Memorandum of Understanding
Between
the U.S. Nuclear Regulatory Commission
and
the U.S. Environmental Protection Agency
Concerning the Regulation of Uranium *in situ* Recovery Activities

I. Introduction

The U.S. Nuclear Regulatory Commission (NRC) and the U.S. Environmental Protection Agency (EPA) are entering into this Memorandum of Understanding (MOU) to describe how each agency will work with the other to accomplish their respective responsibilities under Title II of the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA), as amended, to protect the public health, safety and the environment from radiological and non-radiological hazards at uranium *in situ* recovery (ISR) facilities. This MOU will also support the goal of establishing a robust domestic uranium mining industry which is increasingly important for national security interests of the United States.

In this MOU, the EPA and the NRC are referred to collectively as the "Parties" and individually as the "Party."

This MOU does not apply to those activities and facilities covered by Title I of UMTRCA, to activities and facilities of the U.S. Department of Energy, nor to conventional uranium milling activities and facilities.

II. Statutory Authority

In addition to those general authorities each Party has to promulgate regulations, the exercise of the roles and responsibilities described in this MOU for each Party is authorized under the provisions of the Atomic Energy Act of 1954 (AEA), 42 U.S.C. 2011 *et seq.*, as amended by Title II of the UMTRCA, specifically:

a) AEA section 11e.(2) (42 U.S.C. § 2014(e)(2)), which defines as a form of byproduct material, the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content;

b) AEA section 84 (42 U.S.C. § 2114), which sets forth the authorities of the NRC in regulating AEA section 11e.(2) byproduct material; and

c) AEA section 275 (42 U.S.C. § 2022), which provides the EPA the authority to establish standards of general application for the protection of the public health, safety, and the environment from radiological and non-radiological hazards associated with processing and with the possession, transfer, and disposal of AEA section 11e.(2) byproduct material, and further, makes the implementation and enforcement of these standards of general application the responsibility of the NRC, or the applicable Agreement State if the NRC has relinquished its regulatory authority pursuant to AEA section 274 (42 U.S.C. § 2021).

III. Background

Uranium *in situ* recovery is a method by which uranium is leached from underground ore bodies by the introduction of a solvent solution, called a lixiviant, through injection wells drilled into the ore zone. The process does not require excavation to extract the uranium ore from the ore body[1] or conventional milling to extract the uranium from the mined ore. After the lixiviant is injected underground, it passes through the ore zone and mobilizes the uranium. The uranium-bearing solution is then pumped to the surface via extraction wells, and the solution is processed to extract the uranium. During uranium production, the injected lixiviant changes the chemistry of the groundwater in the aquifer from its original state, thereby mobilizing uranium and other constituents. This altered groundwater then becomes AEA section 11e.(2) byproduct material. Without proper controls, this altered groundwater can potentially migrate from the production zone to groundwater outside of the ISR wellfield.

On March 16, 1992, the NRC and the EPA signed an MOU to foster cooperation between the two agencies in protecting public health, safety and the environment on matters related to radiation. The 1992 MOU established a basic framework for the two agencies to resolve issues of concern that relate to the regulation of radiation in the environment. The 1992 MOU further sets forth the principles and procedures for, among other things, avoiding unnecessary duplication of regulatory requirements and focusing priorities on the most significant safety and environmental problems. Today's MOU adds to the agencies' mutual agreements, including the 1992 MOU, and does not replace or supersede the 1992 MOU.

IV. Purpose

The Parties intend for this MOU:

a) To provide a framework for cooperation and coordination between the NRC and the EPA for implementing each Party's statutory responsibilities under AEA §§ 84 and 275 with respect to the regulation of ISR activities in a timely, efficient, and thorough manner.

b) To describe the responsibilities of the Parties in the regulation of ISR activities.

c) To foster opportunities for effective and efficient communication between the Parties, including the exchange of written information and interagency meetings.

V. Definitions

For the purposes of enhancing communications between the Parties, the Parties intend for the following definitions to apply in their implementation of this MOU:

a) The term "aquifer" means a geological formation, group of formations, or part of a formation that can yield a significant amount of water to a well or spring.

[1] Pursuant to Title 40 of the Code of Federal Regulations (40 CFR) 192.31(b) and Title 10 of the Code of Federal Regulations 40.4 (definition of "Byproduct Material"), underground ore bodies depleted by uranium ISR operations do not constitute byproduct material.

b) The term "ISR" means the extraction of uranium from an underground ore body by injecting lixiviant through wells into the underground ore body to dissolve the uranium and then pumping the resulting solution to the surface for processing, for the purpose of using the extracted uranium as source material in the nuclear fuel cycle.

c) The term "ISR facility" means a facility licensed to conduct ISR activities (e.g., the processing, possession, transfer, and disposal of AEA § 11e.(2) byproduct material resulting from the extraction of uranium by the ISR method) and includes wellfields, monitoring wells, and other support and ancillary infrastructure.

d) The term "point of compliance" means the point(s) in the aquifer where the groundwater protection standards are applied.

e) The term "point of exposure" means the point(s) at which a potential receptor can be exposed to contaminated groundwater or surface water.

f) The term "production zone" means the portion of the aquifer in which *in situ* recovery occurs. The production zone lies within the wellfield.

g) The term "regulatory agency" means the NRC and any Agreement State to which the NRC has relinquished its regulatory authority pursuant to AEA § 274 (42 U.S.C. § 2021).

h) The term "wellfield" means the area or areas of an ISR facility that encompass the array of injection, extraction and monitoring wells, ancillary equipment and interconnected piping used in ISR activities. For purposes of this MOU, the boundary of a wellfield would be considered the outer ring of monitoring wells surrounding the production zone.

VI. Coordination Between the Parties

In carrying out their respective responsibilities, the Parties intend to follow these general principles:

a) Keep the other Party generally informed of its relevant plans and schedules, respond to the other Party's requests for information to the extent reasonable and practical, and strive to recognize and minimize any problems arising from each Party's regulatory activities in implementing this MOU.

b) Make staff members of the Parties readily available for collaboration, information sharing, and resolution of each Party's concerns.

c) Work in good faith to resolve concerns in a timely manner and avoid undue delays that could adversely impact each Party's ability to carry out its statutory responsibilities under AEA §§ 84 and 275.

d) Treat the drafts of any proposed or final rules, including any preambles (statements of consideration) thereof, and any other related documents or information, in whatever form, that are transmitted or otherwise communicated between the Parties as pre-decisional and deliberative information to the extent permitted under Freedom

of Information Act, 5 U.S.C. § 552; and further, neither Party will disclose or transmit the draft regulations or other related documents or information to any third party unless expressly agreed to by the other Party or as required by applicable law.

VII. Promulgation of AEA § 275 Standards of General Application

Should the EPA choose to promulgate standards of general application under its authority in AEA § 275, the Parties agree that:

a) Under AEA § 275b.(1) (42 U.S.C. § 2022(b)(1)), standards of general application intended to control radiological hazards would be in the form of limits on radiation exposures or levels, or concentrations or quantities of radioactive material, consistent with the definition in Section 2(a)(6) of the Reorganization Plan No. 3 of 1970.

b) In accordance with AEA § 275b.(2) (42 U.S.C. § 2022(b)(2)), standards of general application intended to control non-radiological hazards would provide for the protection of human health and the environment consistent with the standards required under subtitle C of the Solid Waste Disposal Act (SWDA), as amended, which are applicable to such non-radiological hazards.

c) The corrective action framework under Subtitle C of the SWDA, as amended,[2] would be the appropriate model to apply for developing standards of general application concerning or relating to those aquifers in ISR wellfields that have been restored to the regulatory agency's approved groundwater protection standards or requirements, including those aquifers restored using an alternate concentration limit approved by the regulatory agency in accordance with AEA § 84c. (42 U.S.C. § 2214(c)).

d) The EPA would not intend that any standards of general application direct the use of a particular, detailed management, engineering, or technical method or test to demonstrate licensee compliance. The EPA would also not intend that any standards of general application restrict the regulatory agency's selection of an appropriate methodology or test to monitor licensee compliance with the standards.

e) As provided for in AEA § 275c.(1), the EPA would consult with the NRC before the promulgation of any standards of general application (42 U.S.C. § 2022(c)(1)).

VIII. Implementation of AEA § 275 Standards of General Application

Should the NRC choose to promulgate regulations for regulating ISR activities, the Parties agree that:

a) Until such time as the EPA promulgates new standards of general application under AEA § 275, the Parties understand that the existing groundwater protection standards for current regulatory activities at ISR facilities and for any NRC rulemaking concerning ISR activities would be the groundwater protection standards currently set forth in 40 CFR Part 192, Subpart D.

---

[2] Subtitle C, Solid Waste Disposal Act, 42 U.S.C. §§ 6921-6939g, as amended by The Resource Conservation and Recovery Act of 1976, 42 U.S.C. §§ 6901 *et seq.*

b) The EPA concurrence under 40 CFR 192.32(a)(2)(v) is not required for the regulatory agency to approve an alternate concentration limit under AEA § 84c. in accordance with the Tenth Circuit Court of Appeals decision in *Environmental Defense Fund v. U.S. Nuclear Regulatory Commission*, 866 F.2d 1263, 1268-1269 (10th Cir. 1989).

c) Monitoring licensee compliance is the responsibility of the regulatory agency, and the regulatory agency would determine the locations of any point(s) of compliance and point(s) of exposure.

d) To the extent that such an NRC rulemaking would promulgate general requirements for the management of byproduct material, then the NRC would request the concurrence of the EPA, in accordance with AEA § 84a.(3) (42 U.S.C. § 2114(a)(3)), that those general requirements are at least comparable to requirements applicable to the possession, transfer, and disposal of similar hazardous material regulated by the EPA under the SWDA, as amended. The SWDA, as amended, excludes "byproduct material" as defined by the AEA, from its definition of "solid waste" (42 U.S.C. § 6903(27)). The NRC expects that such request would be made by the NRC in writing from the Director, Office of Nuclear Material Safety and Safeguards, to the EPA through the Director, Office of Radiation and Indoor Air, and include a copy of the NRC's draft final rule.

e) If a disagreement arises between the Parties concerning the EPA's concurrence regarding the NRC's draft final rule containing the general requirements for the management of byproduct material, the Parties will make all reasonable efforts to resolve any such disagreement as collegially and quickly as possible, consistent with the principles described in Section VI of this agreement. If necessary, resolution of any disagreement will be raised to the Office of the Executive Director for Operations for the NRC and to the Assistant Administrator for Air and Radiation for the EPA. The Parties will endeavor to resolve all disagreements prior to publication of the final rule in the *Federal Register*.

IX. General Provisions

a) This MOU is not intended to be legally binding. Nothing in this MOU alters, limits, or supersedes the statutory authorities and responsibilities of any Party on any matter within their respective jurisdictions. Nothing in this MOU requires any of the Parties to perform beyond its respective statutory or regulatory authority.

b) All commitments made by the EPA and the NRC in this MOU are subject to the availability of appropriated funds and budget priorities. Nothing in this MOU, in and of itself, obligates either the EPA or the NRC to expend appropriations or to enter into any contract, assistance agreement, interagency agreement, or incur other financial obligations. Any transaction involving transfers of funds between the Parties pursuant to this MOU will be handled in accordance with applicable laws, regulations, and procedures under separate written agreements. Nothing in this MOU requires the Parties to assume any obligation or expend any sum in excess of authorization and available appropriations. This MOU does not obligate any funding.

c) Each Party retains all immunities and defenses provided by law with respect to any action based on or occurring as a result of this MOU.

d) This MOU does not create any right or benefit, substantive or procedural, enforceable by law or equity, by persons who are not party to this agreement, against the NRC or the EPA, their officers or employees, or any other person. This MOU does not apply to any person outside of the NRC and the EPA.

X. Agency Representatives

In implementing this MOU, each Party will designate a representative and alternate representative, as described in Attachment A, to ensure coordination between the EPA and the NRC. Each Party may change its representative at will by providing written notice to the other Party.

XI. Administration of the MOU

a) This MOU becomes effective upon signature by the authorized officials of the Parties and will remain in effect until terminated by one of the Parties.

b) This MOU may be extended or amended at any time through the mutual written agreement of the Parties.

c) A Party may terminate its participation in this MOU at any time by providing written notice to the other Party at least 30 days in advance of the desired termination date.

[Section XII, "Signatures" on Next Page]

XII. Signatures

The Parties hereto have executed this MOU on the dates shown below; this agreement will take effect on the last date of signature.

7-23-2020

Andrew R. Wheeler, Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Date

7/13/2020

Kristine L. Svinicki, Chairman
U. S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, Maryland 20852

Date

Attachment A
Agency Representatives

U.S. Nuclear Regulatory Commission

Primary Representative: Patricia K. Holahan, Director
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Material Safety and Safeguards
Patricia.holahan@nrc.gov
(301) 415-7319

Backup Representative: Bill Von Till, Chief
Uranium Recovery and Materials Decommissioning Branch
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Material Safety and Safeguards
Bill.vonTill@nrc.gov
(301) 415-0598

U.S. Environmental Protection Agency

Primary Representative: Lee Ann B. Veal, Director
Radiation Protection Division
Office of Radiation and Indoor Air
Veal.Lee@epa.gov
(202) 343-9448

Backup Representative: Tom Peake, Director
Center for Waste Management and Regulation
Radiation Protection Division
Office of Radiation and Indoor Air
Peake.tom@epa.gov
(202) 343-9765