comment and new information received from stakeholders.

### In-situ recovery (ISR) and groundwater

In the ISR process, fluids are injected into an ore-bearing aquifer to mobilize uranium. Extraction wells then collect the groundwater, 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. Groundwater from the altered aquifers could migrate (an “excursion”) over time and contaminate nearby groundwater.

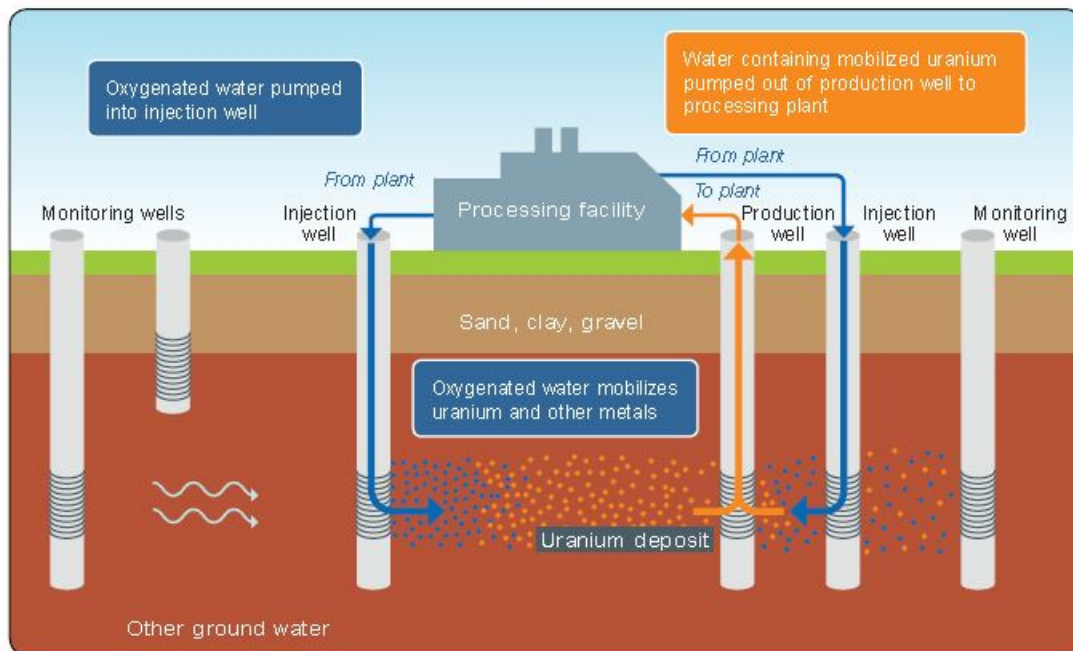


Figure 1: Generalized Schematic of ISR Extraction Process for Uranium

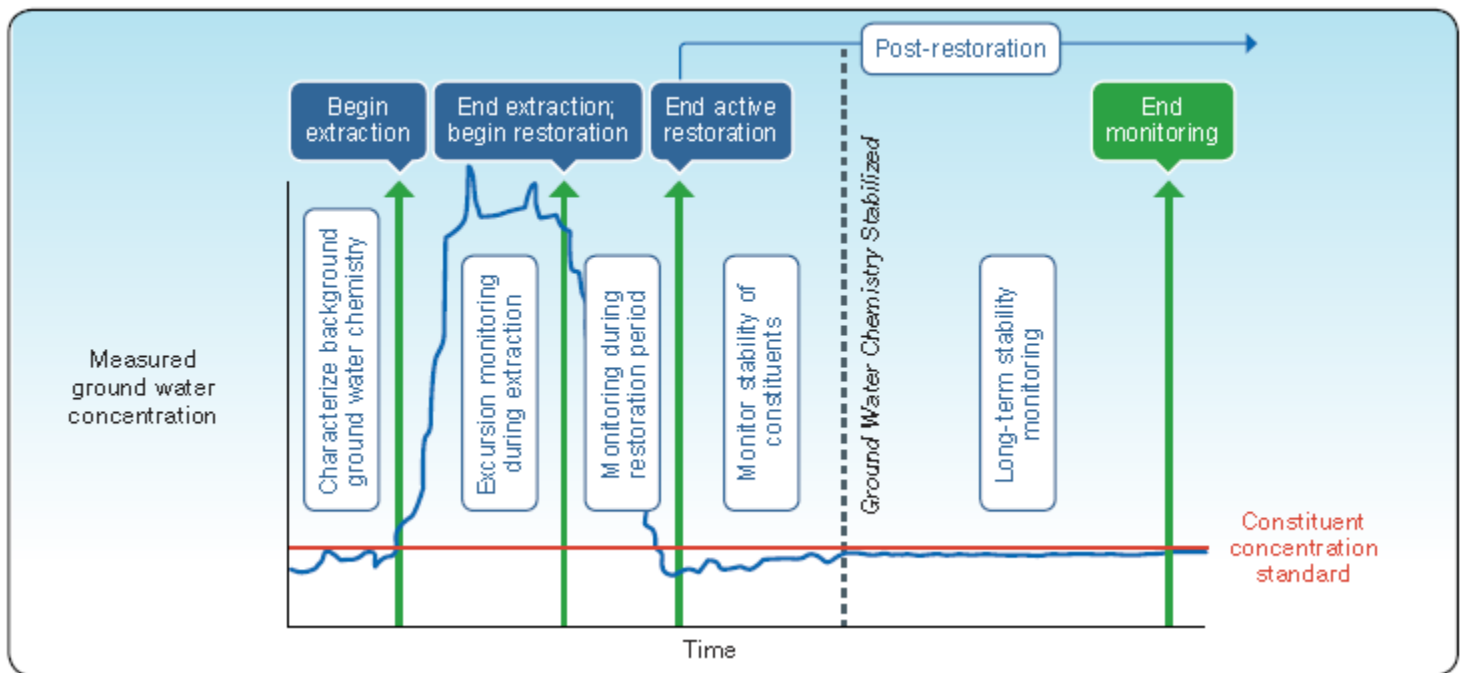


Figure 2: ISR Phases and Proposed Monitoring Requirements

## What is proposed for ISRFacilities?

Specific provisions of the proposed standard include:

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

**Requirements to meet constituent concentration standards for 12 constituents:** The regulatory agency (NRC or an Agreement State) must set concentration standards for constituents that are expected to present in the groundwater before operations begin or which can be affected by ISR operations. The regulatory agency would have to consider the following 12 groundwater constituents: arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, barium, cadmium, chromium, lead, mercury, selenium, silver, nitrate (as nitrogen), molybdenum, radium, and total uranium. The regulatory agency would also have the right to add other constituent concentration standards as warranted by site-specific conditions. The standard for each individual constituent would be the lowest one from among the Safe Drinking Water Act (SDWA), the Resource Conservation and Recovery Act (RCRA), or UMT CRA.

If the water in the aquifer meets the groundwater standards before ISR operations begin, it would have to be restored to meet background or health based limits, whichever is higher. Where groundwater cannot be restored, facilities could request an Alternate Concentration Limit (ACL), provided that they meet certain criteria and conditions.

**Requirements for initial and long-term stability:** To meet the initial stability standards, the licensee would have to show three consecutive years of quarterly monitoring results showing no statistically significant increasing trends exceeding each constituent concentration standard.

After meeting the initial stability standards, the licensee would have to meet the long-term stability standards. To do so, the licensee would have to show an additional three consecutive years of quarterly monitoring results showing no statistically significant increasing trends exceeding constituent concentration limits. In addition, modeling or other analysis would have to demonstrate that groundwater within and around the production zone will remain stable and will not cause the re-mobilization of uranium, radium or other constituents.

### What is different between the 2015 and 2017 proposed standards?

Significant changes from the 2015 proposal include:

- Removing the default 30-year long-term monitoring provision.
- Adding specific criteria for termination of long-term stability monitoring.
- Dropping gross alpha particle activity from the list of constituent concentration standards.
- Allowing more flexibility for the NRC or Agreement States to determine constituent concentration standards on a site-specific basis.
- Clarifying how these UMTRCA-based standards are complementary but separate from Safe Drinking Water Act requirements.

## How You Can Participate

You are welcome to submit written comments on this proposed rulemaking. The public will have 180 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 submissions of comments are in the Federal Register notice.