



Environmental Assessment for Proposed Issuance of Multi-Site License to DISA Technologies for Abandoned Uranium Mine Waste Remediation

DISA Technologies, Inc.
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FINAL REPORT

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Executive Summary

This document is an environmental assessment (EA) evaluating the proposed issuance of a U.S. Nuclear Regulatory Commission (NRC) license to DISA Technologies, Inc. (DISA) to use the High-Pressure Slurry Ablation (HPSA) technology to remediate abandoned uranium mine (AUM) waste. The HPSA process separates uranium and thorium fines from mine waste rock and soils and would produce licensable quantities of source material. If granted, and following site-specific review, the license would allow DISA to operate at AUM waste sites under NRC jurisdiction. DISA could only operate at a given site after obtaining a permissions from other authorities, including other Federal agencies, State agencies, Tribes, and local authorities.

The HPSA technology involves mobile units that use high-pressure water streams to remove source material from the mine waste, resulting in coarse material and fines concentrates. DISA expects that the coarse material would meet NRC requirements for release and would be stabilized, seeded, and reintegrated into the site soils. The fines concentrates would be transported to licensed low-level radioactive waste or uranium recovery facilities for disposal or recycling. The NRC would separately review site-specific information and plans before DISA mobilizes to a site.

The U.S. Environmental Protection Agency (EPA) has documented at least 15,000 AUM waste sites, which are primarily located in 14 western States. These sites, many of which are on Federal and Tribal lands, pose environmental and health risks due to elevated radioactivity from uranium and its decay products. Successful use of the HPSA process at AUM waste sites would reduce the radioactivity and could allow currently encumbered sites to be used for purposes such as recreation, agriculture, or traditional cultural activities.

This EA generically evaluates the potential impacts of the proposed action on various environmental resource areas, including land use, transportation, geology and soils, water resources, ecological resources, air quality, noise, historic and cultural resources, visual and scenic resources, socioeconomics, public and occupational health, and waste management. The assessment for each resource area concludes that the proposed HPSA operations would not have significant impacts if site-specific conditions and potential impacts are consistent with the information in the EA. When DISA identifies a site for HPSA operation, the NRC staff would review the site-specific information and operational plans against this EA and determine whether further site-specific review is needed.

The NRC evaluated the no-action alternative, under which the NRC would not issue the license. If DISA is not granted a license to operate the HPSA process, some AUM waste sites that would have undergone HPSA remediation might not be addressed or would require alternative remediation methods.

The NRC staff concludes that the issuance of a license to DISA for HPSA would not significantly affect the quality of the human environment, provided that all assumptions and mitigation measures described in the EA are met. The issuance of the license to DISA for the HPSA process could result in long-term beneficial impacts by reducing contamination at AUM waste sites and potentially making the land available for other uses. The NRC concludes that a generic environmental impact statement is not warranted and a finding of no significant impact is appropriate. For each site, the NRC will review the site-specific information and supplement this evaluation, if necessary. The NRC staff's Safety Evaluation Report documents the NRC staff's detailed safety evaluation and license conditions.

Acronyms and Abbreviations

APE	area of potential effect
ALARA	as low as is reasonably achievable
AQCR	Air Quality Control Region
AUM	abandoned uranium mine
BMP	best management practice(s)
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CO	carbon monoxide
CO ₂	carbon dioxide
CWA	Clean Water Act
dB	decibel(s)
dba	A-weighted decibels
DMN	de-mobilization notification
GCRP	Global Change Research Project
EA	environmental assessment
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency
ER	environmental report
ESA	Endangered Species Act
FWS	U.S. Fish and Wildlife Service
GHG	greenhouse gas(es)
GPS	Global Positioning System
gpm	gallons per minute
HC	hydrocarbon(s)
HPSA	high-pressure slurry ablation
IPaC	Information for Planning and Consultation database
kg	kilogram(s)
mg	milligram(s)
l	liter(s)
LLRW	low-level radioactive waste
mrem	millirem(s)
NAA	nonattainment area
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NOx	nitrogen oxides
NRC	U.S. Nuclear Regulatory Commission
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
Pb	lead
PM	particulate matter
PMN	pre-mobilization notification
RAI	request for additional information
RCRA	Resource Conservation and Recovery Act
RSI	request for supplemental information
SER	safety evaluation report
SHPO	State Historic Preservation Office(r)

SIP	State Implementation Plan
SO ₂	sulfur dioxide
SOP	standard operating procedure
Sv	sievert(s)
TCP	traditional cultural property
THPO	Tribal Historic Preservation Office(r)
tph	tons per hour
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
VOC	volatile organic compound
yr	year

1.0 Introduction

On March 28, 2025, DISA Technologies, Inc. (DISA) submitted a request to the U.S. Nuclear Regulatory Commission (NRC) for a performance-based, multi-site license to use its High-Pressure Slurry Ablation (HPSA) technology to remediate mine waste at abandoned uranium mine (AUM) waste sites (DISA 2025a). Specifically, DISA is seeking a license under Title 10 of the *Code of Federal Regulations* (10 CFR) part 40, “Domestic Licensing of Source Material,” to operate the HPSA process and possess the source material that would result from these operations. If the NRC issues this license, DISA could operate at AUM waste sites in areas of NRC jurisdiction.

On April 11, 2025, the NRC staff docketed DISA’s application, which includes an environmental report (ER) (DISA 2025b), for detailed review. The NRC issued a notice in the *Federal Register* (FR) on May 12, 2025, providing an opportunity to request a hearing and petition for leave to intervene in the NRC’s license application review process (NRC 2025b). No requests were received. The NRC staff sent DISA a request for additional information (RAI) on June 2, 2025 (NRC 2025c), and DISA provided responses on June 17, 2025 (DISA 2025d). NRC conducted a regulatory audit of the RAI responses in July 2025 in accordance with an audit plan (NRC 2025e), and DISA submitted a supplement to the application on July 31, 2025 (DISA 2025e). On August 8, 2025, the NRC staff published a draft of this EA for public comment. Appendix B provides responses to the comments on the draft EA.

The NRC staff’s environmental review for the proposed license issuance is documented in this generic environmental assessment (EA). This generic EA was prepared in accordance with the NRC’s National Environmental Policy Act (NEPA) implementing regulations in 10 CFR part 51 and environmental review guidance in NUREG-1748, “Environmental Review Guidance for Licensing Actions Associated with NMSS Programs.” The NRC is also conducting a safety evaluation that is documented separately in a safety evaluation report (SER) (NRC 2025f). The NRC staff’s decision on whether to issue the license will be based on the staff’s safety and environmental reviews of the application, as supplemented by DISA’s responses to NRC’s RAIs and DISA’s application supplement.

Regulatory Framework

On September 25, 2024, the Commission issued SRM-SECY-23-0055, which directed the staff to license emerging technologies used for mine waste remediation under the source material framework in 10 CFR part 40 via a service provider license” (NRC 2024). As a result of the HPSA process, the extracted “fines concentrates” will contain uranium and thorium in quantities that meet the source material definition in 10 CFR 40.4 (i.e., containing by weight 0.05% or more of: (i) uranium, (ii) thorium or (iii) any combination thereof). As described in the application, DISA anticipates shipping the fines concentrates to a licensed low-level waste disposal facility or to a uranium mill for further processing. The coarse material stream is not considered 11e.(2) byproduct material and may be left onsite, provided that the license termination criteria in 10 CFR Part 20, Subpart E and the license have been met.

1.1 Proposed Action

Because the HPSA process to separate uranium and thorium fines from mine waste rock and soils would result in licensable quantities and concentrations of source material, the NRC is proposing to issue a license under 10 CFR part 40 for the possession and processing of source

material. If granted, the license would allow DISA to operate the HPSA process at temporary job sites, but only after the NRC has reviewed the site-specific characteristics and operating plans that DISA will submit before mobilizing to a site. These temporary job sites would be limited to AUM waste sites under NRC jurisdiction. Areas of NRC jurisdiction include non-Agreement States and areas of exclusive Federal jurisdiction in Agreement States and on Tribal lands.

DISA proposes to use its HPSA technology in the form of mobile units to remediate AUM waste. The length of time DISA would operate at each site depends on the amount of material to be processed and could range from about six months of operating time (up to nine months onsite) for small sites to almost thirteen years of operating time (up to eighteen years onsite) for large sites. HPSA employs mechanical and kinetic energy to separate mineral-rich patinas containing source material (uranium and/or thorium) and other metals from host sand grains. The HPSA treatment would generate two products, coarse material and fines concentrates. DISA states that the coarse material would be a sand that may be seeded and reused at the remediation sites. The fines concentrates, which would contain source material concentrations (0.05 weight %) of uranium and/or thorium, would be transported to a licensed recipient such as a low-level radioactive waste disposal facility, a uranium recovery facility, or a storage facility. After HPSA operations conclude, DISA would demobilize and leave the site, including deposited coarse material, consistent with NRC requirements for unrestricted release as authorized in its license. The proposed action is described further in section 2 of this EA.

1.2 Purpose of and Need for the Proposed Action

The purpose of the proposed action, issuance of the license, is to allow DISA to conduct HPSA remediation on AUM waste in accordance with the conditions of the license and with applicable NRC requirements under 10 CFR part 20, "Standards for Protection Against Radiation," and 10 CFR part 40.

Approximately 15,000 AUM waste sites have been documented primarily in 14 western States, namely Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, North Dakota, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming (DISA 2025b). These sites resulted from a uranium mining industry that began in the 1940s to produce uranium for weapons and later for nuclear fuel. Most AUM waste sites are in Colorado, Utah, New Mexico, Arizona and Wyoming, and approximately 75 percent of these are on Federal and Tribal lands (DISA 2025b, EPA 2006). Figure 1 is a uranium mine location map based on a database of the 15,000 uranium mine and mill locations identified by the EPA. Figure 2 shows two examples of AUM waste sites. The EPA is engaged in efforts to remediate these legacy AUM waste sites across the United States, with a significant focus on the Navajo Nation, which encompasses over 500 of these sites. The majority of the 15,000 sites were conventional (open pit and underground) mines that produced large amounts of bulk waste material, including bore hole drill cuttings, excavated topsoil, and barren overburden rock, as well as uranium-contaminated mine waste. Before the 1970s, many mines were abandoned without being reclaimed, and exposed mine wastes remained on the sites. These mine wastes contain elevated radioactivity from uranium, thorium and their radioactive decay products.

1.3 Alternative to the Proposed action

As an alternative to the proposed issuance of a license to DISA, the NRC considered the no-action alternative. Under the no-action alternative, the NRC would not issue the license and DISA would not operate its HPSA units at AUM waste sites. Possible consequences of denying a license could be that DISA submits a new application or that alternative remediation options

are pursued for some AUM waste sites. The no-action alternative would be for the EPA or other agencies to address risks at AUM waste sites under other regulatory programs, such as the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Section 2.2 of this EA describes the no-action alternative in further detail.

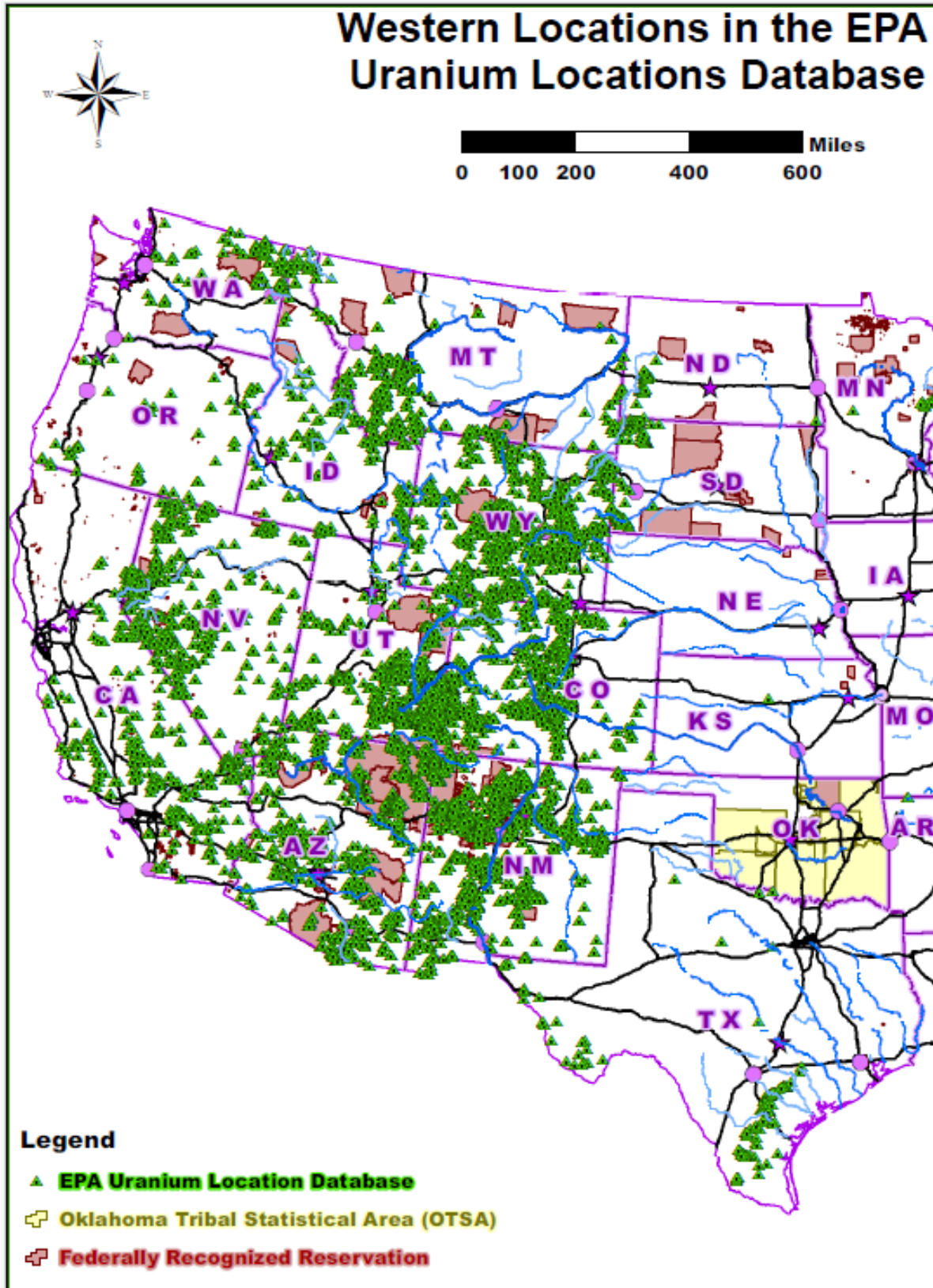


Figure 1. Locations of Western AUM Sites (EPA 2006)
 Note: blue lines are rivers, black lines are highways.



Figure 2. Examples of Abandoned Uranium Mines.

1.4 Scope, Analytical Approach, and Use of the EA and FONSI

This EA provides a generic evaluation of the potential environmental impacts of treating uranium mine waste using the HPSA technology at AUM waste sites. Because the specific locations where DISA plans HPSA operations are not yet known, the EA uses reasonable bounding assumptions regarding site conditions and HPSA operations. The analysis of each environmental resource area presented in section 3 of this generic EA includes specific assumptions underlying the “no significant impacts” conclusions for that resource area.

The general process by which DISA and the NRC staff would use this generic EA and FONSI is illustrated in figure 3. After identifying a site for HPSA operation, DISA would provide information about the site and planned operations in a premobilization notification (PMN). Appendix A of this EA identifies the environmental information to be included in the PMN. The NRC staff will evaluate the information in the PMN and conduct consultation (e.g., Section 106 consultation under the National Historic Preservation Act (NHPA) or Section 7 consultation under the Endangered Species Act (ESA)) as necessary. For each site, the NRC staff would determine whether further site-specific review is needed. If site-specific conditions and proposed operations result in impacts that are consistent with the generic EA, the NRC staff would confirm that a finding of no significant impact (FONSI) applies to a given site. If any proposed site operations or characteristics are not consistent with the generic EA, the NRC staff would assess the need for additional analysis to determine if environmental impacts would differ from the generic EA. The NRC staff expects that in most cases any needed supplemental NEPA analyses would be of limited scope and would result in a site-specific FONSI.¹ The NRC staff would prepare site-specific documentation to describe the results of the staff’s PMN review and to record the staff’s determination for the site. As appropriate for each site, the staff would also notify other Federal agencies, State agencies, and Tribal governments.

The NRC will establish and maintain a public web page with information about the prospective sites DISA identifies for HPSA operation. This web page will include the PMN information, the

¹If site-specific impacts are potentially significant in one or more resource areas, the staff would assess the need to prepare a supplemental EIS and record of decision, although the staff anticipates that such a circumstance is unlikely.

NRC staff's site-specific safety and environmental review documentation, and demobilization notification (DMN).

The ER states that permits, such as sediment and erosion control permits, water discharge permits, stormwater permits, air emissions permits, and others may be required for certain sites and indicates that DISA will obtain those permits before beginning work on those sites (DISA 2025b). DISA would provide permit status information in the PMN.

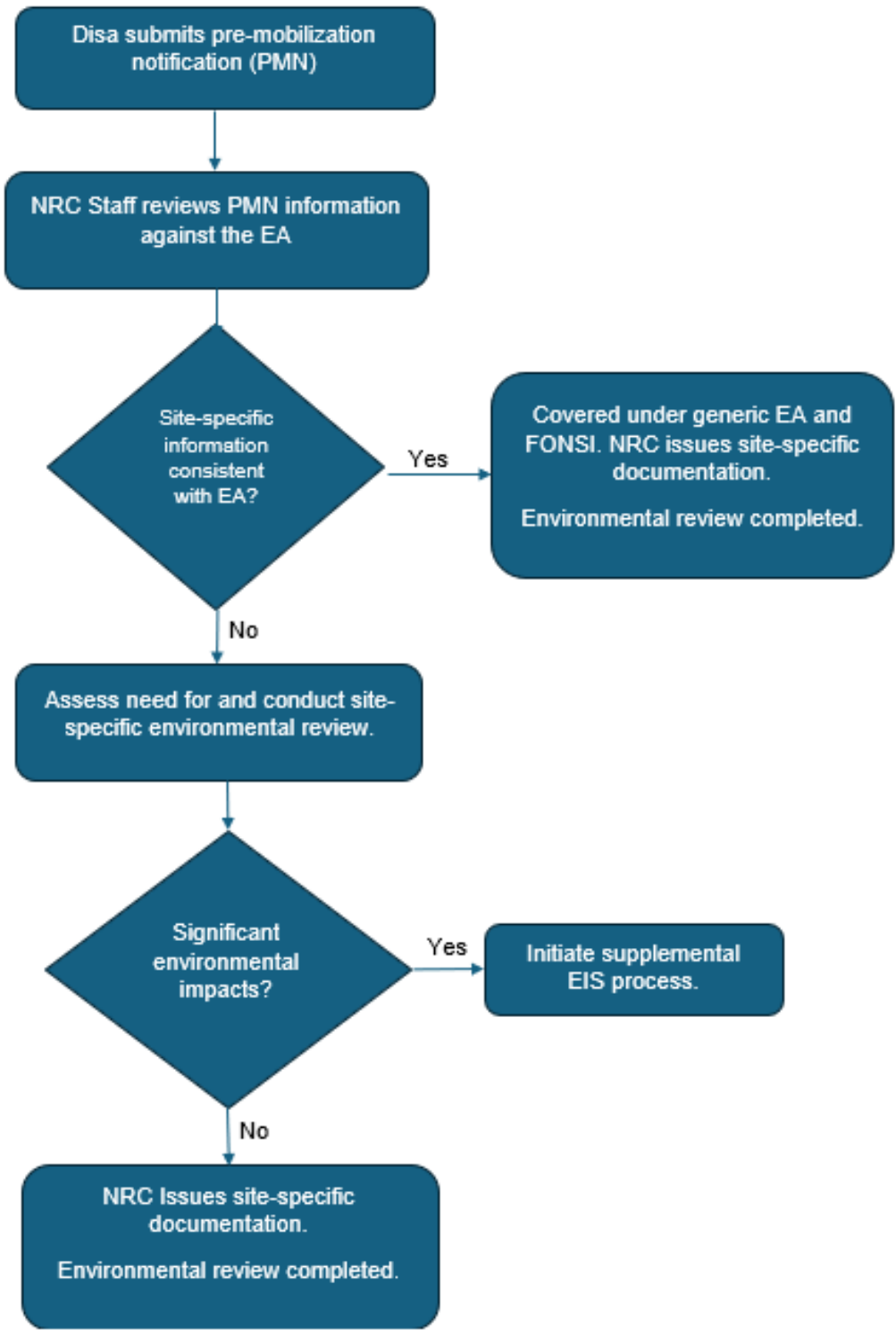


Figure 3. Process for Reviewing Site-Specific PMN Against Generic EA²

² As appropriate for each site, the NRC staff will conduct consultations under Section 7 of the Endangered Species Act and Section 106 of the National Historic Preservation Act. The results of the consultations would be documented in the site-specific environmental review documentation.

2.0 Proposed Action and Alternatives

This section describes the activities that DISA would conduct if the NRC issues the license as requested. This section also describes the alternative of not issuing the license, referred to as the no-action alternative.

2.1 The Proposed Action

The NRC’s proposed action is to authorize DISA to operate its HPSA technology at AUM waste sites under NRC jurisdiction. Areas of NRC jurisdiction are areas in non-Agreement States and areas of exclusive Federal jurisdiction. If DISA intends to operate on a site within an Agreement State or on certain Tribal lands, DISA would need to obtain separate approvals from those governments. The HPSA operation could be used at any AUM waste site where, consistent with its license conditions for the PMN, DISA verifies and informs the NRC staff that the AUM waste is abandoned, that there was documented production of uranium, and that the AUM site from which the waste came is no longer in use for the production of uranium. DISA would not be authorized to operate HPSA at an active uranium mine or licensed uranium mill.

DISA would bring mobile HPSA units to an AUM waste site and operate as long as necessary to process the treatable mine waste material at the site. DISA would then remove all equipment, structures, materials and waste from the site, leaving only coarse material and treated process water and site conditions that meet NRC requirements for release.

DISA might operate at multiple sites concurrently.³ The length of time DISA would operate at each site depends on the amount of material to be processed. DISA has defined five operational tiers based on the estimated gross tons of mine waste at particular sites. The smallest expected operation, or tier 1 (processing a maximum of 100,000 tons), would occur over approximately six months of operating time (present onsite for up to nine months). The largest operation, or tier 5 (processing a maximum of 10,000,000 tons), could continue for almost thirteen years of operating time (DISA 2025b) (present onsite for up to eighteen years). Table 1 provides some basic information about these operating tiers, and more detail is provided in table 1-1 and table 1-2 of DISA’s ER (DISA 2025b).

Table 1. HPSA Operating Tiers

Operating Tier	Max. tons processed	Volume in cubic yards (based on 125 lbs/ cubic foot)	Weekly processing rate (tons) ¹	Total # of operating days	# of HPSA units	Water use (gal/ day)	Area needed for treatment (HPSA units + storage) (square feet)
Tier 1	100,000	59,260	2,700	185	1	8,640	6,020
Tier 2	500,000	296,296	2,700	926	1	9,360	6,020
Tier 3	1,000,000	592,593	5,400	926	2	18,720	12,540
Tier 4	5,000,000	2,962,963	8,100	3,086	3	28,080	16,610
Tier 5	10,000,000	5,925,926	10,800	4,630	4	37,440	26,180

Source: DISA 2025b.

¹assumes five 12-hour days per week.

³ DISA stated that it could place a unit in a local area and go from site-to-site or place multiple units within a given local area depending on the amount of material to be remediated. In the next 3 years, DISA expects to place one unit in a given local area (DISA 2025f).

2.1.1 Site Identification, Preparation, and Construction

If granted a license, DISA would conduct HPSA operations in a phased manner beginning with a pilot test, as discussed below.

HPSA Pilot Test

If DISA is granted a license, before conducting full-scale (tier 1 through tier 5) HPSA operations at AUM waste sites, DISA would conduct a pilot test of the HPSA process. As of the publication of this final EA, DISA had not yet identified to the NRC a site for the pilot test. The pilot test would treat approximately 12,000 tons of AUM waste over a maximum of 180 days. DISA would provide the results of the pilot test to the NRC for review in a license amendment request. If the NRC approves the results of the pilot test, the license would be amended to allow DISA to possess unlimited quantities of source material and DISA could proceed with full-scale operations.

Tier 1 through Tier 5 HPSA Operations

DISA expects to initiate one to two HPSA projects in 2026, two to four projects in 2027, and five to ten projects in 2028 (DISA 2025f). DISA states that, based on limited data regarding the potential sites treatable using HPSA, approximately 90 percent are in the tier 1 (100,000 tons) category (DISA 2025f).

Approximately 90 days before DISA intends to operate at a specific site, DISA would provide site-specific information to the NRC in the PMN. This notification would include sufficient detail about the site and the planned HPSA operations to inform the safety and environmental reviews for that site. The items the PMN must include would be presented as a license condition. The NRC must approve the PMN and conduct any needed additional analysis prior to DISA installing equipment and beginning operations at an AUM waste site. The NRC staff plans to complete its safety and environmental review of each PMN within the 90-day pre-mobilization period and will issue a determination that will be placed on the publicly available docket as to whether DISA may proceed with site remediation.

For example, the PMN would include the results of background surveys conducted to calculate the background remediation criterion for the site (based on the NRC's unrestricted release limit of 25 mrem/year above background) and characterization surveys to determine the extent of needed excavation and the excavation volume. The NRC staff would use the PMN information to verify that the proposed operations, site conditions, and site-specific environmental impacts fall within the assumptions and bounds in the safety review and this EA. Section 1.4 of this EA explains the site-specific evaluation process in more detail, and appendix A describes the site-specific environmental information DISA must submit for each site.

In developing the PMN for a prospective site, DISA would conduct characterization surveys to determine the extent of the AUM waste, calculate the volume of abandoned mine waste to be treated, and estimate the mass of source material to be recovered. DISA would provide this information in the PMN. DISA anticipates treating AUM waste with a typical maximum concentration of 1,500 mg/kg source material (uranium and/or thorium), although some AUM waste may contain more source material (DISA 2025c). DISA would conduct background surveys to determine the radionuclide concentrations of the AUM waste at a site. Because land areas containing abandoned mine sites are likely to exhibit higher background radioactivity compared to areas with no abandoned mine sites, DISA would collect background data either at

the site or adjacent to the site, where no evidence of mining or disturbance is observed. The background survey information would be used to calculate the release criterion for a site using the NRC's 25 millirem above background requirement for unrestricted release and the principle of "as low as reasonably achievable" (ALARA) in 10 CFR 20.1402.

DISA would need to prepare the site and access roads for HPSA operations. DISA plans to apply gravel to existing dirt roads on a given site but would not create new roads. DISA would grade the area where the HPSA units and other equipment would be installed, applying water as needed for dust suppression. After transporting equipment and HPSA unit components to the site, DISA would assemble HPSA equipment onsite. Figure 4 shows a sample layout, which could vary depending on site conditions and refinements in the HPSA design. DISA anticipates that the total site area needed (for operations and material storage) would range from 6,020 square feet for tiers 1 and 2 to approximately 26,200 square feet for tier 5 operations. DISA estimates that one HPSA unit would be needed for operations at tiers 1 and 2, two units for tier 3, three units for tier 4, and four units for tier 5 operations (DISA 2025b).

2.1.2 Operation

As shown in figure 4, DISA would establish a restricted area to encompass all activities involving the handling of source material and in accordance with NRC requirements. Equipment and operations that are not involved in the handling or storing of source material include the post-treatment coarse material stockpile, coarse material centrifuge, empty transportation trucks, office trailer/lavatory, and coarse material centrifuge stacker. In addition, each site would have safety and related equipment for spill response and containment, including a containment berm, shovels, drums for removing and storing potentially contaminated materials, and signage.

Once the HPSA system is constructed on a site (see example in figure 5), DISA would crush AUM waste to an appropriate size for the HPSA process. Water or dust enclosures would be used in the crushing process for dust suppression and to slurry the crushed waste rock. The slurried mixture would be transferred to a hopper that would feed the HPSA collision chamber using high-pressure injection nozzles. The nozzles create a high-energy impact zone in which the mineral-rich patina is separated from the host sand.

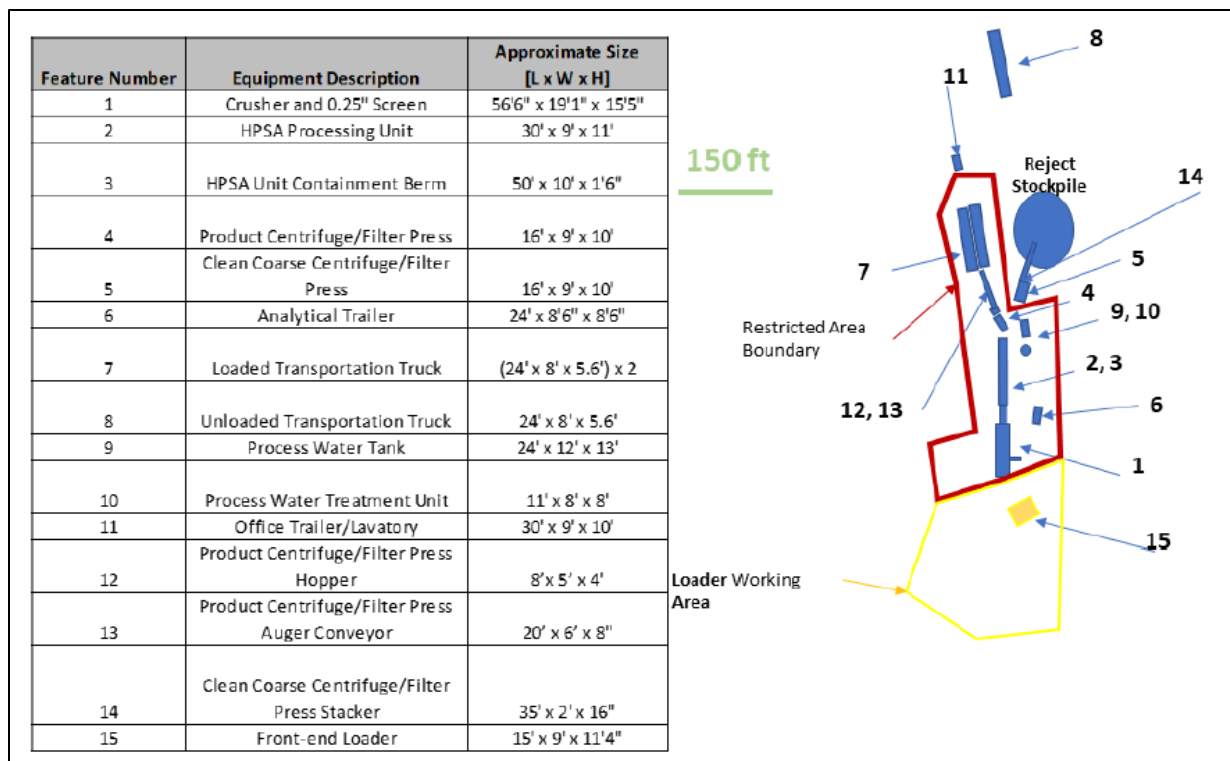


Figure 4. Example Site Layout for Single Unit HPSA Operation (DISA 2025b).

After collision in the HPSA unit, the resulting stream would be mechanically separated in a centrifuge to isolate the coarse material from the fines in which the uranium is concentrated. Excess water is also separated from the fines and coarse material during this process for reuse in the process. The ER states that the coarse material would be a sand that would be stockpiled and remain onsite after it has been demonstrated to meet NRC requirements for unrestricted release. DISA would be responsible for ensuring this material meets any other applicable standards that may have been established by other federal, State, and/or Tribal agencies. DISA would collect samples of the coarse material at regular intervals to measure uranium and thorium concentrations to demonstrate that the material does not contain source material in excess of the lower limit for licensing (500 mg/kg or 0.05 weight %) in 10 CFR 40.13(a), "Unimportant quantities of source material" (DISA 2025c).

The fines concentrates, which would contain uranium and/or thorium, would be containerized in a lined dumpster or other suitable, covered container within the restricted area. DISA would install temporary security measures to prevent theft, such as temporary fences, locking and leak-proof containers, global positioning system (GPS) trackers on storage containers, security cameras, portable security systems, portable site lighting, and/or guards, if necessary. Ultimately, the fines concentrates would be transported to a licensed facility such as a low-level radioactive waste disposal facility, a uranium recovery facility that can recycle the fines concentrates, or a storage facility pending disposal or recycling.



Figure 5. HPSA Unit of 20 Ton/Hour Capacity (DISA 2025b).

As discussed in section 3.4.2 of this EA, a HPSA unit that processes 50 tons per hour (tph) would require approximately 200,000 gallons of water per month and a unit that processes 100 tph would require 384,000 gallons of water per month. Water would be trucked in from a local source that DISA would identify in the PMN. Process water would be recycled within the HPSA treatment system until all treatable AUM waste at a site has been processed. Water loss would occur at a rate of 10 to 15 percent because some moisture from the rinsing process would be retained in the fines concentrates and the coarse material. Dewatering would involve filter presses and centrifuges. Some moisture but no free liquids would remain in the coarse material or fines concentrates.

Process water would be filtered and treated if necessary to meet NRC discharge standards in appendix B of 10 CFR part 20, as well as any other Federal, State, Tribal or local permit requirements. The ER states that DISA would discharge the treated process water to the ground or to a sewer system. If the process water needs to be treated, DISA would treat it using a bag filter system and an additional filter system with absorbent media and reagents (DISA 2025d). Alternatively, DISA might reuse the water at another AUM waste site. No water would be discharged directly to surface water bodies (DISA 2025b). Section 3.4.2 of this EA discusses the potential impacts of water use, reuse, and discharge.

The ER states that the amount of fuel needed to operate the HPSA process would range from approximately 408 gallons of fuel per day for tier 1 operations to 1,488 gallons per day for tier 5 operations (DISA 2025b). The ER states that no permanent facilities would be left onsite, no onsite waste storage would be required, and no contaminated water would be discharged (DISA 2025b). In section 3 of this EA, the NRC staff incorporates these assumptions into its evaluation. If DISA proposes activities at any site different from those evaluated in this EA, the NRC staff will conduct a separate, site-specific analysis for those activities during the review of the PMN.

2.1.3 Demobilization and Final Status Surveys

After concluding HPSA operations, DISA would dismantle and remove the HPSA equipment, perform any needed site stabilization activities, conduct post-remediation (final status) surveys of the site, and sample the coarse material and process water. DISA would leave the site with the deposited coarse material in a condition that meets NRC requirements in the license and in 10 CFR part 20 for unrestricted release (25 millirem above natural background). DISA would re-treat any coarse material that does not meet the release criteria. If re-treatment is not effective, DISA states that it would request NRC approval for alternate release criteria in accordance with 10 CFR 20.1404. This generic EA assumes that no alternate release criteria would be needed and that all sites would be eligible for unrestricted use after demobilization. Any NRC review of restricted or alternate release criteria for a site would require site-specific safety and environmental reviews.

The coarse material would contain moisture that remains after the material has been rinsed and filter pressed. DISA would grade the coarse material into the existing site topography and seed using seed mixes provided by DISA's ecological resources consultant. DISA states that, because the fine material would have been removed in the HPSA process, the quantity of windblown dust arising from the deposited, seeded coarse material would be substantially less than dust levels in the natural environment (DISA 2025d).

DISA would submit a demobilization notification (DMN) for each site to the NRC within 30 days after completing remediation at each worksite. The items the DMN must include would be described in a license condition. If the NRC finds that the DMN is not acceptable, DISA would submit a plan and schedule for addressing the NRC's concerns.

2.1.4 Permits and Approvals

DISA anticipates operating HPSA on Tribal lands (e.g., the Navajo Nation), Federal public lands, non-Agreement State lands, and private lands. DISA would need to obtain approvals from other Federal, State, Tribal, or local governments, as appropriate, for these sites. This EA assumes DISA would obtain all necessary permits and approvals to operate at any AUM waste site authorized by the NRC-issued license (i.e., sites in non-Agreement States and in Agreement States only on land that is under exclusive Federal jurisdiction). While the NRC's license conditions would not change depending on whether DISA chooses to ship the fines concentrates to a uranium recovery facility or to a low-level radioactive waste (LLRW) disposal facility, other Federal agencies or States may have specific requirements for a "remediation" action and separate requirements for a "recovery" action, and DISA would need to abide by these requirements. DISA would also need to abide by the receiving facility's requirements and constraints.

DISA may need to obtain permits for water discharges, floodplain and stormwater management, and wetlands permits from the EPA, the Army Corps of Engineers (USACE), or State and local authorities. DISA may need to obtain permits for air emissions at larger (tier 4 and 5) sites. DISA may need approvals from the Department of Interior's Bureau of Land Management (BLM) and/or the Bureau of Indian Affairs. To operate on Tribal lands or lands held in trust for Tribes by the Federal government, DISA would need approval from affected Tribes. DISA would need to ensure that all materials and wastes are shipped by licensed transporters and that receiving facilities are appropriately permitted or licensed.

If the NRC issues a license to DISA, any potential use of HPSA at AUM waste sites under CERCLA would likely be conducted under the authority of the EPA as well as the NRC-issued license. Agency jurisdictions at a CERCLA site would be assessed on a site-specific basis. Under the CERCLA process, the EPA, in consultation with the NRC and other agencies, would determine what Federal, State, and Tribal requirements should apply to an action and identify “applicable or relevant and appropriate requirements” (ARARs) for the action. The EPA would ensure the substantive aspects of the ARARs are met.

In the PMN for each prospective site, DISA would need to include a comprehensive list of permits, licenses, other approvals, and consultations that would be needed, as well as the status of these approvals and consultations. As part of its review of the PMN, the NRC staff will determine, given factors like those noted above, whether site-specific environmental review is required.

2.2 The No-Action Alternative

Under the no-action alternative, the NRC would not issue a license to DISA for HPSA operations. If the NRC denies the license request, DISA could submit a new application for NRC review. A consequence of denying the license could be that AUM waste sites potentially suitable for HPSA would need to be remediated using other means. The NRC’s no-action alternative would be that EPA or other agencies address risks at AUM waste sites under other regulatory programs. The EPA oversees AUM waste site cleanup at many sites on and near the Navajo Nation and would likely be the primary agency evaluating site-specific alternatives for remediation. Cleanup of AUM waste sites on other Federal or Tribal lands could be under the jurisdiction of other Federal agencies, such as the BLM. Cleanup of AUM waste sites on private lands would likely be under the authority of the States in which they are located. In the absence of HPSA operations, the NRC would not be involved in AUM waste site cleanup unless the remedial activity otherwise involves NRC-regulated material or activities. Since DISA has not yet identified specific sites for HPSA operations, this EA cannot evaluate how or when AUM waste sites might be remediated if HPSA is not available as a treatment option.

EPA generally uses two main approaches for remediating AUM waste sites. These and other approaches might be used instead of the HPSA process or in addition to it: (1) excavation and removal, and (2) consolidation and capping. Of the approximately 15,000 AUM waste sites, the EPA is prioritizing the cleanup of over 500 sites on and near the Navajo Nation (EPA 2025a) and has recently made decisions to remediate several sites by excavating and removing the mine waste (EPA 2024a, 2025b). These sites will be characterized to determine the extent of contamination and thus the extent of needed excavation. The mine waste material will be excavated and loaded onto trucks for transport to licensed recipients, such as a new or existing disposal facility. After all of the contaminated mine waste is removed, post-remediation surveys will be conducted before the sites are regraded and revegetated to prevent erosion and to restore the sites to a natural condition. The ongoing EPA effort to remove mine waste from the Northeast Church Rock Mine site and place it on the nearby United Nuclear Corporation Mill site is an example of an excavation and removal action (NRC 2023a).

The EPA has also considered consolidating and capping mine waste in place at AUM waste sites.⁵ Under this option, mine waste from different areas of a site would be excavated and consolidated into a repository. The repository would be capped with soil, rock, and vegetative

⁵ For example, see alternative 2 (section 4.3.6) of EPA’s Engineering Evaluation/Cost Analysis for the Quivira Mines Site near Gallup, New Mexico (EPA 2024b).

cover to protect the waste from rain infiltration. The repository would be maintained in perpetuity with land use restrictions.

Under the no-action alternative, the HPSA process could not be used at AUM waste sites. The potential environmental impacts of the no-action alternative would include the direct impacts of continuing current site conditions (i.e., no change to a site) as well as the potential impacts of using remediation alternatives instead of the proposed action. Those remediation alternatives would be pursued by other agencies such as the EPA, and could include HPSA, though under EPA oversight. Until other remediation approaches are identified and pursued for these sites, the potential impacts of continuing current site conditions include the continued unavailability of AUM land for human use and the avoidance of the impacts assessed generically in this EA for the proposed HPSA operations.

Under either the proposed action or the no-action alternative, AUM waste site cleanup could involve the other remedial alternatives noted above and would likely involve other Federal agencies and regulatory programs (such as CERCLA). The NRC does not have authority over AUM waste site cleanup generally and thus is not assessing the potential impacts of other remedial actions in this EA beyond its jurisdiction and authority.

3.0 Affected Environment and Environmental Impacts

This section generally describes the affected environment and environmental impacts of constructing, operating, and demobilizing HPSA equipment at AUM waste sites. This section also lists the bounding assumptions for each resource area that determine whether the FONSI in this EA applies to a particular site.⁶ This section is organized into subsections that address each of 12 environmental resource areas that could be affected by HPSA operations.

3.1 Land Use

This section addresses land use changes resulting from implementation of the HPSA technology and potential conflicts with other land uses and with Federal, State, local, and Tribal land use plans, policies, and controls.

3.1.1 Affected Environment

DISA plans to implement the HPSA technology at multiple locations from among approximately 15,000 AUM waste locations that are primarily located in 14 western States, namely Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, North Dakota, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming (DISA 2025b). DISA estimates that approximately 75 percent of the potentially suitable AUM waste sites are located on Federal or Tribal lands (DISA 2025b). Using defense-related AUM waste sites as an example, nearly 60 percent are on Federal public land managed by the BLM and the US Forest Service, and 11 percent are on Tribal land (AUMWG 2022). On Tribal lands, over 600 AUM waste sites have been identified on the 27,000-square mile Navajo Reservation alone in Arizona, New Mexico, and Utah (EPA 2007). Numerous AUM waste sites are on the lands of other Tribes. Not all Tribal lands are necessarily owned or controlled by the Tribes themselves. For example, the Navajo reservation includes a variety of land ownership types, including Tribal trust lands and lands owned by Tribal members and non-members (EPA 2007). The NRC staff expects that DISA may identify AUM waste sites on other Federal lands, such as military bases, national laboratories, national parks and monuments, Federal wildlife refuges, or designated wildernesses. Some potential sites are located on State, municipal, or private lands.

DISA characterizes most sites for potential implementation of the HPSA process as abandoned conventional open pit and underground mines (DISA 2025b). Figure 6 shows the features of a typical active underground uranium mine, and figure 7 shows the features of an open pit mine. DISA characterizes many of the AUM waste sites suitable for HPSA as comprising bare rock and dirt with little apparent flora and fauna (DISA 2025b). DISA notes that many AUM waste sites, especially those abandoned before the 1970s, were not reclaimed (DISA 2025b). The NRC staff expects that most AUM waste sites where HPSA would be implemented comprise physically disturbed soils supporting ruderal or sparse grassland, desert, forest or shrubland, cropland, or bare areas. Some sites may be surrounded by lands used for grazing, especially open range grazing, forestry, or agriculture; however, former excavations, grading, and abandoned structures from the former uranium mining may limit use of the sites themselves for other purposes.

⁶ If site-specific conditions are not consistent with any assumptions, this does not necessarily mean that impacts would be significant at a site. If assumptions are not applicable at a site, the NRC staff will determine whether further evaluation of site-specific impacts is needed.

The NRC staff expects that many of the sites would be in remote areas without zoning and not covered by comprehensive land use plans, although some sites on American Indian reservations could be subject to Tribal land use plans. Even in remote areas, residents sometimes build homes on or near abandoned uranium mines without being aware of the physical or radiological risks. Additionally, homes have reportedly been built directly on top of mine rock (AUMWG 2022). The NRC staff therefore expects that rural residences may be present on or close to some potential sites. The NRC staff expects that most small sites (tier 1 or 2) would not encompass floodplains or wetlands but that larger sites potentially could encompass such land features. The past soil disturbance for mining likely precludes the presence of prime or unique farmland even on the largest sites.

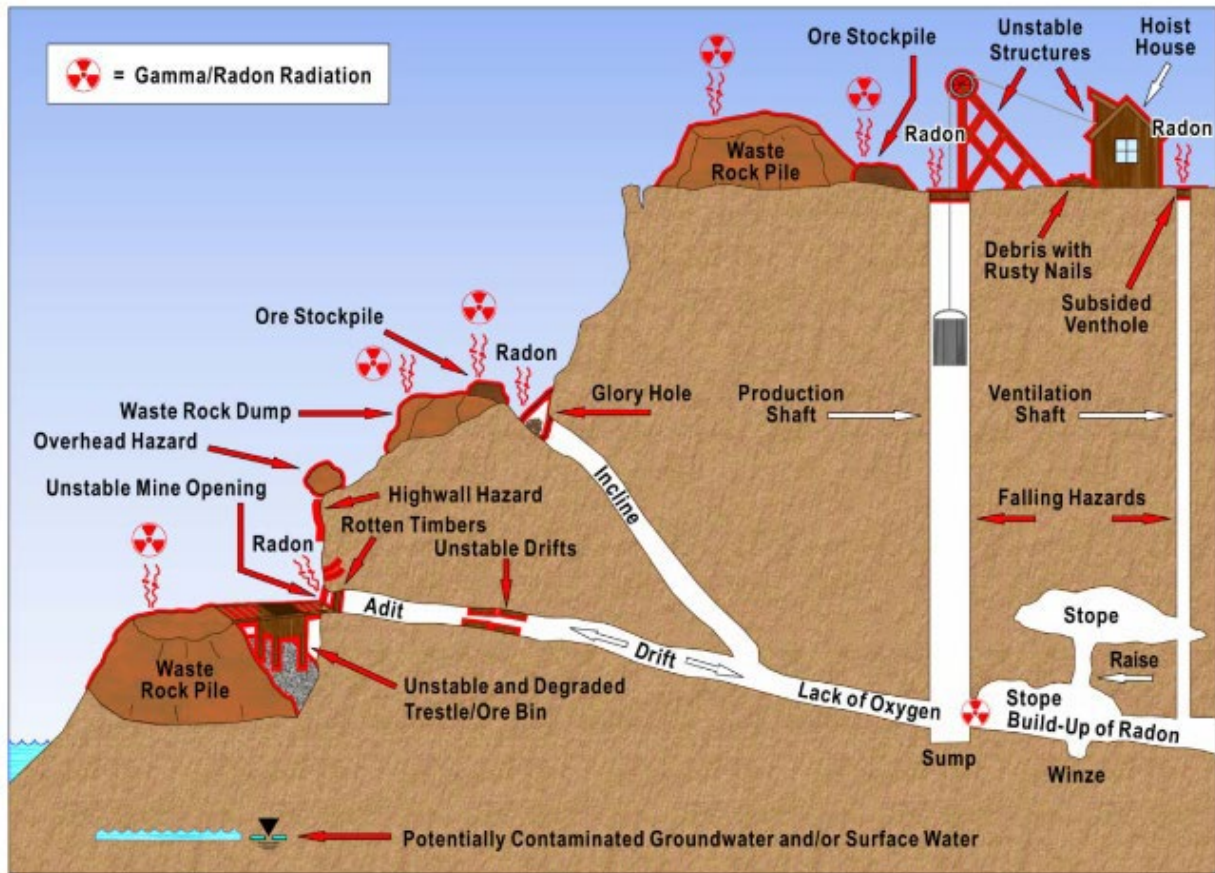


Figure 6. Typical Underground Mine (DISA 2025b).

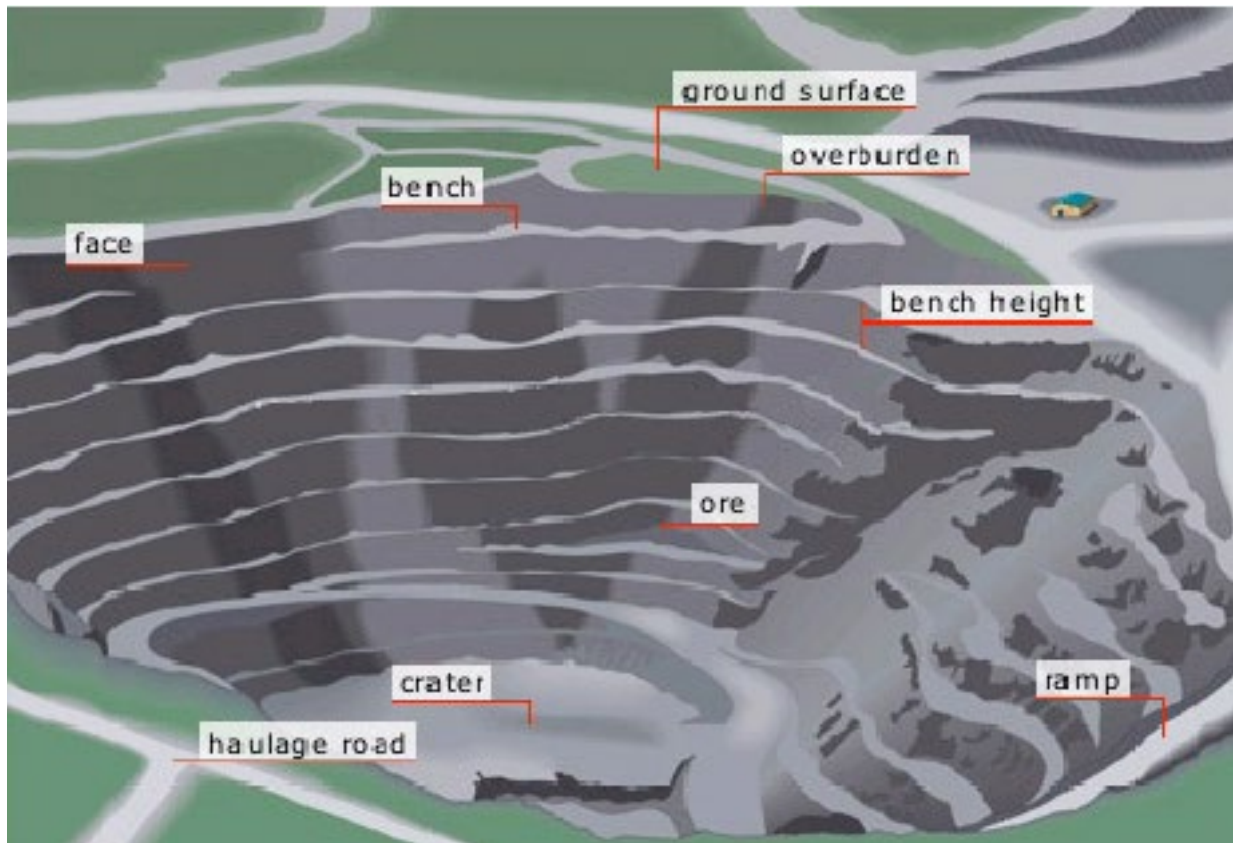


Figure 7. Typical Open Pit Mine (DISA 2025b).

3.1.2 Environmental Impacts

The effects of HPSA operations on AUM waste sites would include earthmoving on the areas from which the mine waste would be excavated and temporary effects (installation and operation of HPSA) on the areas used for operations and storage. The land needed for HPSA operations and material storage would range from about 6,000 square feet (0.14 acre) for tier 1 sites to more than 26,000 square feet (0.6 acre) for tier 5 sites (DISA 2025b). DISA would establish restricted areas during implementation of HPSA by installing temporary boundary fencing around locations for crushing and grinding, ablation, fines storage, and staging areas (DISA 2025b). The fencing would temporarily exclude the enclosed areas from grazing and temporarily exclude other land uses such as agriculture and outdoor recreation. These land use limitations would extend up to about 3.5 years at tier 1, 2, and 3 sites and could last twelve to almost 18 years at larger sites (tiers 4 and 5) (DISA 2025b). Because abandoned uranium mine waste is generally located in remote or rural areas with an abundance of land available for similar uses, these temporary limitations on land use would not likely be noticeable even on the largest sites. Further, HPSA operations may beneficially increase the flexibility of possible future uses of land by removing legacy site conditions left by past mining activities that pose limitations to some land uses.

DISA states that HPSA, followed by site regrading, would remove radiological and inorganic contamination hazards and eliminate limitations on future land uses (DISA 2025b). DISA claims that HPSA would transform unusable and unsafe land to land safely available for other beneficial land uses (DISA 2025b). The NRC staff recognizes that even where HPSA does not fully eliminate restrictions on future uses of the land, it could contribute to increased flexibility in

use of the land. DISA states that no permanent facilities would be left on the sites after the HPSA process is completed, no long-term onsite waste storage would take place on the sites, and that the remediated sites would be protective of human health and the environment (DISA 2025b). The NRC staff expects that portions of AUM waste sites, after undergoing successful mine waste treatment, could become suitable after appropriate preparation for some land uses, such as grazing, forestry, agriculture, or outdoor recreation. However, the NRC staff cannot determine in this EA the extent to which lands on treated sites would be made available by their owners for other land uses. The NRC staff would evaluate site suitability for unrestricted or other release on a site-specific basis as part of the demobilization process. DISA would provide post-remediation land use information in the PMN to inform site grading and stabilization (DISA 2025e).

The NRC staff expects that most HPSA sites would be in remote settings and have a low potential to conflict with surrounding land uses or with land use plans or policies. If a site were located near visually or audially sensitive land uses such as residences, schools, parks, recreational facilities, or urban areas, noise from traffic and equipment operations could temporarily interfere with those uses. Possible conflicts would likely extend over less than 3.5 years for tier 1, 2, and 3 sites but could last twelve to eighteen years for tier 4 and 5 site. The NRC staff expects that most conflicts occurring near sensitive land uses for less than 3.5 years would not be noticeable or could be effectively addressed through mitigation such as the use of best management practices, timing restrictions on operations, or visual or acoustic screening.

3.1.3 Conclusions and Bounding Assumptions

Based on the analysis presented above, the NRC staff concludes that the potential impacts on land use from issuing DISA a license for the HPSA process would be NOT SIGNIFICANT at any AUM waste site that is consistent with the following assumptions:

- The site and adjacent (abutting) land is currently not used for any purpose other than agriculture, recreation, grazing, or forestry.
- The site and adjacent (abutting) land is not subject to zoning; it is zoned for uses such as mining, industry, or agriculture; or it is situated on a Federal, non-Agreement State, or Tribal land and is not zoned for residential, commercial, institutional, or for conservation uses.
- If any area or element of the site (e.g., mineral rights, water rights, or easements) is privately owned (i.e., not owned by the Federal Government or a State or Tribal government), use of HPSA has the approval of all affected property interest owners.
- HPSA would not conflict with any applicable regional comprehensive planning document or land use plan, including but not limited to land use plans developed for Federal installations, military bases, American Indian reservations, campuses, laboratories, or other areas.
- If HPSA operations are conducted on sites near visually or audially sensitive land uses such as residences, recreational facilities, or urban areas, appropriate mitigation would be implemented.
- HPSA operations would not result in the onsite disposition of any material that has not been demonstrated to meet NRC requirements for unrestricted release.
- After HPSA operations conclude, no permanent facilities would be left onsite and no long-term waste storage would take place onsite.

The NRC staff would review site-specific information supplied by DISA in the PMN to determine whether the planned HPSA operations, conditions at the site, and potential impacts would be consistent with the impacts and assumptions presented above or whether some site-specific review is needed. Land use overlaps with a number of other environmental conditions, especially those related to noise, visual impacts, ecology, and cultural resources, as well as consultations under the NHPA and ESA. Additional assumptions that apply to these related environmental resources are outlined in subsequent sections of this EA.

3.2 Transportation

This section addresses impacts resulting from use of vehicles to access and perform work on sites to implement the HPSA technology.

3.2.1 Affected Environment

Most AUM waste sites are situated in remote areas not near major highways or arterial roads, and many are accessible only by dirt roads (DISA 2025b). Vehicles needed to implement the HPSA technology can be expected to make use of primary highways such as interstate, Federal, and State highways at considerable distances from the site in order to reach sites from DISA's headquarters in Casper, Wyoming or from satellite locations and to transport the fines concentrates generated by the HPSA process to uranium recovery facilities or disposal locations (DISA 2025b). While the NRC staff expects that most roads used for the HPSA process would be in rural areas, some primary highways used by the vehicles could be in urban or suburban areas situated away from the AUM waste sites themselves.

3.2.2 Environmental Impacts

DISA identified the types of vehicles expected to enter onto a site undergoing HPSA during the mobilization, operations, and demobilization phases of the process (DISA 2005b). These include semi-tractor/trailers, passenger trucks, and water trucks during mobilization and demobilization and semi-tractor/trailers, passenger trucks, water trucks, and fuel trucks during operations. During operations, DISA anticipates using two to four water trucks a day per HPSA unit, depending on the size of the unit (DISA 2025b). This would amount to a range of two (for a tier 1 site) to sixteen (for a large tier 5 site) water trucks per day. Based on DISA's estimates of weekly fines concentrates trailers, the NRC staff estimates three (tier 1) to thirteen (tier 5) of these trucks per day. The total distance traveled by vehicles for a specific site would depend on that site's distance from various locations related to the operations of DISA, its contractors, and disposal or uranium recovery sites that can accept the fines concentrates. Using a rough assumption that each vehicle would be traveling 500 miles to each site and data from the U.S. Department of Transportation (DOT), Federal Motor Carrier Safety Administration, DISA estimates less than one total travel-related fatality even if the HPSA process were applied to all 15,000 known abandoned uranium mine sites (DISA 2025b). The NRC staff expects that it is unlikely that the process would be applied to all of the 15,000 sites. Thus, the NRC staff considers DISA's estimation process to be reasonable and conservative.

The NRC staff expects that DISA would make use of existing roads to the extent possible to move vehicles to and from each site. DISA expects to be able to gain access using existing gravel or dirt roads, although it may have to regrade and add gravel to some of these roads. DISA estimates that as much as 10 miles of existing road per site would have to be improved in this manner (DISA 2025d). DISA would have to comply with applicable Federal and State laws regarding erosion control, stormwater management, and work in wetlands and floodplains. The

road improvements may also have to be addressed in consultations under Section 7 of the ESA and Section 106 of the NHPA (see sections 3.5 and 3.8). Based on information provided by DISA in the ER and RAI responses, the NRC staff expects that DISA would not need to build new roads.

Many abandoned uranium mine sites are situated in arid areas with easily combustible vegetation where improper use of vehicles, such as trucks, bulldozers, and other construction equipment as well as personal vehicles, can rapidly start wildfires (National Interagency Fire Center 2025). According to the National Interagency Fire Center, wildfires can be started by contact by dry vegetation with hot exhaust or hot metal; by friction with moving metal caused by flat tires or dragging metal objects; sparks from vehicular operation, especially improperly maintained vehicles; and other causes. Wildfires could rapidly spread to encompass broad areas, damaging property and natural habitats and potentially endangering lives. Fire suppression may be especially difficult in the remote areas where AUM waste sites are located. The California Department of Forestry and Fire Protection recommends several safety practices to reduce the risk of wildfire started by vehicles, such as securing chains used in towing, preventing dragging items, maintaining brakes and proper tire pressure, and carrying a fire extinguisher (Cal Fire 2025). Implementation of these measures could substantially reduce the risk of wildfires started by vehicular operation on the sites.

DISA would comply with applicable regulations established for transportation of hazardous materials by the U.S. Department of Transportation in Title 49 of the *Code of Federal Regulations* (49 CFR) parts 171 through 173 and for nuclear materials by the NRC in 10 CFR parts 20 and 40 (DISA 2025b). Section 4.2.4.1 of the ER presents an analysis of the radiological risks posed to the environment from spills from trucks carrying the radioactive fines concentrates from sites to uranium recovery or disposal facilities, including additional analyses of risks related to inhalation (section 4.2.4.2) and ingestion (section 4.2.4.3). The NRC staff evaluated the ER and incorporates these analyses by reference into this EA and concludes that they demonstrate a negligible risk of radiological impacts, as long as applicable regulations are followed consistent with the assumptions below.

3.2.3 Conclusions and Bounding Assumptions

Based on the analysis presented above, the NRC staff concludes that the potential impacts related to transportation from issuing DISA a license for the HPSA process would be NOT SIGNIFICANT at any AUM waste site that is consistent with the following assumptions:

- HPSA industrial trucks and heavy equipment would not routinely use neighborhood roads or roads in and around community features such as schools, parks, and commercial shopping areas.
- Application of the HPSA process at the site would not require construction of new access roads, although it may require paving, repaving, widening, or other upgrades to no more than 10 miles of existing roads. For purposes of this criterion, an existing road could include a gravel road or a dirt road historically used by industrial trucks. Trails, tracks, or paths created solely for use by hikers, off-road vehicles, or farm equipment are not considered existing roads.
- Implementation of any road upgrades would comply with applicable Federal, State, and local regulations, including the ESA and NHPA and regulations related to stormwater management and work in wetlands and floodplains.

- Application of the HPSA process at the site would require the use of vehicles consistent with the types listed in ER table 3-2, “List of Transportation Vehicles” (DISA 2025b).
- All transportation related to the proposed action at a site would be conducted in compliance with applicable regulations established for transportation of hazardous materials by the Department of Transportation (DOT) in 49 CFR parts 171 through 173 and for nuclear materials by the NRC in 10 CFR part 40, as well as any other applicable regulations.

The NRC staff would review site-specific information supplied by DISA in the PMN to determine whether the planned HPSA operations, conditions at the site, and potential impacts would be consistent with the impacts and assumptions presented above or whether site-specific review is needed.

3.3 Geology and Soils

This section addresses impacts on the geologic environment and soils from the proposed HPSA operations.

3.3.1 Affected Environment

DISA would operate the HPSA system at AUM waste sites, which are generally found in the Western US (DISA 2025b). ER section 3.5 and table 3-3 describe the soil types common in the Western US. As discussed in the ER, the diverse landscape of this area includes a wide range of soil types, but most soils are drier and prone to rapid erosion due to the mountainous geography. The Columbia Plateau and Pacific Border regions typically have gentler slopes and organic-rich soils, while the Basin and Range, Colorado Plateau, Great Plains, and Rocky Mountains are more arid with generally thin topsoil.

The NRC staff expects most AUM waste sites to have rock and soils that are impacted by past mining operations. The waste rock piles are likely not native, as the mining operations would have disposed of the waste rock away from the active mining operation. The soil at most sites is likely negatively impacted by the mine waste rock that has been left at the site, often for decades. The waste rock may have leached heavy metals into the subsurface soils given the typically elevated concentration of uranium and heavy metals. Additionally, the piles may not be stabilized or vegetated at all sites, allowing for wind erosion or water infiltration.

As detailed in section 1.3 of a treatability study performed by Tetra Tech for the EPA, mineral hardness can be a good indicator of the effectiveness of the HPSA treatment for the waste rock (Tetra Tech 2023). HPSA treatment is particularly effective when the base mineral hardness is greater than the hardness of the targeted mineral. DISA expects to use quartz, a commonly found mineral in most areas of the US, as the grinding media to fracture the uranium-bearing minerals, which are typically lower on the Mohs hardness scale⁷ than quartz.

The potential sites for HPSA operation would have a range of current road conditions, with some sites accessed by graveled roads while others are accessed by dirt roads. In either case, the NRC staff expects the road would be in some state of disrepair or otherwise in need of maintenance prior to DISA commencing operation due to the sites being abandoned mines with no active operations.

⁷ Mohs hardness is a relative measure of the scratch resistance of a mineral. Minerals higher on the Mohs scale can more easily scratch or break minerals lower on the scale. Quartz has a Mohs hardness of 7 while most uranium-bearing minerals have Mohs hardness ranging from 2 to 6 (USGS 1996).

3.3.2 Environmental Impacts

Section 1.1.3 of the ER states that DISA does not expect to construct any new permanent buildings (DISA 2025b). There would be some ground disturbing activities for processing the waste rock pile, for any roadways that need to be graveled prior to operation, or to erect fencing for site access control during operation. Section 4.3.4 of the ER states that DISA does not intend or expect to engage in any activities that would impact geologic units, as the focus of the proposed action is on surface soils and previously abandoned waste rock piles.

The HPSA process is less effective in silt and clay due to the smaller grain size of these soils (Tetra Tech 2023). Clay and silty soils require longer process times to liberate minerals from finer grains because of the larger particle count and increased number of collisions necessary for treatment. The NRC staff expects the HPSA system would more effectively reduce the contaminant concentration in coarse-grained soils.

The 2023 treatability study found that when the waste rock had a high clay or silt content, the coarse fraction after treatment was a significantly smaller portion of the overall volume and, conversely, the fines concentrates were a significantly larger portion of the overall volume (Tetra Tech 2023). The HPSA system was not as effective at removing uranium and radium in high clay or silt samples, although the concentration of uranium and radium in the coarse fraction was still reduced by over 70 percent compared to the initial waste rock with high clay/silt content. The uranium and radium concentrations in the coarse fraction were reduced by as much as 96 percent in more coarse-grained soils. Thus, the NRC staff expects that the HPSA system can be used to meaningfully reduce the radiological contamination in most abandoned uranium mine sites with either coarse-grained or fine-grained soils. Before leaving any site, DISA must show that the coarse material to remain at the site meets NRC regulatory requirements for unrestricted release in 10 CFR 20.1402. Some sites may be under the jurisdiction of other local, State, or Tribal authorities with additional criteria for unrestricted release. DISA would be responsible for meeting all applicable regulatory requirements for site release.

DISA would establish berms and implement best management practices (BMPs) at each site to reduce water runoff and soil erosion (DISA 2025b). Based on the results of the treatability study (Tetra Tech 2023), DISA may need to implement dust mitigation measures while moving the waste rock to the HPSA system for processing, depending on the soil type at the site. The NRC staff expects there would be short-term impacts to the site soil while DISA processes the abandoned waste rock and, potentially, some of the native soils under the waste pile. However, these impacts would be short-term, as DISA would operate at most sites for less time than a typical industrial site. Collecting and removing the uranium and thorium would result in an overall positive impact on site soils.

Table 1-1 of the ER provides information about HPSA operations at five tiers based on the amount of material to be processed (DISA 2025b). DISA expects that the quantity processed would range from an upper limit of 100,000 tons for the smallest tier (tier 1) to an upper limit of 10 million tons for the largest tier (tier 5). DISA assumes that 20 percent of the mass would be in the fines concentrates after processing; thus, 80 percent is in the coarse fraction. Based on this assumption, the NRC staff expects that DISA could release up to 8 million tons of coarse material at a site that meets the upper limit of a tier 5 site, assuming all coarse material meets the NRC unrestricted release criteria. For a tier 1 site, the NRC staff expects that DISA would release up to 80,000 tons of coarse material at a site. At most sites, the coarse material left

onsite would be a fraction of the tier 5 maximum of 8 million tons. DISA indicated that it would reintegrate the coarse material into the existing site topography and then seed the material (DISA 2025d), which would encourage vegetation and reduce the potential for erosion and windblown dust. DISA would not stabilize the site to promote general agriculture or cropland but would ensure the site grading is sufficient for animal grazing and is consistent with the surrounding conditions (DISA 2025e). If the site is near a mine pit, DISA may seek to fill the pit with the coarse fraction, if permitted by Federal, State, and/or local regulations. For this EA, the NRC staff has determined that the potential impacts of leaving 80,000 tons (tier 1) to 8 million tons (tier 5) of coarse material on a site would need to be assessed on a site-specific basis. The NRC staff expects DISA to provide detailed information on its plans for placing coarse material on a site after HPSA operations conclude.

The NRC staff expects impacts would be similar for each of the site tiers, except that such impacts would last for longer for larger sites (tier 5) where DISA could be present onsite for up to eighteen years. Because most sites are expected to be remote, DISA would likely need to gravel the dirt roads to the site, as well as use dust mitigation measures during drier seasons to prevent road erosion from heavy truck traffic.

Most soil impacts from the proposed action would be from the processing of the waste rock pile, which is not a native geologic feature. The NRC staff expects DISA would excavate and process the waste rock pile and contaminated native soil underneath the pile until they reach soil with contamination below NRC regulatory limits. Section 1.1.1 of the ER states that DISA would provide the NRC with characterization surveys of each site, to include an estimated depth of processing, in the PMN prior to DISA operating at a potential site (DISA 2025b). DISA would provide details on the final depth of mine waste processed in the post-remediation report for NRC staff review. For this EA, the NRC staff assumes that DISA would not need to process native soils to a depth that penetrates the upper confining layer of any aquifer at a site. Section 3.4 of the ER states that DISA does not expect to impact any subsurface geologic units (DISA 2025b). Therefore, for this EA the NRC staff assumes that underlying geologic units would not be affected by HPSA operations.

3.3.3 Conclusions and Bounding Assumptions

Based on the analysis presented above, the NRC staff concludes that the potential impacts of the proposed action on the soil and geology of any AUM waste site at which DISA operates the HPSA system would be NOT SIGNIFICANT provided the assumptions outlined below are applicable to the site. The proposed action could have significant positive impacts on soils and geology, as contaminated material is separated and removed from the sites.

- DISA would likely gravel or regrade existing dirt roads but would not need to create a new road.
- Ground-disturbing activities would be limited to graveling pre-existing roads, establishing fencing, and processing soils directly under the waste rock piles.
- Any ground disturbance to process native soils underneath the waste rock pile would not reach the site water table such that water pools in the excavation area and requires dewatering.
- Any ground disturbance to process native soils underneath the waste rock pile would not break through the confining layer of an underlying aquifer and would not result in the creation of a new pathway for water recharge of that aquifer.

- Any ground disturbance to process native soils underneath the waste rock pile would not impact previously undisturbed bedrock.
- Coarse material is demonstrated to comply with all applicable regulatory requirements and can be left onsite consistent with the unrestricted release criteria in 10 CFR 20.1402, or any other applicable regulatory requirement.
- The coarse fraction that is left on the site is graded into the existing site and seeded with a seed mixture that is appropriate for the site. DISA would take additional measures if needed to prevent a loss of material through wind erosion or water infiltration. DISA will obtain any needed authorizations or permits for the reintegration of coarse material onsite. DISA will submit the detailed plans for coarse material disposition to the NRC in the PMN for site-specific assessment.

The NRC staff would review site-specific information supplied by DISA in the PMN to determine whether the planned HPSA operations, conditions at the site, and potential impacts would be consistent with the impacts and assumptions presented above or whether site-specific review is needed. The staff would conduct site-specific reviews in all cases for coarse material disposition.

3.4 Water Resources

This section addresses impacts from water use and impacts on surface water bodies and groundwater that could result from the proposed HPSA operations.

3.4.1 Affected Environment

The potential sites where DISA could deploy the HPSA system are AUM waste sites with significant ground disturbance caused by past uranium mining operations (DISA 2025b). DISA characterizes most sites for potential implementation of the HPSA technology as abandoned conventional open pit and underground uranium mines (DISA 2025b). The NRC staff expects the groundwater at many of these sites could have elevated concentrations of heavy metals as a result of previous mining activities. Additionally, the NRC staff expects that most sites would not include a river or other perennial stream as many of the potential sites are in generally arid environments (e.g., the Basin and Range province).

Major watersheds where HPSA operations could take place are the Pacific Northwest, California, Great Basin, Lower Colorado, Upper Colorado, Rio Grande, Texas Gulf, Arkansas Red White, and Missouri basins (EPA 2025e). Some sites may have perennial surface streams, but most surface streams are likely to be ephemeral streams that flow seasonally or after heavy precipitation events. Larger (tier 4 and 5) sites may have perennial streams, although they may not be within the HPSA footprint. The NRC staff expects that most small sites would not encompass floodplains, wetlands, or navigable waterways of the US as defined in the Clean Water Act, but that larger sites might encompass such features. DISA would need to coordinate with appropriate regulatory authorities, such as USACE, the EPA, the State and Tribal authorities to establish the presence of waters on a site. DISA would provide site characterization information and the status of any permits in the PMN prior to operation. The NRC staff would review this information to determine whether further environmental assessment is needed.

The past land disturbance from mining likely precludes the presence of potable groundwater even on the largest sites. The NRC staff expects that most sites would not include any water

intake wells or withdrawals from surface streams for the purpose of potable water use. Water withdrawals may be present on some sites for agricultural purposes, and there may be use of surface waters downstream of AUM waste sites. The water quality of these downstream surface waters could be impacted by past mining activities.

3.4.2 Environmental Impacts

Section 3.6 of the ER states that the water used during operation would be brought onsite; therefore, the NRC staff does not expect that groundwater or surface water would be used to support the HPSA process (DISA 2025b). DISA expects to need between two and eight 5,000-gallon water trucks daily per HPSA unit at a site, depending on the size of the site.

Most of the water would recycle through the system with some water loss in coarse material and fines concentrates after filter pressing. DISA estimates in section 3.6.2 of the ER that 15 percent of the water would be retained in the two outflows (coarse material and fines). However, the coarse material needs to contain some moisture for placement and compaction onsite after the material has been demonstrated to meet the requirement for unrestricted release. The ER states that the amount of water retained in the coarse fraction after HPSA operations and filter pressing would be sufficient for placement and compaction, and therefore there is no added need for water beyond the operational water for the HPSA system.

As stated in Section 2.5.1.2 of the ER, water may be recycled and brought onsite from previous operations at another AUM waste site (DISA 2025b). The NRC staff expects recycled water from previous operations to be sufficient water for the initial startup of the HPSA system at a new site; however, DISA would not have sufficient recycled water to operate the system for the entire length of operation at the site. Thus, the NRC staff expects a local water source would still be required for such sites.

The ER states that the water for the HPSA systems would be drawn from the local municipal water system and would be trucked to most sites (DISA 2025b). DISA would need to obtain an agreement or permit for the usage amount from the municipality prior to operation. If the expected water requirements of operations could strain the local municipal system, DISA either would find alternative sources of water or would not mobilize to the site until an alternative source is identified. Larger sites, such as tier 4 or tier 5 sites as identified in table 1, may require water from multiple sources, depending on the availability of water from local municipalities. The NRC staff assumes DISA would obtain agreements or permits from each municipality from where water is drawn. If DISA requires additional water from surface water or groundwater sources, DISA would need to engage the USACE and other applicable Federal, Tribal, and State agencies to obtain the necessary permits prior to mobilization to the site. For this EA, the NRC staff assumes that for most sites DISA would be able to obtain water from the local municipality's water system without causing noticeable impacts on the water supply system and would not utilize any site surface or groundwater. Further analysis would be required for any site that would require additional water or that could utilize the site surface water or groundwater. During the PMN review for each site, the NRC staff would review the projected water use and consider the source of water to verify that impacts on the water supply would not be significant.

Section 3.6.2 of the ER states that the HPSA technology requires 13 gallons per minute (gpm) of water in a 50-tph treatment system and 25 gpm for a 100-tph treatment system (DISA 2025b). Water consumption would be approximately 200,000 gallons per month and 384,000 gallons per month for the 50- and 100-tph HPSA treatment systems, respectively. For tier 3, tier 4, and tier 5 sites, DISA expects to operate more than one HPSA system concurrently. At the

largest tier 5 site there would be four HPSA systems, which would consume between 800,000 and 1,536,000 gallons per month depending on the sizes of the HPSA systems deployed to the site. Most counties in the Western US have sufficiently large water supply systems to provide the necessary water without undue burden on the system.

For example, Las Animas County in Colorado supplies approximately 4 million gallons per day, not including irrigation (USGS 2025). DISA could utilize up to 3.5 percent of the total water supply if using multiple HPSA systems at a tier 5 site within a smaller county, but water use would likely be closer to 1 percent or less at most tier 1-4 sites. Las Animas County is an example and is not indicative of water availability at all sites where DISA could operate. During the review of the PMN, the NRC staff would consider the potential impacts to the local water resources at the site and that DISA has the proper permits and licenses from the local, State, Tribal, or Federal agencies responsible for monitoring and maintaining local water resources, including groundwater basins. The NRC staff expects DISA would not mobilize to a site unless they have the necessary permits and licenses to access sufficient water for operation.

Section 3.6.2 of the ER states that no operations would occur during storm events to minimize potential impacts from stormwater runoff (DISA 2025b). Additionally, the HPSA system contains a tray to capture potential spilled liquids. If necessary, DISA would use booms to divert water around the restricted area so that site operations do not contaminate surface water. There would be no discharge of water from the normal operation of a HPSA unit. Any inadvertent release of water from the system would be at most equal to a once-through volume (16,500 gallons for a 50-tph system and 26,000 gallons for a 100-tph system), assuming a leak of all water in the system. The spill would be contained using the system tray, berms, earthmoving equipment, and any other BMPs for the site based on site-specific layout. DISA would excavate and place contaminated soils into containers with fines concentrates or into separate containers that would be sent for recycling, storage, or disposal at a licensed facility (DISA 2025b). The trailers containing the fines concentrates would be covered for protection, to prevent precipitation inflow, and to prevent the migration of constituents to the soil below the trailers.

HPSA operations would not result in the effluent of water to surface waters at any site (DISA 2025 ER). However, the final volume of system charge (16,500 gallons or 26,000 gallons) and one system charge of rinse water may be disposed of onsite for a total of twice the system volume, once the water is shown to meet NRC regulations for water effluent release in 10 CFR part 20 appendix B along with any applicable local, State, Tribal, or Federal non-radiological water effluent release criteria. Process water would be treated through bag filtration with oxidation media, as discussed in section 2.1.2. DISA would collect three grab samples of process water per HPSA unit after treatment to analyze the water for compliance with release criteria. DISA committed to releasing process water using sprinkler type nozzles to spray water and irrigate seed at the same time while minimizing the potential to create divots or cause topsoil loss (DISA 2025e). The NRC staff assumes DISA would not engage in any activities that would meaningfully alter surface stream flow paths or drainage at any site.

Fugitive dust may be generated during staging or operations from the moving of waste rock material to the staging area and to the HPSA unit(s) for processing. DISA would implement BMPs to minimize fugitive dust impacts to local perennial or ephemeral streams, wetlands, or any other surface water features on or near the site. Fugitive dust impacts and mitigating measures are discussed in more detail in sections 2.1 and 3.6 of this EA.

DISA does not expect to use groundwater as a source of water for the project. Additionally, HPSA operation would not require any well placement for withdrawals, discharge, or monitoring.

As discussed in section 3.3.2 of this EA, there would be minor ground disturbing activities. However, the NRC staff does not expect the operation of the HPSA system to impact the local geology, and therefore any ground disturbing activities would not significantly impact the groundwater. The NRC staff concludes the proposed operation of the HPSA system would have no impact on groundwater so long as DISA does not disturb any native soils below the site water table and does not breach a confining layer.

3.4.3 Conclusions and Bounding Assumptions

Based on the analysis presented above, the NRC staff concludes that the potential impacts from water use or to site surface water or groundwater resources that would be associated with issuing DISA a license for the HPSA process would be NOT SIGNIFICANT at any AUM waste site that is consistent with the following assumptions:

- Water used during HPSA system operation would be brought to the site by DISA and would not be taken from the local surface water or groundwater.
- DISA would obtain the appropriate permits or licenses from the municipality or any other State, Tribal, or local authority for the source of water.
- DISA would implement a site-specific stormwater management plan, approved by applicable regulatory agencies, or a generic stormwater management plan approved by applicable regulatory agencies.
- DISA would not engage in any activity that would meaningfully alter the flow path or flowrate for any surface streams.
- No water would be discharged at the site during operation. DISA might, at the cessation of operation, discharge up to twice the system volume on the site, provided the water is demonstrated to meet any applicable Federal, State, and local regulations for disposal prior to discharge.
- The water discharged onto the site at the end of operations would be discharged at a location(s) and rate approved by relevant State and/or Federal agencies to avoid or minimize erosion and protect surface soils and vegetation.
- DISA would not establish any new groundwater wells for extraction, discharge, or monitoring.
- DISA would obtain a National Pollutant Discharge Elimination System permit from the EPA or State, if required.
- As needed, DISA would obtain Clean Water Act (CWA) Section 401 Water Quality Certification from the State certifying authority, Section 404 approval from USACE, and any applicable State authorizations related to non-jurisdictional, State-regulated waters.
- DISA would not excavate any native soils down to the water table, resulting in the need to dewater, and would not impact an aquifer's confining layer.
- No coarse material would contain metal contaminants above the Resource Conservation and Recovery Act (RCRA) limits, or the coarse material is separated such that any material containing metal contaminants above the RCRA limit would not be disposed of onsite.
- No coarse material would contain radiological contaminants above the NRC limits, or the coarse material is separated such that any material containing radiological contaminants above the NRC limit would not be disposed of onsite.

The NRC staff would review site-specific information supplied by DISA in the PMN to determine whether the planned HPSA operations, conditions at the site, and potential impacts would be consistent with the impacts and assumptions presented above or whether some site-specific review is needed.

3.5 Ecological Resources

This section addresses impacts on terrestrial and aquatic ecological resources, including impacts on threatened or endangered species and critical habitats Federally protected under the ESA.

3.5.1 Affected Environment

DISA characterizes ecological conditions at most AUM waste sites as variable but recognizes that ecological quality has been compromised by physical soil disturbance during past mining activity, and that waste piles at many sites comprise bare rock and dirt with little apparent flora or fauna (DISA 2025b). The NRC staff expects that most sites potentially suitable for HPSA presently comprise previously disturbed soils supporting ruderal (weedy) vegetation and sparse early successional grassland or scrub. An invasive grass species termed cheatgrass (*Bromus tectorum*) commonly invades physically disturbed soils in arid settings over much of the Western US and therefore may be dominant on many sites. Especially in arid settings, recovery of terrestrial vegetation through natural successional processes after mechanical soil disturbance can be slow, and natural reestablishment of climax desert vegetation can take many decades or centuries. A few abandoned uranium mines in mesic (relatively moist) settings, such as may occur close to rivers, or that have been abandoned longer, may however have recovered some vegetation typical of surrounding undisturbed land.

The NRC staff expects that most sites would not contain or adjoin wetlands or aquatic habitats but that some might contain ephemeral streams (commonly referred to as draws in the Western US) that carry runoff from infrequent but heavy precipitation events. Sites may contain or adjoin permanent or intermittent streams or other bodies of waters containing aquatic communities comprising fish, benthic macroinvertebrates, plankton, and other aquatic biota. These systems may also provide habitat for amphibians, reptiles, birds, mammals, and invertebrates. DISA would need to coordinate with appropriate regulatory authorities, such as the USACE, the EPA, the State, and Tribal authorities to establish the presence of waters on a site.

The NRC staff expects that lands surrounding most sites likely support grassland, scrub-shrub, and forested habitats typical of desert settings in the Western US. While the physically disturbed soils on the abandoned mines themselves may not provide quality wildlife habitat, terrestrial mammals, birds, reptiles, and other wildlife typical of the surroundings are likely to inhabit adjacent lands and be transiently present on the sites. Because most sites are expected to occur in remote or rural areas, wildlife on the sites or adjoining lands is likely not to be adapted to human disturbances such as noise and light.

Section 3.7.2 of DISA's ER presents information on "important" species, as defined by the NRC for purposes of environmental review in Regulatory Guide 4.2 (NRC 2018a), for five States where DISA expects to implement the HPSA process: Arizona, Colorado, New Mexico, Utah, and Wyoming. DISA presents information from the Information for Planning and Consultation (IPaC) database maintained by the U.S. Fish & Wildlife Service (FWS) to identify resources (threatened or endangered species and critical habitats) protected under the Federal ESA potentially present in 43 counties in the five States (DISA 2025b). DISA searched websites and

lists from each of the States and other agencies to identify State-listed and other special status species potentially present (DISA 2025b). Appendix B of the ER is a table of species with Federal or State designations in each of the five States noted above. Appendix C of the ER is a list of game species managed by each of the five States.

DISA recognizes that it cannot characterize baseline ecological conditions or the possible presence of “important” species until it identifies specific sites for implementing the HPSA process, and it plans to consult with the appropriate offices of the FWS and other relevant agencies possessing specialized expertise before mobilizing at any specific site (2025b). Once DISA identifies a specific site, it can use the IPaC database to obtain not only information on the possible presence of Federally-protected species, but information regarding the possible presence of eagles protected under the Bald and Golden Eagle Protection Act, migratory birds protected under the Migratory Bird Treaty Act, and mapped locations of wetlands from National Wetland Inventory maps. Information on species protected by States and other rare species is available from State agencies responsible for conservation and management of fish and wildlife.

3.5.2 Environmental Impacts

The NRC staff expects that implementation of the HPSA process would require physical disturbance of existing vegetation over treated areas. For smaller sites (including most tier 1, 2, and 3 sites) disturbance may affect only a few acres of vegetation, although for larger sites (including many tier 4 and 5 sites) disturbance might extend over tens or hundreds of acres of vegetation. However, most of the affected vegetation would likely be ruderal or sparse vegetation whose wildlife habitat value has already been reduced by past mining activity. For most sites, regardless of size, an abundance of high-quality natural vegetation that provides higher quality wildlife habitat would remain in the surrounding landscape. The effects on regional wildlife populations would therefore not likely be noticeable for most sites.

Because most AUM waste sites occur in arid landscapes with few wetlands or aquatic habitats, impacts to those habitats are unlikely. Physical disturbance of ephemeral streams (draws) may be necessary, especially for larger sites, but the disturbance is unlikely to noticeably affect regional hydrological or ecological properties in the surrounding landscape, as long as DISA implements best management practices for soil erosion and sediment control and stormwater management. As needed, DISA would implement standard sediment and erosion control measures such as berms, dikes, sediment ponds, and stabilized construction entrances (DISA 2025b). Most States and other jurisdictions have developed technical guidance on best management practices for these purposes that are effective under local conditions.

Terrestrial wildlife would temporarily experience noise generated by equipment operated as part of the HPSA process. DISA expects that noise levels would be below 85 dBA throughout operations, but that noise would be 40 dBA less at distances of more than 100 feet from the equipment (DISA 2025b). A comprehensive literature review of wildlife responses to anthropogenic noise indicates that some species adversely respond to noise levels as low as 40 dBA, but most evidence is that responses only occur at levels above 50 dBA (Shannon *et al.* 2016). NRC staff expects that some terrestrial wildlife might avoid areas close to operating equipment. Some birds nesting within a few hundred feet of work activities might abandon their nests, especially during or shortly after site mobilization. However, the effects on wildlife abundance and patterns of wildlife movement and migration in the surrounding landscape would likely be negligible, even for the largest sites. Some wildlife, especially small or less mobile terrestrial wildlife, could be killed or otherwise adversely affected by operation of trucks and other vehicles (DISA 2025b). Some terrestrial wildlife could also be injured or killed by collisions

with trucks and other vehicles traversing roads to access sites. However, traffic mortality rates rarely limit wildlife population size (Forman and Alexander 1998), and the NRC staff expects that effects would not be noticeable.

As noted in section 4.5.4 of the ER, successful implementation of the HPSA process would have long-term beneficial effects on terrestrial wildlife. The process would leave the land surface as a coarse soil-like material that would no longer constitute a radiological or toxicological hazard to terrestrial wildlife (DISA 2025b). The ground surface would be suitable for grading to produce topography typical of a natural setting, and DISA would seed the coarse material with an appropriate seed mixture for the site. The NRC staff expects that vegetation may re-establish only slowly through natural successional processes in arid settings, especially in the artificially coarse soil-like materials left onsite by the HPSA process and other soils subjected to grading and compaction. Like sand, the coarse soil-like material may drain precipitation even more quickly than natural soils, further slowing vegetation establishment. It may also be of lower fertility than natural soils, further inhibiting vegetation. Until suitably dense vegetation can be established, the surface materials would be subject to erosion during precipitation events, and runoff could carry surface materials as sediment into adjoining natural habitats and into drainage swales or draws leading to aquatic habitats. DISA would implement standard sediment and erosion control measures such as berms, dikes, sediment ponds, and stabilized construction entrances (DISA 2025b). Effective stabilization of the land surface may however require planting efforts with extended watering efforts and other maintenance and monitoring efforts until the vegetation can become successfully established.

DISA would provide as part of its PMN for each site a description of habitats that could potentially contain Federally-listed or State-listed species or habitats listed in appendices B or C of the ER (DISA 2025b). This assessment would include site-specific and up-to-date searches of the IPaC database as well as communications about specific sites with Federal and State conservation staff. Information from the assessment would be used to complete consultations required under the Endangered Species Act (ESA). The consultation process would ensure that any incidental take of protected species or habitat would not jeopardize species listed as endangered or threatened.

3.5.3 Conclusions and Bounding Assumptions

Based on the analysis presented above, the NRC staff concludes that the potential impacts to ecology from issuing DISA a license for the HPSA process would be NOT SIGNIFICANT at any AUM waste site that is consistent with the following assumptions:

- Ground disturbance would be limited to areas of soil previously disturbed by mining or mining-related activities.
- Ground disturbance would avoid climax or old-growth vegetation or other vegetation typical of undisturbed natural lands in the surrounding landscape.
- Ground disturbance would not disturb any wetlands or perennial streams and no more than 300 feet of ephemeral or intermittent streams.
- DISA would provide in its PMN for each site a wetland delineation using the three-parameter process outlined in the Army Corps of Engineers Wetlands Delineation Manual and relevant Regional Supplement or a desktop assessment for the possible presence of wetlands using FWS National Wetland Inventory maps, aerial photography, or Natural Resource Conservation Service soil survey maps.

- DISA would comply with any Federal, State, or local permitting requirements for impacts to streams, wetlands, or floodplains.
- DISA would implement best management practices for soil erosion and sediment control and stormwater management and comply with related State and local requirements.
- Once work on a site is completed, DISA would grade the coarse material into a topography typical of natural conditions that blends naturally into the site surroundings and permanently stabilize the land surface. DISA would use an appropriate seed mixture to seed the coarse material.
- Noise levels from trucks and earthmoving equipment would be less than 50 dBA at a distance of 500 feet from the site boundary.
- As noted above in Section 3.5.2, DISA would provide as part of its PMN for each site an assessment of habitats that could potentially contain Federally-listed or State-listed species or critical habitats protected under the ESA.
- For purposes of consultation under Section 7 of the ESA, NRC staff would be able to conclude, without using information from additional field surveys, No Effect or Not Likely to Adversely Affect (with concurrence from the FWS) for any Federally-listed threatened or endangered species or critical habitats in an action area defined for a site.
- No further field surveys would be needed to support consultation under Section 7 of the Endangered Species; formal consultation, leading to a biological opinion and incidental take statement, would not be required.
- DISA would implement any mitigation required by the FWS as terms or conditions in an incidental take statement or recommended as part of any communication conducted as part of informal or formal Section 7 consultation. Examples of common mitigation measures might include onsite or offsite habitat improvement or timing onsite work with a specific distance of nesting locations to avoid nesting seasons.

The NRC staff would review site-specific information supplied by DISA in the PMN to determine whether the planned HPSA operations, conditions at the site, and potential impacts would be consistent with the impacts and assumptions presented above or whether some site-specific review is needed. The NRC staff may also need to engage in formal consultation under Section 7 of the ESA, which may require field surveys and specific mitigation measures established as part of an Incidental Take Statement.

3.6 Meteorology and Air Quality

This section addresses the potential impacts on air quality from the proposed HPSA operations.

3.6.1 Affected Environment

3.6.1.1 *Climate and Meteorological Conditions*

Almost all of the approximately 15,000 AUM waste sites identified by the EPA in the Western US occupy the 14 States DISA has identified for potential operation. As shown on figure 1, the bulk of the sites are in Arizona, New Mexico, and Utah in the Desert Southwest, and Wyoming and Colorado in the Mountain West. The climate of the Desert Southwest is characterized by extremely hot summers, with temperatures often exceeding 100°F (38°C), and mild winters. The air is generally dry and the region generally receives very little rainfall, leading to arid conditions and sparse vegetation. The Mountain West experiences a more varied climate due to its diverse

topography. This region includes the Rocky Mountains and other high-altitude areas, where temperatures can be significantly cooler. Summers are generally mild to warm, while winters can be harsh, with heavy snowfall and freezing temperatures. Precipitation varies widely, with some areas receiving substantial snowfall that contributes to the region's rivers and lakes.

In the Desert Southwest (Arizona, New Mexico, Utah), the North American Monsoon can bring significant rainfall during the summer months, leading to flash floods and other weather-related challenges. Similarly, in the Mountain West (Wyoming, Colorado), heavy rains can occur due to various weather systems, including monsoonal moisture and frontal systems (NOAA 2021). These heavy rain events can lead to flash flooding, especially in areas with dry, compacted soils that do not absorb water well.

3.6.1.2 Air Quality

Under the Clean Air Act, the EPA has established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: nitrogen dioxide, sulfur dioxide, carbon monoxide, lead, ozone, and particulate matter (PM) as PM₁₀ and PM_{2.5}. PM₁₀ refers to particles which are 10 micrometers (3.9×10^{-4} in) in diameter or smaller, and PM_{2.5} refers to particles which are 2.5 micrometers (9.8×10^{-5} in) in diameter or smaller. The EPA designates areas of attainment and nonattainment with respect to meeting the NAAQS. Areas for which there are insufficient data to determine attainment or nonattainment are designated as unclassifiable. Areas that were once in nonattainment, but are now in attainment, are called maintenance areas; these areas are under a 10-year monitoring plan to maintain their attainment designation status. Locations of EPA-designated nonattainment areas for each criteria pollutant are available at <https://www3.epa.gov/airquality/greenbook/ancl.html> (EPA 2025c).

States have primary responsibility for ensuring attainment and maintenance of the NAAQSs, and States may have their own ambient air quality standards that must be at least as stringent as the NAAQS. For the purpose of planning and maintaining ambient air quality with respect to the NAAQSs, the EPA has developed air quality control regions (AQCRs), which are intrastate or interstate areas that share a common airshed. The 14 States in which prospective HPSA sites are located are encompassed by numerous AQCRs, a list of which is available at <https://aqs.epa.gov/aqsweb/documents/codetables/aqcrs.html> (EPA 2025d).

If a proposed project is in a nonattainment or maintenance area, the General Conformity Rule (40 CFR Part 93) ensures that Federal actions comply with the NAAQS. If a proposed project is in a nonattainment or maintenance area, the General Conformity Rule (40 CFR Part 93) ensures that Federal actions (such as the proposed licensing action) comply with the NAAQS. In accordance with Section 176(c) of the Clean Air Act (42 U.S.C. § 7506) and the General Conformity Rule, if a project is in a nonattainment or maintenance area, the NRC must demonstrate that the air emissions associated with activities within its authority would conform to the appropriate state implementation plans (SIPs), which are developed to improve or maintain air quality in designated nonattainment and maintenance areas. The EPA has established *de minimis* levels for each criteria pollutant (EPA 2025f) (see tables 2 and 3). If a project is located in a nonattainment or maintenance area and the project's emissions are estimated to exceed the *de minimis* levels for any criteria pollutant as demonstrated in an applicability analysis, a conformity determination must be performed. When the total direct and indirect emissions from the proposed action are below the *de minimis* levels, the action would not be subject to a conformity determination (EPA 2020). The first step in determining whether an action conforms is to perform an applicability analysis to determine whether the action is exempt or has total net direct and indirect emissions below *de minimis* levels.

HPSA operations may be subject to permitting under New Source Review requirements under the Clean Air Act. This pre-construction permitting program requires industrial facilities to undergo a review and obtain permits before building new plants or making major modifications to existing ones that would significantly increase air pollution. There are three main types of NSR permits: Prevention of Significant Deterioration (PSD) permits for areas with clean air (attainment areas); Nonattainment NSR permits for areas that do not meet national air quality standards; and Minor NSR permits for smaller projects with less impact. Permits would likely be issued by the State or local air pollution control agencies.

3.6.1.3 Greenhouse Gases and Climate Change

Gases found in Earth's atmosphere that trap heat and play a role in the climate are collectively termed greenhouse gases (GHGs). These GHGs include carbon dioxide (CO₂), methane, nitrous oxide, water vapor, and fluorinated gases, such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Climate change research indicates that the cause of Earth's warming over the last 50 years is the buildup of GHGs in the atmosphere, resulting from human activities (GCRP 2023). Earth's climate responds to changes in concentrations of GHGs in the atmosphere because these gases affect the amount of energy absorbed and heat trapped by the atmosphere. Atmospheric concentrations of CO₂, methane, and nitrous oxide have significantly increased since 1850. For instance, since 1850, CO₂ concentrations have increased by almost 50 percent (GCRP 2023). The EPA has determined that GHGs "may reasonably be anticipated both to endanger public health and to endanger public welfare" (74 FR 66496).

In 2009, the Commission provided guidance to the NRC staff on addressing GHG issues in environmental reviews. That guidance directed the NRC staff to "include consideration of carbon dioxide and other greenhouse gas emissions in its environmental reviews for major licensing actions under the National Environmental Policy Act" (NRC 2009).

In 2023 the U.S. Global Change Research Program (GCRP) published the Fifth National Climate Assessment, its most recent report regarding the state of climate change in the nation (GCRP 2023). The AUM waste sites are located in the Northwest, Northern Great Plains, Southwest, and Southern Great Plains regions, which comprise over half of the continental US. The impacts of climate change throughout these areas are varied but generally include an increase in the intensity and frequency of heat waves, wildfires, drought, flooding, and severe storms, as well as rising air and water temperatures. These precipitation patterns influence snowpack, water availability, and aquatic habitats such as lakes, rivers, springs, and streams, which can affect the availability of food and water for wildlife and conditions for native vegetation to thrive.

3.6.2 Environmental Impacts

3.6.2.1 Potential Impacts on Air Quality

The primary non-radiological air emissions from the proposed action are from combustion emissions from the HPSA units (diesel generators) and from vehicles. Diesel generators would be used to power the HPSA units and ancillary equipment. Vehicles would include earthmoving vehicles; semi-tractors and trailers for mobilization, demobilization, and transportation of fines concentrates; and water and fuel trucks used during operations for water supply and refueling. Fugitive dust could be generated by earthmoving activities, trucks on unpaved roads, wind blowing over disturbed areas, and stockpiles. DISA would implement dust control mitigation

measures, such as wetting surfaces, applying gravel to pre-existing dirt roads, and covering areas or containers of mine waste, coarse material, and fines concentrates (DISA 2025b). In addition, when reintegrating coarse material back onto an AUM waste site after HPSA treatment, DISA would grade and seed the coarse material area to encourage the growth of vegetation and further reduce the potential for airborne dust (DISA 2025d).

Based on DISA's estimates of non-radiological air emissions from vehicles, generators, and earthmoving activities, the NRC staff concludes that total non-radiological air emissions for all tiers of HPSA operations would not be significant because they would not exceed *de minimis* levels. However, DISA would need to assess potential air emissions and determine whether permitting at a site is required under EPA, State, or Tribal regulations. The NRC staff expects that DISA would provide the NRC with information about expected air emissions, along with any permitting information, in the PMN for the site. .

Radiological Emissions

AUM mine waste, consisting of uranium, thorium, and their decay products, presents a potential hazard from direct radiation and inhalation of dust and radon gas to individuals in close proximity (i.e., workers involved in excavation and transfer activities) to mine waste during proposed activities. Section 3.11 of this EA addresses the potential impacts from radiological emissions and exposures. Because radon gas disperses quickly in air, the potential emissions are not expected to present a significant health hazard. Proposed activities that could generate mine waste dust include excavation, post-excavation stockpiling, loading of haul trucks, unloading, and stockpiling. The potential hazards to the public from airborne emissions at downwind locations would be reduced by dispersion but would be evaluated by DISA's monitoring program at each site (see section 3.11.2.2). DISA would monitor particulates (dust), direct radiation, and radon gas in or around working areas and at downwind areas to demonstrate compliance with applicable worker and public safety standards. As discussed in section 3.11, the NRC staff concludes that the maximum radiological exposure to workers and the public from HPSA operations at a Tier 5 site would be 11.82 mSv/yr (1182 mrem/yr) and 0.88 mSv/yr (88 mrem/yr), respectively. These are highly conservative dose estimates, and the NRC staff expects the actual dose would be lower.

3.6.2.2 Potential Impacts from Greenhouse Gas Emissions

Climate change effects are considered the result of overall GHG emissions from numerous sources rather than an individual source. In addition, there is not a strong cause and effect relationship between where the GHGs are emitted and where the impacts occur. The impact magnitude resulting from a single source or a combination of GHG emission sources over a larger region must be placed in geographic context for the following reasons: the environmental impact is global rather than local or regional; the effect is not particularly sensitive to the location of the release point; the magnitude of individual GHG sources related to human activity, no matter how large compared to other sources, is small when compared to the total mass of GHG resident in the atmosphere; and the total number and variety of GHG emission sources is extremely large, and the sources are ubiquitous.

Greenhouse gas information for DISA's proposed operations was not readily available for the NRC staff's review. If DISA cannot confirm that assumption 4 below would be met at a specific site, the NRC staff would conduct a site-specific review of greenhouse gas emissions.

Table 2. EPA-Established De Minimis Levels of Criteria Pollutants in Nonattainment Areas

Pollutant	Tons per Year
Ozone (VOCs or NOx):	
Serious NAAs	50
Severe NAAs	25
Extreme NAAs	10
Other ozone NAAs outside an ozone transport region	100
Other ozone NAAs inside an ozone transport region:	
VOC	50
NOx	100
Carbon monoxide: all maintenance areas	100
SO ₂ or NO ₂ : all NAAs	100
PM ₁₀ :	
Moderate NAAs	100
Severe NAAs	70
PM _{2.5} (direct emissions, SO ₂ , NOx, VOC, and ammonia):	
Moderate NAAs	100
Serious NAAs	70
Pb: all NAAs	25

Source: <https://www.epa.gov/general-conformity/de-minimis-tables>, accessed July 8, 2025

Note: VOCs = volatile organic compounds, NOx = nitrogen oxides, CO = carbon monoxide, PM = particulate matter, SO₂ = sulfur dioxide, Pb = lead, NAA = nonattainment area

Table 3. EPA-Established De Minimis Levels of Criteria Pollutants in Maintenance Areas

Pollutant	Tons per Year
Ozone (NOx), SO ₂ or NO ₂ : all maintenance areas	100
Ozone (VOCs):	
Maintenance areas inside an ozone transport region	50
Maintenance areas outside an ozone transport region	100
Carbon monoxide: all maintenance areas	100
PM ₁₀ : all maintenance areas	100
PM _{2.5} (direct emissions, SO ₂ , NOx, VOC, and ammonia): all maintenance areas	100
Pb: all maintenance areas	25

Source: <https://www.epa.gov/general-conformity/de-minimis-tables>, accessed July 8, 2025

Note: VOCs = volatile organic compounds, NOx = nitrogen oxides, CO = carbon monoxide, PM = particulate matter, SO₂ = sulfur dioxide, Pb = lead

Table 4. Estimates of Air Emissions from Generators and Earthmoving Activities

Tiers	Generator Air Emissions Total Project Mass (US tons)				Project Particulate Matter (PM10) Air Emissions Total Mass (US tons)		
	NOx	HC	CO	PM	Scraping	Load/Unload	Scraper Transit
Tier 1	1.36	0.00224	0.0402	0.00446	0.0296	3.00	0.273
Tier 2	7.22	0.0131	0.394	0.0394	0.148	15.0	0.610
Tier 3	20.1	0.0331	0.595	0.0661	0.296	30.0	0.863
Tier 4	154	1.31	24.0	2.61	1.48	150	1.93
Tier 5	232	10.3	35.2	3.34	2.96	300	2.73

Source: modified from DISA 2025b.

Note: NOx = nitrogen oxides, HC = hydrocarbons, CO = carbon monoxide, PM = particulate matter

Table 5. Estimates of Air Emissions from Vehicles

Tiers	No. of 50 TPH HPSA Units	Mob/Demob Trucks	No. of Vehicle Miles*	Mobilization Truck Emissions (US tons)						Demobilization Truck Emission (US tons)						Truck Emissions During Operations (US tons)								
				VOC	THC incl. Methane	CO	NOx	PM2.5	PM10	VOC	THC incl. Methane	CO	NOx	PM2.5	PM10	No. of Weeks	Total No. of Trucks	Total No. of Miles	VOC	THC incl. Methane	CO	NOx	PM2.5	PM10
Tier 1	1	12	3,300.00	0.002	0.002	0.008	0.031	0.001	0.001	0.002	0.002	0.008	0.031	0.001	0.001	37	999	178,071.75	0.088	0.090	0.453	1.687	0.040	0.043
Tier 2	1	12	3,300.00	0.002	0.002	0.008	0.031	0.001	0.001	0.002	0.002	0.008	0.031	0.001	0.001	185.19	5000	891,250.00	0.438	0.449	2.266	8.444	0.198	0.215
Tier 3	2	24	6,600.00	0.003	0.003	0.017	0.063	0.001	0.002	0.003	0.003	0.017	0.063	0.001	0.002	185	9805	1,747,741.25	0.859	0.881	4.443	16.559	0.388	0.421
Tier 4	3	36	9,900.00	0.005	0.005	0.025	0.094	0.002	0.002	0.005	0.005	0.025	0.094	0.002	0.002	617	49360	8,798,420.00	4.326	4.436	22.366	83.359	1.955	2.120
Tier 5	4	48	13,200.00	0.006	0.007	0.034	0.125	0.003	0.003	0.006	0.007	0.034	0.125	0.003	0.003	926	98156	17,496,307.00	8.603	8.820	44.477	165.765	3.888	4.215

*Assumes 275 (57% of Trucks) miles for mobilization/demobilization and fines concentrates recycling. Assumes 50 miles for fuel and water trucks, each (43% of Trucks).

Source: modified from DISA 2025d.

Note: VOC = volatile organic compounds, THC = total hydrocarbons, CO = carbon monoxide, NOx = nitrogen oxides, PM_{2.5} = particulate matter (2.5 microns), PM₁₀ = particulate matter (10 microns)

Table 6. Estimates of Total Air Emissions in US Tons

Tiers	No. of Operating Weeks	VOC	THC, incl. methane	CO	NOx	PM _{2.5}	PM ₁₀
Tier 1	37	0.091	0.095	0.510	3.107	0.041	3.318
Tier 2	185	0.441	0.466	2.675	15.713	0.200	15.856
Tier 3	185	0.866	0.921	5.070	36.781	0.391	31.338
Tier 4	617	4.336	5.749	46.372	237.709	1.959	156.611
Tier 5	926	8.616	19.100	79.708	397.529	3.894	310.196

Source: modified from DISA 2025d.

Notes: Particulates from heavy equipment and generators are added to PM₁₀.

VOC = volatile organic compounds, THC = total hydrocarbons, CO = carbon monoxide, NOx = nitrogen oxides, PM_{2.5} = particulate matter (2.5 microns), PM₁₀ = particulate matter (10 microns)

3.6.3 Conclusions and Bounding Assumptions

Based on the analysis presented above, the NRC staff concludes that the potential impacts on air quality from issuing DISA a license for the HPSA process would be NOT SIGNIFICANT at any AUM waste site that is consistent with the following assumptions:

- Emissions of criteria pollutants during construction, operation, and demobilization would not exceed *de minimis* levels established by the EPA under the General Conformity Rule (Title 40 of the *Code of Federal Regulations* (40 CFR) part 93).
- Exposures of radiological emissions to workers and the public would be limited to NRC regulations for the protection of workers and the public, as identified in the assumptions in section 3.11.3 of this EA.
- The potential for fugitive dust from emissions sources would be minimized by implementing dust control mitigation measures, such as wetting surfaces, applying gravel to dirt roads, and covering areas or containers of mine waste, coarse material, and fines concentrates.
- GHGs emitted by equipment and vehicles during construction, operation, and demobilization would be less than the quantity of CO₂ equivalents determined to be significant by the State or the EPA, whichever applies in the State of proposed HPSA operations.

The NRC staff would review site-specific information supplied by DISA in the PMN to determine whether the planned HPSA operations, conditions at a site, and potential impacts meet the assumptions presented above or whether some site-specific review is needed.

3.7 Noise

This section addresses the potential impacts from noise that would be generated by the proposed HPSA operations.

3.7.1 Affected Environment

Sound pressure levels are typically measured by using the logarithmic decibel (dB) scale. To assess potential noise impacts on humans, a special weighting scale was developed to account for human sensitivity to certain frequencies and duration of sounds. Generally, sound level changes of 3 dBA are barely perceptible, while a change of 5 dBA is readily noticeable by most people. A 10 dBA increase is usually perceived as a doubling of loudness. The U.S. Department of Housing and Urban Development regulations for exterior noise standards (24 CFR 51.101(a)(8)) state noise levels are acceptable if the day-night average sound level outside a residence is less than 65 dBA. Threshold noise levels from industrial sites are subject to threshold values from the National Institute for Occupational Safety and Health under the Occupational Safety and Health Act of 1970 (OSHA). OSHA's occupational noise standard in 29 CFR 1910.95 requires employers to establish a hearing conservation program when employees are exposed to noise at or above 85 dBA averaged over 8 hours. Noise abatement issues are also handled by State and local governments because there is no overarching Federal noise abatement program. The Navajo Nation uses the U.S. Department of Labor OSHA noise limits for all construction on Navajo lands (NRC 2023).

Aspects that influence the degree to which noise would affect any human or wildlife populations include the volume and duration of the noise, the distance to receptors (where dwellings or other sites of frequent human use exist), and landscape characteristics such as topography and foliage. AUM waste sites are predominantly located in remote areas of the 14 States DISA has identified and as shown on figure 1. Figure 2 shows two examples of AUM waste sites. Likely

features on AUM waste sites include excavations, waste rock piles, and varying slopes. These features affect the distance that noise from HPSA operations would travel. While most sites are likely not within hearing range of nearby residences, there may be some AUM waste sites with residences nearby, such as Tribal communities. As discussed in section 3.5 of this EA, terrestrial mammals, birds, reptiles, and other wildlife typical of the surroundings are likely to inhabit adjacent lands and be transiently present on the sites. Because most sites are likely in remote or rural areas, wildlife on the sites or adjoining lands is likely not to be adapted to human disturbances such as noise. Assuming that most AUM waste sites are in areas of sparse population and lack of development, the NRC staff estimates that the background noise level is similar to that of a quiet rural area, around 30 dBA.

3.7.2 Environmental Impacts

The primary sources of noise from the proposed action would be noise from the HPSA units during operation, from the diesel generators, and from vehicles such as tractor trailers, water and fuel trucks, personnel trucks, and earthmoving vehicles. DISA anticipates that noise levels from HPSA operations would be below 85 dBA at the location of operations. Using the inverse square law calculation for estimating noises propagation, DISA estimated that noise levels 100 feet from the HPSA equipment would be about 40 dBA less than the noise levels 1 foot from the HPSA equipment (DISA 2025b). ER table 1-2 indicates that noise levels from HPSA units at 100 feet away from the units would range from about 59 dBA (tier 1) to 70 dBA (tier 5) (DISA 2025b). Noise from trucks and earth moving equipment would likely exceed the OSHA standard of 85 dBA, ranging from 80 to over 100 dBA. Hearing protection would be standard for all employees and visitors during HPSA operations. Noise levels decrease by approximately 6 dBA for each doubling of distance from the source, and further reduction occurs when the sound energy has traveled far enough to have been appreciably reduced by absorption into the atmosphere (NRC 2023).

The NRC staff expects that noise impacts from the proposed action would be noticeable to any residents or to wildlife within close proximity to HPSA operations or access roads. For this EA, the NRC staff assumes there would be no nearby residences and no sensitive wildlife populations. If DISA chooses to operate at an AUM waste site with nearby residences or sensitive wildlife populations, the NRC staff would conduct a site-specific review of potential noise impacts on these receptors.

3.7.3 Conclusions and Bounding Assumptions

Based on the analysis presented above, the NRC staff concludes that the potential noise impacts associated with issuing DISA a license for the HPSA process would be NOT SIGNIFICANT at any AUM waste site that is consistent with the following assumptions:

- Nearest receptors (e.g., residences) are at least 1000 feet from the site of proposed HPSA operations.
- Noise levels from trucks and earthmoving equipment at the nearest sensitive receptor will be less than 50 dBA.

The NRC staff would review site-specific information supplied by DISA in the PMN to determine whether the planned HPSA operations, conditions at the site, and potential impacts would be consistent with the assumptions presented above or whether some site-specific review is needed. If the NRC staff determines that any of these assumptions would not be met, the staff would conduct an appropriate site-specific evaluation of potential noise-related impacts.

3.8 Historic and Cultural Resources

Historic and cultural resources are the remains of past human activities and include precontact (i.e., prehistoric) and historic era archaeological sites, districts, buildings, structures, and objects. Historic and cultural resources also include elements of the cultural environment such as landscapes, sacred sites, and other resources that are of religious and cultural importance to American Indian Tribes, such as traditional cultural properties (TCPs) important to a living community of people for maintaining its culture. A historic or a cultural resource is deemed to be historically significant, and thus a “historic property” within the scope of the NHPA, if it has been determined to be eligible for listing or is listed on the National Register of Historic Places (NRHP). The NRHP is maintained by the U.S. National Park Service in accordance with its regulations in 36 CFR part 60. The NRHP criteria to evaluate the eligibility of a property are set forth in 36 CFR 60.4.

3.8.1 Affected Environment

Section 106 of the NHPA requires the NRC staff to consider the effects of the proposed licensing action on historic properties. The proposed action is to license the HPSA technology. As discussed in section 1.4 of this EA, when DISA identifies AUM waste sites for operating the HPSA process, DISA would notify the NRC and provide site-specific information for NRC staff review.

DISA is exploring using the HPSA process, if approved, in 14 western States. Broad and general information regarding the affected environment and the potential impacts on historic and cultural resources from the ER (pp. 52–53 and pp. 64–65) is incorporated by reference (DISA 2025b). This information was independently considered by the NRC staff.

Once DISA identifies specific AUM locations for HPSA operations, the NRC staff would review the site-specific information and initiate consultation to assess the potential impacts on cultural and historic resources. For a specific site, the NRC would establish the undertaking, identify consulting parties, and determine the scope of potential effects by defining the area of potential effect (APE). The APE is the area that may be directly (e.g., physical) or indirectly (e.g., visual and auditory) affected by activities during construction or operations. The NRC staff would rely on preliminary recommendations made by qualified professionals, who meet the Secretary of Interior’s standards at 36 CFR part 61, in determining whether NHPA historic properties at a specific AUM waste site would be or would not be adversely affected. If a historic or cultural resource (such as a TCP) does not meet the criteria to be designated as a historic property under the NHPA, the NRC would assess the potential impacts on that resource in an appropriate site-specific evaluation.

The Quapaw Nation submitted correspondence to the NRC staff on June 17, 2025 (Quapaw Nation 2025), which included a map of the Tribe’s area of interest. With the exception of Texas, the Quapaw’s area of interest does not include the States DISA has identified for possible HPSA operation. The NRC staff responded via email to address the Tribe’s correspondence and provide additional information on the current licensing project and the subsequent site-specific reviews (NRC 2025d).

3.8.2 Environmental Impacts

The NRC's undertaking under Section 106 is the proposed licensing of the HPSA technology (or process), and there is no APE associated with this proposed licensing action. Thus, the NRC's staff's NHPA Section 106 responsibilities are complete for the licensing undertaking according to 36 CFR 800.3(a)(1), which states: "If the undertaking is a type of activity that does not have the potential to cause effects on historic properties, assuming such historic properties were present, the agency official has no further obligations under section 106 or this part." As discussed below, the NRC's consultation and assessment of the potential effects of HPSA operations on cultural and historic properties would occur when specific sites are identified.

Although the land disturbing activities associated with HPSA operations would generally occur in areas that have already been heavily disturbed, the potential for impacts to historic and cultural resources is unknown. Therefore, site-specific reviews must be conducted to determine whether historic and cultural resources would be affected by HPSA operations. To ensure appropriate and timely NHPA Section 106 reviews of site-specific undertakings, the license would require that DISA submit historic and cultural resources information in the PMN (see appendix A). The staff would also impose license conditions regarding surveys, ground-disturbing activities, and inadvertent discoveries.

If historic and cultural resource investigations at a specific AUM waste site do not identify historic properties within the APE for that site, the NRC would make a finding of *no historic properties affected* in accordance with 36 CFR 800.4(d)(1). The NRC would provide documentation of these findings for review and concurrence to the State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO), American Indian Tribes, and interested members of the public in accordance with documentation standards set forth in 36 CFR 800.11(d). If historic properties are identified but would not be impacted by the proposed HPSA activities, or if the impacts can be minimized or avoided, the NRC staff would apply the criteria for *no adverse effect* on historic properties outlined in 36 CFR 800.5(b). The NRC would provide documentation of these findings for review and concurrence to the SHPO or THPO, American Indian Tribes, and interested members of the public in accordance with documentation standards set forth in 36 CFR 800.11(e).

If historic properties are identified within the APE for a specific AUM waste site and cannot be avoided by the proposed activities, the NRC staff would apply the criteria of *adverse effect* to historic properties outlined in 36 CFR 800.5(a). Adverse effects result when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion on the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. These include physical destruction or alteration of a property's characteristics that contribute to its historic significance. Examples of adverse effects are described in 36 CFR 800.5(a)(2). The NRC staff would provide documentation of this finding to the Advisory Council on Historic Preservation, the SHPO or THPO, American Indian Tribes, and interested members of the public for review and concurrence in accordance with documentation standards set forth in 36 CFR 800.11(e). The NRC would consult with the same parties regarding the resolution of adverse effects and develop measures to avoid, minimize, or mitigate the adverse effects. Such measures to address adverse effects are typically documented in a memorandum of agreement or a programmatic agreement.

Impacts on historic and cultural resources and historic properties can be avoided or minimized through the development of site-specific historic and cultural resource protection procedures (in

addition to the generic license conditions discussed above). These procedures would be developed as needed for each site in accordance with applicable State and Tribal requirements and would outline stop work and notification protocols in the event that archaeological materials or human remains are inadvertently discovered during construction, operation, or demobilization activities. The procedures should follow State burial laws if the site is on non-Federal land or the Native American Graves Protection and Repatriation Act (25 U.S.C. §§ 3001 et seq.) if the site is on Federal land. Measures to avoid, minimize, and mitigate adverse effects on historic properties (i.e., stop work and notification procedures) must be developed in consultation with the SHPO or THPO and Tribes.

3.8.3 Conclusions and Bounding Assumptions

Based on the analysis presented above, the NRC staff concludes that the potential impacts to historic and cultural resources from issuing DISA a license for the HPSA process would be NOT SIGNIFICANT at any AUM waste site that meets the following assumptions:

- The NHPA Section 106 process for the site, which includes consultation with the relevant SHPO or THPO and with potentially affected Tribes, is successfully concluded.
- DISA complies with its license conditions and any applicable Federal, Tribal, State, and/or local historic and cultural resources regulations.
- In accordance with the results of consultation under Section 106, DISA implements avoidance, minimization, and/or mitigation measures to address potential effects on historic and cultural resources.

The NRC staff would review site-specific information supplied by DISA in the PMN before initiating consultation to determine whether the planned HPSA operations and conditions at the site could affect cultural and historic resources. The staff would document the results of consultation and resource identification efforts in a site-specific supplement (see section 1.4 of this EA).

3.9 Visual and Scenic Resources

The following section addresses potential impacts to the visual and scenic properties of sites where the HPSA technology would be implemented.

3.9.1 Affected Environment

Background conditions influencing visual impacts include land cover and topography on the site and surrounding landscape, weather patterns and conditions, the height of existing structures and vegetation, and proximity to land uses such as parks and residences that could be sensitive to nearby visual changes. Proximity can be expressed in terms of whether a site lies in the viewshed of, i.e., is visible from, a sensitive land use. DISA notes that most prospective AUM waste sites have the typical appearance of old mine sites with waste piles and an unnatural appearance (DISA 2025b). The NRC staff expects that old roadways and sometimes abandoned structures may be present, contributing further to the unnatural appearance. Vegetation on the sites may be sparser and visually contrast with natural vegetation occurring in the surrounding landscape. Many AUM waste sites are, however, located in remote areas with little or no other nearby development, especially urban development, and smaller sites may blend in visually with the surrounding natural or rural landscape. Any degradation of the visual properties of the surrounding landscape would be influenced by the size and properties of the abandoned mine, such as the presence of pits and structures, and the extent of other past land

disturbances. The contrast of an AUM waste site with the surrounding landscape would not only be influenced by the site's physical properties noted above but also by the length of time passed since abandonment, and by regional attributes such as precipitation and other climate factors and soil properties that contribute to the ability of natural vegetation to become restored to previously disturbed land through natural succession (see section 3.5.1).

3.9.2 Environmental Impacts

In the short-term, implementation of HPSA would return an active industrial appearance to an AUM waste site. Preparation and mobilization would involve clearing and grubbing vegetation, grading and compaction of soil, building temporary staging and parking areas, and placement of temporary structures. Sites undergoing HPSA operations would have the general appearance of active industrial construction sites, with movement and staging of trucks and other large vehicles, the presence of workers, and piles of soil. Sites would appear more industrial than when they were still abandoned and would likely contrast more with surrounding rural and natural landscapes. For sites situated in remote landscapes, these visual changes would be experienced only by a few people and have a low chance of affecting the use and enjoyment of visually sensitive features such as parks and residences. Sites close to highways would appear similar to surface mining or land development projects.

Implementation of HPSA at certain sites could appear visually objectionable if the sites are visible from (in the viewshed of) visually sensitive locations such as residential areas; National, State, or local parks; historical sites; conservation lands; or specially designated features such as Wild and Scenic Rivers or American Heritage Rivers. Especially in the remote settings for many AUM waste sites, nighttime lighting necessary for HPSA implementation could intrude on otherwise dark landscapes (light pollution). Most people do not like the appearance of land disturbance or man-made light sources from their residences, and people visiting parks and other specially designated features expect a natural appearance not intruded upon by cleared vegetation, exposed soils, heavy equipment, or human and vehicular activity.

The effects noted above would be temporary at most sites (less than a few years). As stated in ER section 4.9.2, the outcome of the HPSA process would be to render treated sites suitable for reclamation to a more natural appearance. Once work is finished, DISA would remove the structures and vehicles from the site, and soils would be graded to produce a natural appearing topography compatible with the surrounding landscape. Revegetation and natural vegetation successional processes would over time return a more natural vegetated appearance to the site. The remediated sites can be expected over time to blend in visually with natural surroundings.

3.9.3 Conclusions and Bounding Assumptions

Based on the analysis presented above, the NRC staff concludes that the potential impacts to visual and scenic resources from issuing DISA a license for the HPSA process would be NOT SIGNIFICANT at any AUM waste site that is consistent with the following assumptions:

- Upon completion of work at a site, DISA would remove all structures, vehicles, equipment, gravel, and other physical items from the site. DISA may or may not leave any gravel applied to roads.
- As stated in the ER, DISA would implement best management practices for soil erosion and sediment control and stormwater management and comply with related State and local requirements.

- Once work on a site is completed, DISA would grade the coarse material into a topography typical of natural conditions that blends naturally into the site surroundings. DISA would seed and permanently stabilize the land surface.

The NRC staff would review site-specific information supplied by DISA in the PMN to determine whether the planned HPSA operations, conditions at the site, and potential impacts would be consistent with the impacts and assumptions presented above or whether some site-specific review is needed.

3.10 Socioeconomics

This section describes the general demographic characteristics of AUM areas and the potential socioeconomic impacts from the proposed action.

3.10.1 Affected Environment

AUM waste sites in the Western US are generally located at significant distances from communities or may be near small and/or impoverished communities, including American Indian communities. For example, most AUM waste sites from defense mining are located on the Navajo Nation, and the remainder of these former defense mines are on lands of the Pueblo of Laguna, the Pueblo of Zuni, the Hualapai Tribe, the Tohono O'odham Nation, the Spokane Tribe of Indians, and the Ute Indian Tribe (DOE 2021).

Most areas around AUM waste sites likely face significant challenges in terms of social services. Educational facilities in these regions may be limited and hospitals and healthcare services are typically sparse, with residents sometimes needing to travel long distances to access medical care. Other essential services, such as public transportation, community centers, and recreational facilities, may also be scarce or not sufficient for the needs of rural communities. Many communities near AUM waste sites also struggle with the long-term health and socioeconomic effects of the mines that resulted in the loss of livelihoods and practices involving the land, such as agricultural and grazing activities and practices of cultural significance.

In table 3-10 of the ER, DISA presented socioeconomic information for seven communities, stating that these communities were chosen based on their locations generally near large concentrations of AUM waste sites. These communities are Glade Park in western Colorado, Monticello in southeastern Utah, Casper in central-eastern Wyoming, Gallup in northwestern New Mexico, Wickenburg in central-western Arizona, Yerington in western Nevada, and Dubois in eastern Idaho. As of 2022, the populations in these communities ranged from 511 (Dubois) to about 60,000 (Casper). The number of households ranged from 255 (Dubois) to 24,850 (Casper) and the median income ranged from about \$34,000 (Dubois) to about \$75,000 (Glade Park). The poverty level ranged from 1 percent (Dubois) to over 33 percent (Gallup) (DISA 2025b).

3.10.2 Environmental Impacts

DISA estimates that the number of full-time employees needed for HPSA operations would range from five employees at tier 1 sites to 17 employees at tier 5 sites, as shown in table 7. The sizes of nearby communities would determine how readily the communities could accommodate 17 full-time workers. DISA expects that larger towns within 1.5 hours of HPSA sites will be large enough to accommodate 17 employees, that all DISA employees would be housed within 1.5 hours of a HPSA treatment site, and that no local residents would be

displaced (DISA 2025d). The NRC staff concludes these are reasonable assumptions. HPSA operations could provide jobs for people who already live in communities in areas where several prospective sites are located (AUM clusters). For example, if DISA operates at two tier 5 sites near these communities, HPSA operations could provide more than 30 jobs for up to eighteen years. Operating at tier 1 or tier 2 sites, in contrast, could provide five jobs for less than one year to about 3.5 years.

HPSA operations would result in increased commercial activity for fuel, food, hardware, and hotel use, and the degree of increase would depend on the tier of HPSA operations and the number of sites DISA operates within a particular region. HPSA operation at AUM clusters would increase commercial activity and tax receipts for nearby communities and counties. DISA estimated tax benefits for the five HPSA operating tiers using Montrose County, Colorado, as an example. These estimates are presented in table 7 and are based on estimates of expenditures using the Government Services Administration per diem rates and an estimate of \$1,000/month for supplies (DISA 2025b).

The socioeconomic impacts of HPSA operations on local communities would depend on the scale and duration of HPSA operations in an area and on the size of the nearby communities. The NRC staff concludes that HPSA operations at the tier 1 to tier 2 level would have small but not noticeable socioeconomic effects on nearby communities, while operation at one or more tier 5 sites in a clustered area could have noticeable commercial effects on very small adjacent communities.

HPSA operations could result in making previously contaminated AUM land available for recreational, agricultural, or grazing uses, or traditional cultural uses. These would be long-term beneficial impacts of the proposed action and would likely be noticeable to nearby communities.

3.10.3 Conclusions and Bounding Assumptions

Based on the analysis presented above, the NRC staff concludes that the potential socioeconomic impacts resulting from issuing DISA a license for the HPSA process would be NOT SIGNIFICANT at any AUM waste site that is consistent with the following assumptions:

- Clustered HPSA operations at two or more tier 5 sites could be accommodated by a nearby community (within a 1.5-hour drive) that can easily accommodate 30 or more employees for up to eighteen years. Very small nearby communities would not experience noticeable negative socioeconomic impacts from HPSA operations.
- No local residents would be displaced by any HPSA operation.
- The increase in local traffic as a result of HPSA operations would not require changes to traffic patterns, and nearby residents would not experience noticeable increases in traffic.

The NRC staff would review site-specific information supplied by DISA in the PMN to determine whether the planned HPSA operations, conditions at the site, and potential impacts meet the assumptions presented above or whether site-specific review is needed.

Table 7. DISA's Estimates for Each Operating Tier: Number of Employees and Tax Revenues (using Montrose, CO as example)

Tier	HPSA Operators	Radiation Safety	Supervisor	Heavy Equipment Operator	Total Persons	Person Days	Person Weeks	Person Months	Lodging (\$1600/mo.)	Meals (\$74/day)	Supplies	Income Tax (4.4%)	Sales Tax Meals (8.53%)	Sales Tax Supplies (8.53%)	Fuel Taxes (\$0.205/gal)	Total Taxes
Tier 1	2	1	1	1	5	925	185	46.25	\$74,000.00	\$68,450.00	\$46,250.00	\$3,256.00	\$5,838.79	\$3,945.13	\$1,537.50	\$14,577.41
Tier 2	2	1	1	1	5	4630	926	231.5	\$370,400.00	\$342,620.00	\$231,500.00	\$16,297.60	\$29,225.49	\$19,746.95	\$1,537.50	\$66,807.54
Tier 3	4	1	1	2	8	7408	1481.6	370.4	\$592,640.00	\$548,192.00	\$370,400.00	\$26,076.16	\$46,760.78	\$31,595.12	\$1,537.50	\$105,969.56
Tier 4	6	2	2	3	13	40118	8023.6	2005.9	\$3,209,440.00	\$2,968,732.00	\$2,005,900.00	\$141,215.36	\$253,232.84	\$171,103.27	\$3,075.00	\$568,626.47
Tier 5	8	3	2	4	17	78710	15742	3935.5	\$6,296,800.00	\$5,824,540.00	\$3,935,500.00	\$277,059.20	\$496,833.26	\$335,698.15	\$3,075.00	\$1,112,665.61

Sources: DISA 2025b, 2025d.

3.11 Public and Occupational Health

This section addresses the potential radiological and non-radiological impacts on workers and the public from the proposed action.

3.11.1 Affected Environment

DISA proposes to operate the HPSA technology at AUM waste sites to clean up the residual radioactivity in the waste rock piles. There are an estimated 15,000 such sites in the Western US (DISA 2025b). While the specific conditions at each site vary, all of the sites contain elevated levels of radionuclides that pose a potential health risk to local communities and ecology.

Table 3-4 in the ER shows concentrations of the eight RCRA metals in waste rock from a test sample in Colorado (DISA 2025b). While none of the metals were observed in concentrations near the RCRA waste limit for hazardous waste, the nearest concentration observed was for arsenic at 0.3 mg/L, about 6 percent of the RCRA limit of 5 mg/L. Most of the RCRA metals concentrations were below the detection limit (DISA 2022). Therefore, the NRC staff concludes that the mine waste rock from the test sample is a radiological concern but not a hazardous waste concern.

The NRC staff expects the chemical composition of the potential HPSA sites would vary significantly depending on the site geology and history. DISA would perform confirmatory testing before mobilization to each site to establish the site characteristics and confirm that the HPSA process can sufficiently treat the site to achieve unrestricted release. The PMN provided to the NRC would include an assessment of the heavy metal concentration in the waste rock pile. The NRC staff assumes the heavy metal concentrations at AUM waste sites would be below the RCRA limits for the majority of sites and, therefore, the waste rock piles would be a potential radiological hazard but not a chemical hazard.

Prior to mobilization, DISA would perform characterization surveys at a potential site, including background surveys, assessments of the volume and chemical composition of mine waste to be treated, estimates of the mass of source material, and calculated current dose rates. DISA would submit the PMN to the NRC before mobilizing to a site.

Background surveys would be performed in 5-meter by 5-meter sample plots within 0.25 mile upgradient and upwind of the uranium mine waste pile (DISA 2025d). Background surveys would be performed with walkover GPS-gamma scans and nine shallow surface samples in a square within the 5x5 sample grid. The nine samples would be blended and tested as a composite sample for uranium, thorium-230, and radium-266. The total effective dose equivalent (TEDE) from background at each site would be calculated from the uranium, thorium, and radium concentrations along with an averaged gamma count from the sample plot.

DISA would not mobilize to a site if laboratory testing demonstrates that the mine waste at that site is not amendable to HPSA treatment and that DISA could not effectively reduce the source material present onsite to allow for unrestricted release of the site after treatment (DISA 2025c).

3.11.2 Environmental Impacts

The non-radiological hazards for workers would be typical for an outdoor industrial activity of this size. There would be temporary use of heavy machinery to gravel dirt roads for sites that do

not already have sufficient road conditions and to bring equipment to the site. Once operating at the site, DISA would need earthmoving machinery to move the waste rock piles to the HPSA units and would have daily deliveries of water and of trailers for fines storage.

Most sites would have no major chemical occupational hazards since most sites would be below RCRA limits for heavy metal contamination and the HPSA system mechanically separates material without the use of chemical processing. For this EA, the NRC staff assumes the mine waste to be processed through HPSA would not contain non-radiological hazardous contaminants above RCRA limits and would not result in fines concentrates classifiable as RCRA hazardous waste or mixed waste as defined in 40 CFR part 266.

Tetra Tech conducted a bench scale treatability study utilizing DISA's HPSA unit and soil from three AUM waste sites in New Mexico and Arizona. Exhibits 3, 4, and 5 in the treatability study report show that the HPSA process operating for 30 minutes or less successfully removed between 71.2 and 94.3 percent of the radium and uranium at two sites (Tetra Tech 2023). At the third site, the system removed 61 and 51.2 percent of uranium and radium, respectively, after 30 minutes of treatment. The treatability study demonstrated that the HPSA technology can meaningfully reduce radiological contamination at most AUM waste sites, but it is more effective in soils with lower clay content and higher coarse particle size (Tetra Tech 2023).

Implementation of the HPSA technology would result in a radionuclide distribution that would be heavily dependent on the site characteristics and cannot be determined generically. The NRC staff would review the effectiveness of the HPSA unit during the PMN review to confirm the treatment of AUM waste at a site could result in radionuclide concentrations in the coarse fraction below NRC regulatory limits.

3.11.2.1 Occupational Dose

DISA calculated the maximum occupational external dose from the operation of a HPSA unit at a site as 98.08 mSv/yr (9808 mrem/yr) (table 8). While above the regulatory limit of 0.05 Sv/yr (5 rem/yr), this exposure assumes that site workers would behave in unrealistic ways (e.g., standing adjacent to the source term for the entire workday every day). The occupational average external dose was calculated to be 8.7 mSv/yr (870 mrem/yr) and is a more realistic upper limit given the site geometry and expected level of worker effort. DISA would institute standard operating procedures (SOPs) to ensure worker safety and reduce exposure during operations by following an established radiation protection plan and the ALARA program (DISA 2025b).

The occupational dose in Section 7 of the application was calculated assuming worker occupancy as 8 hours a day, 7 days a week, 9 months a year. For larger sites where DISA is operating for longer than 2 years, no mobilization or demobilization activities would occur within some years and the worker occupancy times would likely be longer than the timeframes in table 7-3 of the application. However, the average calculated dose would remain below regulatory limits if the occupancy time was increased to a maximum of 8 hours/day, 7 days a week, for 12 months for a total of 2920 hours. A full year occupancy for workers would result in an average external dose of 11.76 mSv/yr (1176 mrem/yr), about 23 percent of the 0.5 Sv/yr (5 rem/yr) limit in 10 CFR 20.1201(a)(i). Add to this dose the internal dose for occupational receptors in table 7-9 of the application, and the TEDE for workers would be 11.82 mSv/yr (1182 mrem/yr). This is a highly conservative dose because it is unlikely any worker would work 8 hours a day every day of the year. Additionally, the internal dose of 0.056 mSv/yr (5.6 mrem/yr) in table 7-9 of the application requires unrealistic work conditions (e.g., workers would need to stand between the

HPSA and feed pile for the full workday). DISA would provide personal protective equipment and establish SOPs to reduce dose and would follow an established ALARA program.

Table 8. Modeled External Dose Rates and Annual Doses – Workers and the Public

Case	Type	Dose Rate (mrem/hr)	Annual Dose (mrem)	Dose Limit (mrem)	Percent of Limit
Maximum	Occupational	4.54	9808	5,000	196%
	Public	0.05	22	100	22%
Average	Occupational	0.40	870	5,000	17%
	Public	0.02	6.7	100	6.7%
Median	Occupational	0.11	246	5,000	5%
	Public	0.01	4.4	100	4.4%

Source: DISA 2025e, table 14-2

The calculated external dose in table 8 is for a site with one HPSA unit (tier 1 and tier 2 sites). The largest tier 5 sites identified in Table 1-1 of the ER would utilize up to 4 HPSA units at one site. The occupational external dose would increase for such sites because of the additional HPSA units and required fines concentrates storage trailers. If a worker were to be exposed to the average dose rate from all 4 HPSA units concurrently for the entire workday, the resulting external dose would be four times the average of one HPSA unit, 47.93 mSv/yr (4,793 mrem/yr). This is an unrealistic dose because the site geometry would likely preclude any location from receiving the same dose from all 4 HPSA units concurrently, and even if there were such a location at the site, no site workers would remain in that area for their entire workday. The occupational external dose at a tier 5 site would likely be significantly lower than modeled. Routine exposure rate measurements and air monitoring would be used to ensure doses remain below regulatory limits and ALARA. DISA stated that personnel who are likely to receive in one year an occupational dose from external sources in excess of 10 percent of the applicable regulatory limits in 10 CFR 20.1201 would be monitored by personnel dosimetry (DISA 2025b).

Personnel monitoring at sites may include track-etch radon detectors, optically stimulated luminescence samples for gamma exposure, or lapel samplers to measure airborne effluents when needed, as determined by the radiation safety officer (DISA 2025b). Air sampling would also be done within any restricted areas to ensure compliance with occupational dose in 10 CFR part 20 subpart C.

The fines concentrates would be stored in roll-off containers or dump trailers until they are transported offsite either as low-level radioactive waste or as feed for a uranium recovery facility. All fines concentrates trailers would be maintained in one area designated as a restricted area unless exposure rates warrant designation as a radiation area.

3.11.2.2 Public Dose

Because there are AUM waste sites near small communities that would have recreational areas, grazing or agricultural areas, or outdoor activities nearby, the NRC staff used the conservative bounding public occupancy factor of 1/20 (i.e., present for 1/20 of the year, or 438 hours a year) to calculate the public dose during operation. The occupancy factor of 1/20 is described in table I-2 of NUREG-1556, Volume 18, Revision 1 to include outdoor areas with seating and

recreational areas (NRC 2017). This bounding condition results in a maximum public external dose estimate of 0.22 mSv/yr (22 mrem/yr) (table 8).

DISA evaluated the potential external dose increase that would result from several HPSA units operating at the same site. Table 9 shows the expected increase for public external dose at the site boundary from 4 HPSA units (as compared to 1), and the added fines storage trailers. The average public external dose from a tier 5 site with four HPSA units was modeled to be 0.103 mSv/yr (10.3 mrem/yr), which is larger than the estimated average dose of 0.067 mSv/yr (6.7 mrem/yr) at a site with only one HPSA unit as described in table 8. The modeled average public dose is not four times larger for a tier 5 site with 4 HPSA units than a tier 1 with 1 HPSA unit because of the geometry of the units and the size of the site. No publicly available area would be situated near all HPSA units simultaneously at larger sites, and additional HPSA units farther away from the boundary would have diminished effects on the dose rate due to the increased distance. The NRC staff previously estimated that the maximum public external dose for a site with one HPSA unit (e.g., a tier 1 site) would be 0.22 mSv/yr (22 mrem/yr) based on the occupancy time of 1/20 in table I-2 in appendix I of NUREG 1556 Volume 18. No boundary location would receive the maximum dose from all four HPSA units simultaneously, and even if there were a publicly accessible area that could receive the maximum dose from all four HPSA units, the resulting dose would be 0.88 mSv/yr (88 mrem/yr), which is below the 1 mSv/yr (100 mrem/yr) regulatory limit.

Table 9. Estimated Public External Dose Rates and Total Annual Dose from Four HPSA Units and Extended Fines Storage Area

Source Term	Boundary Dose Rate ¹ (mrem/hr)	Total Dose ² (mrem)
HPSA units (tier 5, four units)	0.02	10.3
Extended fines storage area (tier 5, 64 storage trailers/bins)	0.02	6.4

Source: DISA 2025e, table 14-3.

¹ 50-foot boundary distance assumed

² Total external dose rate is a product of the calculated dose rate and occupancy scenarios described in Table 7-3 of the application

DISA calculated internal dose for members of the public at a 50-foot boundary during operations to be 0.005 mSv (0.5 mrem) or less at all receptor locations (DISA 2025e). The maximum dose of 0.005 mSv (0.5 mrem) added to the maximum external dose of 0.103 mSv (10.3 mrem) results in a maximum public TEDE during operation of 0.108 mSv (10.8 mrem), about 11 percent of the 100 mrem limit in 10 CFR 20.1301.

DISA would establish restricted areas during implementation of HPSA by installing temporary boundary fencing around locations for crushing and grinding, ablation, fines (source material) storage, and staging areas. DISA stated that the restricted area boundary would be adjusted as necessary to ensure that members of the public would not receive doses greater than 1 mSv/yr (100 mrem/yr) (DISA 2025b, 2025d).

Each HPSA site would have one perimeter air monitoring station upwind and two perimeter stations downwind of the operational area that would be equipped with gamma dosimeters and either track-etch detectors or continuous radon monitoring (DISA 2025d). Radon and gamma measurements from the site perimeter measurements would be used to confirm compliance with dose limits for individual members of the public as specified in 10 CFR 20.1302. DISA would operate air monitoring for air particulates, radon, and gross gamma for 12 months of operations at multiple sites to determine if the operations of HPSA units create significant

airborne radiological dose pathways. If the collected data shows the operations of HPSA units does not create a significant airborne radiological dose pathway, DISA would propose the elimination or reduction of air monitoring to DISA's Safety and Environmental Review Panel. For larger sites where DISA expects to operate for longer than 12 months, the review and subsequent proposal to reduce or eliminate the air monitoring program would be based on data from that site (DISA 2025e).

3.11.2.3 *Demobilization Activities and Surveys*

DISA stated that no site would include a cap or soil cover over redeposited coarse material. DISA would provide the NRC with laboratory results in the post-remediation report demonstrating the coarse material at the site meets the NRC and EPA regulatory limits for radiological and chemical contaminants of concern and can safely be used as fill material at the site. After demonstrating the coarse material meets unrestricted release criteria in 10 CFR 20.1402, DISA would regrade the material into the site topography and add seed as appropriate to stabilize and reduce wind erosion (DISA 2025d).

DISA would perform laboratory testing of site soils prior to mobilization to ensure the site is amenable to HPSA treatment. If the laboratory testing does not indicate that mine waste contamination can be effectively reduced, DISA would not mobilize to the site. If the coarse material does not satisfy the regulatory requirements for unrestricted release in 10 CFR 20.1402 after treatment, DISA would retreat the material until release criteria are met (DISA 2025c).

After HPSA operation at a site, DISA could release up to twice the system charge of water at the site using sprinkler nozzles. As discussed in Section 3.4 of this EA, the NRC staff expects this one-time discharge would not significantly impact the local environment if the bounding assumptions in section 3.4.3 are met.

DISA would establish in the PMN the dose model scenario for demonstrating compliance with regulatory limits for unrestricted release of a site based on the expected land use after remediation. DISA provided key criteria that would be used to determine the appropriate dose model. These criteria represent exposure scenarios that range from a resident farmer (most conservative) to a recreational use (least conservative) scenario (DISA 2025e). If more than one scenario could represent a reasonably possible future use of the site, DISA would utilize the more conservative model. The site-specific dose modeling would be reviewed by the NRC staff prior to mobilization to ensure the proposed remediation strategy is sufficient to protect the public and the environment. More information about the site-specific dose assessment will be available in the NRC staff's SER.

DISA would provide the NRC with a DMN that would include the total amount of waste rock treated and the final destination for the source material collected. The report would also include survey data and methodology used to determine the site meets regulatory requirements for unrestricted release of 0.25 mSv/yr (25 mrem/yr) above the background as established in the PMN.

3.11.3 **Conclusions and Bounding Assumptions**

Based on the analysis presented above, the NRC staff concludes that the potential public and occupational health impacts associated with DISA's proposed HPSA operations would be NOT SIGNIFICANT at any AUM waste site that is consistent with the following assumptions:

- Premobilization background radiation levels would be established by DISA and approved by NRC staff prior to DISA commencing HPSA operation.
- The average occupational external dose in tables 8 and 9 would be the maximum exposure at a site, or the cumulative external dose for any employee who works at more than one site in a year.
- DISA would establish a restricted area around any operational machinery or radiological storage areas of at least 50 feet to prevent public access to the site and minimize dose to the public.
- DISA would not deploy HPSA units to a site that does not fit the description provided in NUREG-1556, Volume 18, appendix I, table I-2 for occupancy factors of 1/20 or 1/40 (e.g., outdoor areas with seating, recreational areas, storage areas, or outdoor areas with only transient pedestrian or vehicular traffic).
- HPSA operations would not result in the onsite disposition of any material that has not been demonstrated to meet NRC requirements for unrestricted release in 10 CFR 20.1402 or for effluent concentration limits in 10 CFR part 20 appendix B.
- DISA would abide by the unrestricted release criterion in 10 CFR 20.1402, which is a TEDE of 0.25 mSv/yr (25 mrem/yr), excluding background. DISA would also ensure that the coarse material remaining onsite does not contain uranium in excess of 500 mg/kg, as specified in 10 CFR 40.13(a).
- As necessary to comply with mixed waste and RCRA requirements, DISA would confirm through laboratory testing that the fines concentrates do not contain sufficient concentrations of RCRA metals to be classified as RCRA hazardous waste prior to shipping offsite to a radioactive waste disposal facility or other properly licensed facility, such as a uranium mill.

The NRC staff would review site-specific information supplied by DISA in the PMN to determine whether the planned HPSA operations, conditions at the site, and potential impacts would be consistent with the assumptions presented above or whether some site-specific review is needed.

3.12 Waste Management

This section describes wastes and effluents that would be generated during the proposed HPSA operations, the potential receiving waste management facilities, and the potential impacts from waste generation and disposal.

3.12.1 Affected Environment

The environment potentially affected by HPSA-generated wastes would be the AUM waste sites as well as any potential facility licensed to receive effluent or waste material. As described in sections 1.2 and 3.1.1 of this EA, there are about 15,000 AUM waste sites primarily located in 14 western States, and the NRC staff expects that most AUM waste sites are characterized by physically disturbed soils that may support grassland, desert, forest or shrubland, cropland, or bare areas. DISA would provide site characterization information to the NRC in the PMN report for each site.

DISA could potentially ship the fines concentrates and water treatment solids to a uranium recovery site such as an in-situ uranium recovery facility or another type of processing facility, such as the White Mesa Uranium Mill in Blanding, Utah. DISA would need approval from a

receiving uranium recovery facility, and the receiving facilities themselves would need to ensure that they possess the authorization needed to accept the fines concentrates.

Alternatively, the fines concentrates and water treatment solids could be sent to a licensed storage facility pending disposal or recycling. DISA could also ship this material directly to a LLRW disposal facility along with any coarse material, process water, and other materials (e.g., rags) that do not meet NRC standards for unrestricted release. DISA would likely transport these LLRWs to the EnergySolutions facility in Clive, Utah (UDEQ 2025) or to the Waste Control Specialists (WCS) facility in Andrews, Texas (WCS 2022). Nonhazardous municipal waste (general trash) would be disposed of at local solid waste facilities.

3.12.2 Environmental Impacts

3.12.2.1 *Radioactive Wastes*

The NRC has adopted a waste classification system for LLRW based on its potential hazards, and has specified disposal and waste form requirements for each of the general classes of waste: classes A, B, and C. The classifications are based on the key radionuclides present in the waste and their half-lives. In general, Class A wastes have the least stringent requirements for waste form, stability, and disposal methods, and Class C wastes have the most stringent requirements. Any radioactive waste resulting from HPSA operations would likely be class A waste.

The proposed action would generate fines concentrates as one of the primary byproducts of the HPSA process. The fines concentrates would contain uranium and/or thorium along with other metals. DISA would store this material in a trailer onsite and would implement security measures as needed depending on the site-specific conditions. Security measures could include the use of locking and leak-proof storage containers, temporary fences, GPS trackers on storage containers, video cameras with cell tower connectivity, portable security systems, portable site lighting, and/or guards if necessary (DISA 2025b). The fines concentrates could be feed material for a uranium recovery facility (not considered waste) or LLRW. DISA would need to provide detailed information about the composition of the material to any receiving facility, including a storage facility, and would need approval from the receiving facility and from regulatory authorities, such as the State, as appropriate.

In addition, HPSA operations would generate water treatment solids, rags, process water, and coarse material. DISA expects that the coarse material would meet NRC release requirements and could be deposited onsite after HPSA operations conclude. DISA expects that the process water either would be reused at another site or could be discharged onsite if it meets NRC release requirements (see section 3.4 of this EA) (DISA 2025b, 2025d). This discharged water would also need to meet any other applicable Federal, State, or Tribal requirements. If the coarse material or process water do not meet NRC requirements, these materials could be disposed of at a licensed LLRW disposal facility. For this EA, the NRC staff assumes that all coarse material and all process water would meet the NRC release requirements and would not need to be disposed of as LLRW. The NRC staff further assumes that the coarse material would be deposited onsite, graded into the existing topography, and seeded. The NRC staff assumes that the process water either would be reused at another site or would be discharged onsite in compliance with NRC requirements and with State or EPA requirements for all nonradioactive constituents.

Table 10 lists the types and quantities of byproducts and wastes that would be generated as a result of the proposed HPSA operations. For this EA, the NRC staff assumes the only LLRW that would be sent on a routine basis to a LLRW disposal facility would be incidental LLRW, such as any rags or other materials that are not found to be releasable. Such quantities of LLRW would not significantly affect the capacity of any receiving LLRW facility. The material would not be stored onsite after HPSA operations have concluded.

3.12.2.2 Nonradioactive Wastes

The proposed action would generate nonradioactive municipal solid waste consisting of typical household trash (e.g., food waste, cans, paper products) and items such as rags that are not LLRW. DISA does not expect to generate any construction or demolition wastes, because the assembly and dismantling of the HPSA units would not involve construction materials (DISA 2025d). As discussed above, process water and coarse material that meets NRC release standards would be deposited onsite in accordance with applicable requirements. Hazardous wastes that could be generated include incidental wastes created by maintenance activities, such as rags with waste solvents or oils. Any minor quantities of hazardous or other regulated wastes would be stored in labeled containers and disposed of in accordance with EPA, State, and local requirements.

Table 10 provides a summary of the nonradioactive wastes that would be generated as a result of the proposed action. The quantities of routine nonradioactive wastes would be small and would not noticeably affect the capacity of local receiving facilities.

Table 10. HPSA Byproduct and Waste Generation

Material	Onsite Management	Disposition	Estimated Quantities
<i>Potentially Radioactive</i>			
Fines concentrates	Store temporarily in roll-off containers or dump trailers within restricted area.	Ship offsite for use as feed material at a uranium recovery facility, for storage at a designated storage facility, or for disposal at a licensed LLRW facility.	<i>Total:</i> 20,000 (tier 1 sites) to 2 million (tier 5 sites) tons ¹ <i>Weekly:</i> 240 (tier 1) to 960 (tier 5) tons
Coarse material	Deposit onsite, grade, and seed (after verifying material is releasable).	If NRC release criteria cannot be met for onsite disposition, ship to storage facility or LLRW facility.	<i>Total:</i> 80,000 tons (tier 1) to 8 million tons (tier 5). <i>Weekly:</i> 960 (tier 1) to 3,840 (tier 5) tons
Process water	Treat water to meet NRC standards in 10 CFR part 20 appendix B. Store in plastic water tanks until onsite discharge or shipment offsite.	If release criteria cannot be met for onsite disposition, ship to another AUM waste site for reuse or to LLRW facility.	32,000 to 54,000 gallons per HPSA unit for a 50 ton/hour unit and a 100 ton/hour unit, respectively. <i>Total range:</i> 32,000 gallons (tier 1) to 128,000 gallons (tier 5). ²
Water treatment solids	Store in fines concentrates containers or trailers.	Feed material for a uranium recovery facility or LLRW for disposal at a licensed facility.	30 cubic ft per HPSA unit

Material	Onsite Management	Disposition	Estimated Quantities
Incidental operational wastes (e.g., rags)	Store in plastic drums.	Scan for release, ship for disposal to municipal solid waste facility. If not releasable, ship to LLRW facility.	Unknown (generated occasionally)
<i>Nonradioactive</i>			
Soil contaminated with spilled fuel oil	Onsite bioremediation (land farming) in accordance with Federal and State requirements. Alternatively, store in container before shipping to disposal facility.	Ship to licensed disposal facility if not land farmed.	Unknown (result of accidental spill)
Rags (etc.) contaminated with fuel or solvents	Store in areas and containers designated for hazardous waste.	Ship to hazardous waste management facility.	Considerably less than 100 kg (220 lbs) per month. ³

Sources: DISA 2025b, 2025d

¹ DISA assumes 20 percent of mass (table 1-1 of the ER; DISA 2025b) would be fines concentrates; therefore, 80 percent would be coarse material.

² based on assumption in ER table 1-1 of one 50 ton/hr unit for tier 1 and four 50 ton/hr units for tier 5.

³ 100 kg or 220 lbs per month is the threshold for a very small quantity generator of hazardous waste as defined in 40 CFR 260.10.

3.12.3 Conclusions and Bounding Assumptions

Based on the analysis presented above, the NRC staff concludes that the potential waste management impacts associated with DISA's proposed HPSA operations would be NOT SIGNIFICANT at any AUM waste site that is consistent with the following assumptions:

- Disa might generate small quantities of class A, B, or C LLRW but would not generate greater-than-class-C LLRW.
- The routine quantities of nonradioactive, nonhazardous and hazardous waste would be small and would not noticeably affect the capacities of receiving facilities. The fines concentrates would not be subject to RCRA hazardous waste regulations.
- No permanent facilities would be left onsite after HPSA operations. No materials would be stored beyond the duration of HPSA operations at any AUM waste site.
- DISA would not send coarse material or process water to a LLRW facility. DISA stated in the ER that if laboratory tests indicate that the release criteria would not be achieved at a site, then DISA would not pursue HPSA operations at that site.
- Additional assumptions regarding the disposition of coarse material and process water are provided in sections 3.3.3 and 3.4.3, respectively.

The NRC staff would review site-specific information supplied by DISA in the PMN to determine whether the planned HPSA operations, conditions at the site, and potential impacts would be consistent with the impacts and assumptions presented above of whether some site-specific review is needed. If the NRC staff determines that any of these assumptions would not be met, the staff would conduct an appropriate site-specific evaluation of potential waste management impacts.

4.0 Mitigation Measures

The evaluations of environmental impacts presented for each resource area in section 3 of this EA identify specific mitigation measures that could eliminate or reduce the severity of impacts. Additionally, many of the assumptions underlying the FONSI for this generic EA presume that DISA would implement specific mitigation measures, as described in the ER (DISA 2025b). Mitigation measures have traditionally been categorized as measures that avoid environmental impacts (avoidance); reduce the degree or magnitude of impacts (minimization); repair, rehabilitate, or restore adversely affected resources (rectification); reduce or eliminate impacts over time through preservation and maintenance (reduction); and compensate for impacts by replacing or providing substitute resources (compensation). For example, with respect to mitigation for wetland impacts, rectification, reduction, and compensation are sometimes collectively referred to as compensatory mitigation in a three-step approach to mitigation that includes avoidance, minimization, and compensatory mitigation.

Avoidance is a part of many of the assumptions underlying the FONSI that are listed for each resource in section 3. Many of the assumptions involve avoiding land disturbance at sensitive environmental resources such as cultural sites, wetlands, floodplains, and residential areas. The NRC staff expects that DISA would choose to implement HPSA whenever possible to avoid locations of sensitive environmental resources. If needed, these avoidance efforts would include investigative activities, such as archaeological surveys, wetland delineations, or species surveys, to identify the presence of sensitive resources. Avoidance of impacts to sensitive resources and locations is widely recognized as preferable to attempting to reduce, repair, offset, or compensate for adverse impacts after they occur. As noted above, impacts or potential impacts to such resources will require appropriate environmental site-specific review.

Minimization is another approach to preventing adverse environmental impacts, although it is generally preferred only when avoiding impacts is not practicable. Section 3 outlines multiple best management practices capable of minimizing environmental impacts resulting from soil erosion and sediment control, stormwater runoff, and fugitive dust. Examples of some specific best management practices include temporary and permanent soil stabilization, placement of silt fences between exposed soils and sensitive areas, use of sediment traps and ponds, and periodic wetting of exposed soils to reduce the release of fugitive dust. DISA states in section 5.4 of the ER that it would implement these types of standard best management practices (DISA 2025b).

Implementation of measures to keep radiation levels that are ALARA is another key approach to minimizing environmental impacts. Specific ALARA measures would include training personnel for radiation safety, implementing standard operating procedures, using appropriate control measures, good housekeeping practices, administrative control limits, and using radiation protection equipment, as needed. Other mitigation measures that could effectively reduce adverse environmental impacts at certain sites might include reducing objectionable noise by not operating certain equipment at night, reducing light intensity, or establishing vegetation or physical screens surrounding work areas near sensitive auditory or visual receptors such as residences and parks.

Several compensatory mitigation measures may be appropriate for certain sites. Some may be required by permits under the CWA or recommended or required by the FWS to protect Federally-protected threatened or endangered species or critical habitats. If work at a site requires a permit for impacts to wetlands or streams, the permit may call for permittee-

responsible mitigation projects to protect, restore, enhance, or create compensatory habitats; or purchasing credits in offsite mitigation banks that accomplish the same purposes. Mitigation banks are preferred over permittee-responsible wetland mitigation, but mitigation banks may not likely be available in many of the remote or rural areas where most AUM waste sites are situated. The FWS may require or recommend actions to limit work near nesting or breeding sites at specific times of the year or to preserve or enhance offsite habitat for affected species.

The NRC staff would review specific mitigation measures proposed by DISA in the PMNs for specific sites. The PMNs would identify and describe specific mitigation measures and how they would prevent or offset adverse environmental impacts. Many of these mitigation measures may be required in permits and approvals issued by other Federal, State, Tribal, or local agencies. The PMNs would also discuss substantial risks inherent in successful implementation of the mitigation measures and outline any specific monitoring procedures needed to assess progress of the mitigation measures. The NRC staff would consider the proposed mitigation and monitoring when determining whether the action can proceed under a FONSI.

5.0 Agencies and Persons Consulted

On August 8, 2025, the NRC issued a notice of availability in the *Federal Register* of the draft EA for a 30-day comment period (90 FR 38514). The public comment period ended on September 8, 2025. The NRC staff sent the draft EA by email to certain Federal and State government agencies, including the 14 States identified by DISA for potential HPSA operations. The NRC staff notified all Federally recognized American Indian Tribes of the availability of the draft EA for comment (NRC 2025g). The staff also sent the draft EA by email to the Navajo Nation Environmental Protection Agency. The NRC received 14 comment submittals on the draft EA. Appendix B contains the NRC's responses to the comments provided in these submittals.

A copy of this final EA will be sent to the EPA, the applicant, commenters, and other Federal, State, and local agencies, and Indian Tribes

6.0 Conclusion and Finding of No Significant Impact

The NRC has prepared this generic EA to document the NRC staff's environmental review of DISA's request for an NRC license to operate its HPSA technology at AUM waste sites in the Western U.S. Based on its review, in accordance with the requirements of 10 CFR part 51, the NRC has determined that the issuance of a license to DISA under 10 CFR part 40 to operate its HPSA process at AUM waste sites would not significantly affect the quality of the human environment at a specific site if the site conditions, proposed operations, and potential impacts at the site are consistent with the assumptions and potential impacts assessed in this EA. If the PMN indicates there are differences in site conditions, proposed operations, or potential impacts, the NRC would evaluate whether these differences require further analysis. . In all cases, the NRC staff would conduct site-specific reviews to identify the potential environmental impacts of leaving coarse material onsite and would complete site-specific consultations under Section 7 of the Endangered Species Act and Section 106 of the National Historic Preservation Act.

As a result of its review of the application, the RAI responses, and the application supplement, the NRC staff concluded that construction, operation, and demobilization of the HPSA system could have a beneficial impact on AUM waste site soils by reducing the radioactivity contained in the soils. The NRC staff assumes site conditions, operations, and potential impacts would be consistent with the assumptions and impacts in this EA, or that the NRC staff would confirm as a result of site-specific reviews that HPSA operations would not have significant impacts related to land use, visual and scenic resources, the geologic environment, site soils, ecological resources, water resources, air quality, noise, socioeconomic conditions, public and occupational health, transportation, and waste generation and management. Subject to confirmation of site-specific conditions and upon the successful conclusion of consultation under Section 106 of the NHPA, the NRC staff concludes that the proposed HPSA operations would not have significant impacts on historic and cultural resources at AUM waste sites. Subject to confirmation of site-specific conditions and upon the successful conclusion of consultation under Section 7 of the ESA, the NRC staff also concludes that the proposed HPSA operations would have no effect or would not be likely to adversely affect any Federally-listed threatened or endangered species. The NRC staff would follow the process described in section 1.4 to assess the degree to which HPSA operation at specific AUM waste sites would meet the assumptions in this EA.

Based on this assessment, in accordance with 10 CFR 51.31, the NRC concludes that the proposed action, issuing a license to DISA under 10 CFR part 40 for the HPSA process, does not warrant the preparation of an environmental impact statement, and, pursuant to 10 CFR 51.32, a finding of no significant impact is appropriate. If, upon reviewing site-specific conditions, the NRC concludes that HPSA operation could result in significant impacts at a site, the NRC would conduct a supplemental EIS for that site.

7.0 List of Preparers

This EA was prepared by the following NRC staff:

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8.0 References

10 CFR Part 20. Code of Federal Regulations, Title 10, Energy, Part 20. “Standards for Protection Against Radiation.” Washington, DC: U.S. Government Publishing Office.

10 CFR Part 20. Appendix B. Code of Federal Regulations, Title 10, Energy, Part 20, Appendix B. “Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage.” Code of Federal Regulations, Title 10, Energy, Part 20. “Standards for Protection Against Radiation.” Washington, DC: U.S. Government Publishing Office.

10 CFR Part 40. Code of Federal Regulations, Title 10, Energy, Part 40, “Domestic Licensing of Source Material.” Washington, DC: U.S. Government Printing Office.

10 CFR Part 51. Code of Federal Regulations, Title 10, Energy, Part 51. “Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions.” Washington, DC: U.S. Government Publishing Office.

36 CFR Part 60. Code of Federal Regulations, Title 36, Parks, Forests, and Public Property, Part 60. “Protection of Historic Properties.” Washington, DC: U.S. Government Publishing Office.

36 CFR Part 61. Code of Federal Regulations, Title 36, Parks, Forests, and Public Property, Part 61. “Procedures for State, Tribal, and Local Government Historic Preservation Programs.” Washington, DC: U.S. Government Publishing Office.

36 CFR Part 800. Code of Federal Regulations, Title 36, Parks, Forests, and Public Property, Part 800. “Protection of Historic Properties.” Washington, DC: U.S. Government Publishing Office.

40 CFR Part 93. Code of Federal Regulations. Title 40, Protection of Environment, Part 93. “Determining Conformity of Federal Actions to State or Federal Implementation Plans.” Washington, DC: U.S. Government Publishing Office.

49 CFR Part 171. Code of Federal Regulations. Title 49, Transportation, Part 171. “General Information, Regulations, and Definitions.” Washington, DC: U.S. Government Publishing Office.

49 CFR Part 172. Code of Federal Regulations. Title 49, Transportation, Part 172. “Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans.” Washington, DC: U.S. Government Publishing Office.

49 CFR Part 173. Code of Federal Regulations. Title 49, Transportation, Part 173. “Shippers—General Requirements for Shipments and Packagings.” Washington, DC: U.S. Government Publishing Office.

74 FR 66496. December 15, 2009. “Endangered and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act.” *Federal Register Notice*.

AUMWG (Abandoned Uranium Mines Working Group). 2022. Addressing Health and Safety Risks of Abandoned Uranium Mines Multiagency Strategic Plan, December 3, 2022. [https://www.energy.gov/sites/default/files/2023-03/AUMWG Strategic Plan 2022 Final.pdf](https://www.energy.gov/sites/default/files/2023-03/AUMWG_Strategic_Plan_2022_Final.pdf)

Cal Fire (California Department of Forestry and Fire Protection). 2025. Equipment and Vehicle Use. <https://readyforwildfire.org/prevent-wildfire/equipment-and-vehicle-use/>, accessed June 2, 2025.

DISA 2022. Letter from DISA to James Grice, Colorado Department of Public Health and Environment, re: License Application for High-Pressure Slurry Ablation for Reclamation and Remediation, DISA, Inc. Casper, Wyoming. February 7, 2022. ML25178A242.

DISA 2025a. Application for a Performance-Based, Multi-Site License, High-Pressure Slurry Ablation, Source Materials License, DISA Technologies, Inc., Mills, Wyoming, Revision. March 28, 2025. Package ML25087A094.

DISA 2025b. Environmental Report, Revision 2 High-Pressure Slurry Ablation Performance-Based, Multi-Site License Application, Casper Wyoming. March 28, 2025. ML25087A097.

DISA 2025c. Application for a Performance-Based, Multi-Site License, High-Pressure Slurry Ablation, Source Material License, DISA Technologies, Inc., Mills, Wyoming, Revision 3. March 28, 2025. ML25087A096.

DISA 2025d. Response to Requests for Additional Information, DISA Technologies, Inc., License Application for a Performance-Based, Multi-Site Radioactive Materials License to Operate a High-Pressure Slurry Ablation Remediation System, Revision 3. June 16, 2025. ML25167A328.

DISA 2025e. Application for a Performance-Based, Multi-Site Radioactive Materials License to Operate a High-Pressure Slurry Ablation Remediation System: Application Supplement. July 2025. ML25212A250. Package ML25216A267.

DISA 2025f. Email from S. Cohen, DISA Technologies, re: Clarifying Information for EA. September 15, 2025. ML25267A112.

DOE 2021. DOE Office of Legacy Management Launches Campaign to Address Abandoned Uranium Mines on Tribal Lands. Washington, D.C. December 15, 2021. <https://www.energy.gov/lm/articles/doe-office-legacy-management-launches-campaign-address-abandoned-uranium-mines-tribal>, accessed July 9, 2025.

EPA (U.S. Environmental Protection Agency). 2006. EPA 402-R-05-009: Uranium Location Database Compilation. Radiation Protection Division. Washington, D.C. August 2006 www.epa.gov/sites/default/files/2015-05/documents/402-r-05-009.pdf, accessed July 9, 2025.

EPA (Environmental Protection Agency). 2007. Abandoned Uranium Mines and the Navajo Nation, Navajo Nation AUM Screening Assessment Report and Atlas with Geospatial Data, Region 9, San Francisco. <https://www.epa.gov/navajo-nation-uranium-cleanup/screening-assessment-report>, accessed July 9, 2025.

EPA (U.S. Environmental Protection Agency). 2020. "Frequent Questions about General Conformity." Washington, D.C. ML21141A339.

EPA (U.S. Environmental Protection Agency). 2024a. News release: EPA Decides on Cleanup Plans for Seven Abandoned Uranium Mine Sites in Navajo Nation. Washington, D.C. October 8, 2024. <https://www.epa.gov/newsreleases/epa-decides-cleanup-plans-seven-abandoned-uranium-mine-sites-navajo-nation>, accessed May 2, 2025.

EPA (U.S. Environmental Protection Agency). 2024b. Quivira Mines Coyote Canyon, Pinedale, and Standing Rock Chapters, Navajo Nation, New Mexico, Final Engineering Evaluation/Cost Analysis. Tetra Tech, author. Washington, D.C. March 2024. www.epa.gov/system/files/documents/2024-03/quivira-mines-engineering-evaluation-cost-analysis-eeca-2024-03.pdf, accessed May 2, 2025.

EPA (U.S. Environmental Protection Agency). 2025a. Abandoned Mines Cleanup. Washington, D.C. Updated June 6, 2025. <https://www.epa.gov/navajo-nation-uranium-cleanup/aum-cleanup>, accessed July 9, 2025.

EPA (U.S. Environmental Protection Agency). 2025b. EPA Fact Sheet: Quivira Mines Site Selected Action: Red Rocks Disposal Facility. Washington, D.C. January 2025. www.epa.gov/system/files/documents/2025-02/epa-fact-sheet-quivira-mines-action-red-rocks-disposal-facility.pdf, accessed May 2, 2025.

EPA (U.S. Environmental Protection Agency). 2025c. Current Nonattainment Counties for All Criteria Pollutants. Washington, D.C. May 31, 2025. <https://www3.epa.gov/airquality/greenbook/ancl.html>, accessed July 7, 2025.

EPA (U.S. Environmental Protection Agency). 2025d. Air Quality Control Regions. Washington, D.C. June 29, 2025. <https://aqs.epa.gov/aqsweb/documents/codetables/aqcrs.html>, accessed June 29, 2025.

EPA (U.S. Environmental Protection Agency). 2025e. Watersheds. Washington, D.C. Updated March 20, 2025. <https://www.epa.gov/trinationalanalysis/watersheds>, accessed July 9, 2025.

EPA (U.S. Environmental Protection Agency). 2025f. General Conformity De Minimis Tables. Washington, D.C. Updated June 9, 2025. <https://www.epa.gov/general-conformity/de-minimis-tables>, accessed July 8, 2025.

Forman, R.T.T. and L.E. Alexander. 1998. Roads and their Major Ecological Effects. Annual Review of Ecology, Evolution and Systematics 29:207–231, Palo Alto, California.

GCRP (United States Global Change Research Program) 2023. Fifth National Climate Assessment. Crimmins, A.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, B.C. Stewart, and T.K. Maycock, Eds. U.S. Global Change Research Program, Washington, D.C. <https://doi.org/10.7930/NCA5.2023>.

National Interagency Fire Center 2025. Wildland Fire Investigation: Common Wildfire Causes. Boise, ID. <https://www.nifc.gov/fire-information/fire-prevention-education-mitigation/wildfire-investigation#equipment>, accessed June 2, 2025.

NOAA (National Oceanic and Atmospheric Administration). 2021. The North American Monsoon. Emily Becker. Washington, D.C. August 26, 2021. Available at <https://www.climate.gov/news-features/blogs/enso/north-american->

[monsoon#:~:text=For%20many%20of%20us%2C%20the.rather%20than%20rain%20every%20day](#), accessed July 29, 2025.

NRC (U.S. Nuclear Regulatory Commission). 2009. Memorandum and Order in the Matter of Duke Energy Carolinas, LLC Tennessee Valley Authority. CLI-09-21, Washington, D.C. November 3, 2009. ML093070690.

NRC (U.S. Nuclear Regulatory Commission). 2017. NUREG 1556, Volume 18, Rev. 1: Consolidated Guidance About Materials Licenses - Program-Specific Guidance About Service Provider Licenses. Washington, D.C. August 2017. ML17242A055.

NRC (U.S. Nuclear Regulatory Commission). 2018a. RG 4.2 Revision 3, Preparation of Environmental Report for Nuclear Power Stations. Washington, D.C. September 30, 2018. ML18071A400.

NRC (U.S. Nuclear Regulatory Commission). 2018b. NUREG-1556, Volume 12, Revision 1: Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Possession Licenses for Manufacturing and Distribution. Washington, D.C. May 2018. ML18136A704.

NRC (U.S. Nuclear Regulatory Commission). 2023a. NUREG-2243 Environmental Impact Statement for the Disposal of Mine Waste at the United Nuclear Corporation Mill Site in McKinley County, New Mexico. January 2023. ML22356A145.

NRC (U.S. Nuclear Regulatory Commission). 2023b. SECY-23-0055 - Options for Licensing Emerging Technologies Used for Remediation of Mine Waste. June 28, 2023. ML23121A271.

NRC (U.S. Nuclear Regulatory Commission). 2024. Staff Requirements Memorandum (SRM) – SECY-23-0055 – Options for Licensing Emerging Technologies Used for Remediation of Mine Waste. September 25, 2024. ML24269A245.

NRC (U.S. Nuclear Regulatory Commission) 2025a. Letter to G. Buckingham, DISA from D. White, NRC: Acceptance Review Letter for DISA Technologies, Inc. License Application for a Performance-Based, Multi-Site Radioactive Materials License To Operate a High-Pressure Slurry Ablation Remediation System, Revision 3, Docket 40-38417. Washington, D.C. April 11, 2025. ML25099A303.

NRC (U.S. Nuclear Regulatory Commission) 2025b. *Federal Register* Notice: DISA Technologies, Inc; License Application, Opportunity to request a hearing and to petition for leave to intervene; order imposing procedures. 90 FR 20193. Washington, D.C. May 12, 2025.

NRC (U.S. Nuclear Regulatory Commission) 2025c. Letter to G. Buckingham, DISA from D. White, NRC: "Request for Additional Information on DISA Technologies, Inc. License Application for a Performance-Based, Multi-Site Radioactive Materials License to Operate a High-Pressure Slurry Ablation Remediation System, Revision 3, Docket 40-38417." Washington, D.C. June 2, 2025. ML25141A028.

NRC (U.S. Nuclear Regulatory Commission). 2025d. Email to Quapaw Nation re: STC-25-028 Multiple Counties, USA. Washington, D.C. June 23, 2025. ML25176A018.

NRC (U.S. Nuclear Regulatory Commission). 2025e. Letter to G. Buckingham, DISA Technologies, Inc. re: Regulatory Audit Plan to Support Resolution of Request for Additional Information on DISA Technologies, Inc. License Application for a Performance-Based, Multi-Site Radioactive Materials License to Operate a High-Pressure Slurry Ablation Remediation System, Revision 3, Docket 40-38417. Washington, D.C. July 8, 2025. ML25189A159

NRC (U.S. Nuclear Regulatory Commission) 2025f. Safety Evaluation Report for DISA Technologies, Inc. Multi-Site Service Provider License Abandoned Uranium Mine Waste Remediation. Washington, D.C. September 2025. ML25226A192.

NRC (U.S. Nuclear Regulatory Commission) 2025g. STC-25-044 communication to all Federally recognized American Indian and Alaska Native Tribes, "Opportunity to Comment on the Draft Environmental Assessment Regarding the Disa Technologies, Inc License Application, Washington, D.C. August 12, 2025. ML25211A068.

NRC (U.S. Nuclear Regulatory Commission) 2025h. *Federal Register* Notice: DISA Technologies, Inc.; Draft Generic Environmental Assessment and Finding of No Significant Impact. 90 FR 38514. Washington, D.C. August 8, 2025.

Quapaw Nation. 2025. Email to NRC re: DISA Application. June 17, 2025. ML25176A017 (contained in package ML25176A015, which also contains email attachments).

Shannon, G., M.F. McKenna, L.M. Angeloni, K.R. Crooks, K.M. Fristrup, E. Brown, K.A. Warner, 5 M.D. Nelson, C. White, J. Briggs, S. McFarland, and G. Wittemyer. 2016. A Synthesis of Two 6 Decades of Research Documenting the Effects of Noise on Wildlife. *Biological Reviews* 91(4): 7 982-1005. Bethesda, Maryland. doi: 10.1111/brv.12207.

Tetra Tech. 2023. Navajo Abandoned Uranium Mines, Eastern and Northern Regions, Final High-Pressure Slurry Ablation Treatability Study, Report. Tetra Tech and DISA Technologies, Inc. December 2023.

UDEQ (Utah Department of Environmental Quality). 2025. Utah Department of Environmental Quality Division of Waste Management and Radiation Control Radioactive Material License. Salt Lake City, Utah: Division of Waste Management and Radiation Control Radioactive Materials License Supplementary Sheet. <https://deq.utah.gov/businesses-facilities/low-level-radioactive-waste-energysolutions>, accessed July 9, 2025.

USGS (United States Geological Survey). 1996. Uranium Provinces of North America – Their Definition, Distribution, and Models. Warren I. Finch, author. Washington, D.C. 1996. <https://pubs.usgs.gov/bul/b2141/b2141.pdf>, accessed July 9, 2025.

USGS (United States Geological Survey). 2025. USGS Water Use Data for Colorado. <https://waterdata.usgs.gov/co/nwis/wu>, accessed July 9, 2025.

WCS (Waste Control Specialists). 2022. Facilities. Andrews, Texas. <https://www.wcstexas.com/about/our-facilities/facilities/>, accessed June 16, 2025.

Appendix A

Appendix A: Environmental Information Requirements for HPSA Premobilization Notification

Approximately 90 days before DISA intends to operate at a specific site, DISA would provide site-specific information to the NRC in the PMN. This notification would include sufficient detail about the site and the planned HPSA operations to inform the safety and environmental reviews for that site. The premobilization notification (PMN) for each site should include the information identified in the applicable license conditions, as well as the information identified in this appendix. During the 90 day period, the NRC staff expects to be able to complete the site-specific evaluation process by using the notification information to verify that the proposed operations, site conditions, and site-specific environmental impacts fall within the bounds of the safety review and the potential impacts as assessed in the generic EA.

A.1 Site Information

Provide the following basic information for the site:

- **Operating tier** applicable to the site.
- **Cluster status:** Indicate if the site will be part of a concurrently operating cluster and identify the other sites within the cluster, including the tier(s) applicable to those sites.
- **Sensitive receptors:** Include wind rose information for the site.
- **Overview map:** Show site location as a point within State boundaries.
- **Site acreage** (nearest acre) and centroid coordinates for centroid of the site.
- **Scaled topographic map:** 7.5-minute United States Geological Survey topographic map with site boundaries.
- **Aerial photography:** Most recent and detailed, with site boundaries.
- **Ground photographs,** if available, keyed to map and/or aerial photography.
- **Land use map:** Identify land use within 1 mile of the site boundary.
- **Zoning:** Site and adjacent land zoning details, if any.
- **Wetlands:** If applicable, wetland delineation using the three-parameter process outlined in the Army Corps of Engineers Wetlands Delineation Manual and relevant Regional Supplement or a desktop assessment for the possible presence of wetlands using FWS National Wetland Inventory maps, aerial photography, or Natural Resource Conservation Service soil survey maps.
- **Water table and soils:** If available, information about site water table elevations and associated soils.
- **Surface water features:** Identify and map features such as ephemeral or permanent streams.
- **Road improvements:** Map and describe existing roads and planned upgrades for improvement.
- **Water intake wells/withdrawals:** Identify and map within 1 mile of the site.

A.2 HPSA Operations Information

Provide the following information on the application of HPSA at the site:

Permits and Approvals

- List all required Federal, State, Tribal, or local permits, licenses, and approvals and include the permit/approval number and issuing agency.
- Indicate the status and describe plans for obtaining issuance.

Water Sources

- Identify the source of process water, potable water, and water uses (e.g., dust mitigation).

Soil Excavation (if applicable for native soils underneath waste piles)

- Provide expected depth of treated material
- Include depth of water table at the site

Air Emissions

- Estimates of emissions of State- or EPA-established criteria pollutants from HPSA operations and vehicles.
- Estimates of greenhouse gas emissions from HPSA operations and vehicles.

Historic and Cultural Resources (NHPA Section 106)

- For each project location, provide a description/identification of the APE, record of any surveys, consultations, and other communications undertaken to support the NRC staff's NHPA Section 106 regulatory requirements.
- Provide a description of historic and cultural resources that may be present on the site, and the potential impacts of HPSA operations on these resources.
- Describe proposed measures Disa will take to avoid, minimize, or mitigate impacts to identified resources.
- Provide sensitive cultural resource information with appropriate labeling to ensure protection of the information.
- Provide a description of communications and informal consultations with any Tribes that have interest in the site, including, if appropriate and with the Tribes' consent, a description of the Tribes' spiritual, cultural, and other practices that could occur on the site after HPSA operations conclude.

Endangered Species (ESA Section 7)

- For each project location, provide a description of communications and informal consultations undertaken in accordance with Section 7 of the ESA.
- Provide report from the U.S. Fish & Wildlife Service's Information for Planning and Consultation (IPaC) website.
- Describe special status species and habitats and assess the potential impacts of HPSA operations on these species and habitats. Describe mitigations Disa will take to avoid or minimize impacts on these species and habitats.
- Provide any biological assessments prepared for eventual submittal to the FWS (after NRC review).

A.3 Site Checklist

The checklist below serves as a general framework for evaluating whether the environmental impact of proposed HPSA operations at a given site would be consistent with the environmental impact determinations and assumptions that support the FONSI in the generic EA. For each site, DISA should indicate if the applicability statements below are true and if the proposed operations align with the NRC staff's impact assessment in the generic EA. If any statement does not apply, it does not mean that the HPSA technology cannot be used at the site. It also does not necessarily mean the activity falls outside the scope of the generic EA. It may simply indicate that additional information or further review is needed to confirm whether the FONSI remains applicable.

For each applicability statement in the table below, DISA should select one of the following:

Yes – The statement applies to the site and proposed HPSA operations, and impacts are bounded by the generic EA.

Deviation – The site characteristics or operations may differ from those considered in the generic EA, but the expected impacts would remain bounded by the conclusion in the EA.

No – The site characteristics or operations may differ from those considered in the generic EA and the expected impacts differ from those considered in the generic EA.

For any “no” or “deviation” responses, DISA should provide information that 1) describes how the site conditions or operations are different from the statement; 2) describes the expected differences in impacts, if applicable; and 3) indicates how the impacts might be minimized or mitigated. DISA should also provide its conclusion about the significance of the impact differences.

Complete the following table for each site:

Statement Number	Resource Areas Potentially Impacted	Applicability Statement	True Statement for Site? (Yes, Deviation, or No)
1	Land Use, Socioeconomics, Public and Occupational Health, Ecology	The site and adjacent (abutting) land is currently not used for any purpose other than agriculture, grazing, recreation, or forestry.	
2	Land Use, Water Resources, Geology and Soils	For any area or element of the site (e.g., mineral rights, water rights, or easements) that is privately owned, use of HPSA has the approval of all affected property interest owners. Further, HPSA would not conflict with applicable land use planning at Federal, State, Tribal, or local level.	
3	Transportation, Socioeconomics, Visual, Noise	HPSA trucks and heavy equipment would not use neighborhood roads or roads in and around community features such as schools, parks, and commercial shopping areas.	
4	Geology and Soils,	HPSA operation would only use existing site roads, with no new road construction required;	

Statement Number	Resource Areas Potentially Impacted	Applicability Statement	True Statement for Site? (Yes, Deviation, or No)
	Transportation, Land Use, Ecology	trails, tracks, or paths created solely for use by hikers, off-road vehicles, or farm equipment are not considered existing roads.	
5	Geology and Soils, Water Resources, Ecology, Historic and Cultural Resources	Ground-disturbing activities would be limited to graveling pre-existing roads, establishing fencing, and processing soils directly under the waste rock piles.	
6	Geology and Soils, Water Resources	Any ground disturbance to process native soils underneath the waste rock pile would not impact previously undisturbed bedrock.	
7	Water Resources, Transportation, Geology and Soils, Ecology	Water used during HPSA system operation would be brought to the site by DISA and would not be taken from the local surface water or groundwater. Additionally, DISA would not dig any new water wells for monitoring or discharge.	
8	Water Resources, Geology and Soils	The appropriate permits or licenses from the municipality or any other Federal, State, Tribal, or local authority would be obtained for the off-site source of water.	
9	Water Resources	When required, a site-specific stormwater management plan, approved by applicable regulatory agencies, or a generic stormwater management plan approved by applicable regulatory agencies would be implemented. Best management practices would be used as needed in accordance with any stormwater management plan for each site.	
10	Water Resources, Geology and Soils, Public and Occupational Health	Process water would not be discharged at the site during operation. DISA might, at the cessation of operation, discharge up to twice the total system volume on the site, provided the water is demonstrated to meet any applicable Federal, State, and local regulations for disposal prior to discharge.	
11	Water Resources, Geology and Soils, Ecology	The water discharged onto the site at the end of operations would be discharged to avoid or minimize erosion and protect surface soils and vegetation, and in accordance with applicable Federal, State, or Tribal requirements.	
12	Water Resources, Ecology	DISA would obtain a National Pollutant Discharge Elimination System permit from the EPA or State, if required. Additionally, and if required, DISA would obtain Clean Water Act (CWA) Section 401 Water Quality Certification from the State certifying authority, a CWA Section 404 approval from USACE, and any needed State-issued permits for non-jurisdictional waters.	

Statement Number	Resource Areas Potentially Impacted	Applicability Statement	True Statement for Site? (Yes, Deviation, or No)
13	Water Resources, Geology and Soils	For any site where DISA treats native soils beneath the waste pile, DISA would not excavate down to the water table, resulting in the need to dewater, nor would DISA impact an aquifer's confining layer such that a new pathway for water recharge of that aquifer is created.	
14	Water Resources, Geology and Soils, Public and Occupational Health	No coarse material would contain metal contaminants above the Resource Conservation and Recovery Act (RCRA) thresholds, or the coarse material is separated such that any material containing metal contaminants above the RCRA thresholds would not be disposed of onsite.	
15	Ecology, Geology and Soils	Ground disturbance would avoid climax or old-growth vegetation or other vegetation typical of undisturbed natural lands in the surrounding landscape.	
16	Ecology, Water Resources, Geology and Soils	Ground disturbance would not disturb any wetlands or perennial streams and no more than 300 feet of ephemeral or intermittent streams.	
17	Ecology and Section 7 consultation	For sites with Federally listed threatened and endangered species or critical habitats in the action area, additional field surveys do not appear to be necessary based on DISA's informal consultations with the applicable Ecological Services Field Office of the FWS.	
18	Air and Atmospheric, Public and Occupational Health	Emissions of criteria pollutants during construction, operation, and demobilization would not exceed <i>de minimis</i> levels established by the EPA under the General Conformity Rule (Title 40 of the <i>Code of Federal Regulations</i> (40 CFR) part 93).	
19	Air and Atmospheric	Greenhouse gases emitted by equipment and vehicles during construction, operation, and demobilization would be less than the quantity of CO ₂ equivalents determined to be significant by the State or the EPA, whichever applies in the State of proposed HPSA operations.	
20	Noise	Noise levels from trucks and earthmoving equipment at the nearest sensitive receptor will be less than 50 dBA.	
21	Historic and Cultural	In accordance with the results of consultation under Section 106, DISA implements avoidance, minimization, and/or mitigation measures that are necessary to address potential effects on historic and cultural resources.	
22	Socioeconomics	Clustered HPSA operations at two or more tier 5 sites could be accommodated by a nearby community (within a 1.5-hour drive) that can easily accommodate 30 or more employees for	

Statement Number	Resource Areas Potentially Impacted	Applicability Statement	True Statement for Site? (Yes, Deviation, or No)
		several years. Very small nearby communities would not experience noticeable negative socioeconomic impacts from HPSA operations.	
23	Socioeconomics	No local residents would be displaced by any HPSA operation.	
24	Socioeconomics, Transportation	The increase in local traffic as a result of HPSA operations would not require changes to traffic patterns.	
25	Public and Occupational Health	DISA would establish a restricted area around any operational machinery or radiological storage areas of at least 50 feet to prevent public access to the site and minimize dose to the public.	
26	Public and Occupational Health	HPSA units are deployed to a site that fits the description provided in NUREG-1556, Volume 18, appendix I, table I-2 for occupancy factors of 1/20 or 1/40 (e.g., outdoor areas with seating, recreational areas, storage areas, or outdoor areas with only transient pedestrian or vehicular traffic).	
27	Waste Management, Public and Occupational Health	DISA would not generate greater-than-class-C LLRW during mobilization, operation, or demobilization at the site.	
28	Waste Management, Transportation, Public and Occupational Health	The routine quantities of non-radioactive, non-hazardous and hazardous waste would be small and would not noticeably affect the capacities of receiving facilities. The fines concentrate would not be subject to RCRA hazardous waste regulations.	
29	Waste Management, Transportation, Public and Occupational Health	DISA would not send coarse material to an LLRW facility.	

Appendix B

Appendix B: Comments on the Draft EA and NRC Responses

On August 8, 2025, the NRC issued a notice of availability in the *Federal Register* of the draft EA for a 30-day public comment period (90 FR 38514). The public comment period ended on September 8, 2025. The NRC also made a copy of the draft EA available in the NRC's Public Document Room in Rockville, Maryland, and sent the draft EA by email to certain Federal and State government agencies. The NRC also notified all Federally recognized American Indian Tribes of the availability of the draft EA for comment.

B.1 Comments Received on the Draft EA

The NRC received 14 pieces of correspondence in the form of emails and submissions through Regulations.gov (see Docket ID NRC-2025-0084). To identify specific comments, the NRC staff reviewed each submittal related to the draft EA, all of which are accessible in ADAMS, identified substantive statements related to the proposed action, and recorded the statements in this appendix as comments. The NRC staff identified approximately 92 comments from these submittals. Table 1 lists individuals who provided comments, including their affiliation, the correspondence identification number, and the ADAMS Accession No. for the correspondence. In addition, new or substantially revised text in the EA (except for this new appendix) is marked with a change bar (vertical line). The comments and the NRC staff's responses are provided in Sections 2.1 through 2.18.

Table B-1. Draft EA Commenters

Commenter	Affiliation*	Correspondence ID	ADAMS Accession No.
Cohen, Beth	NA	11	ML25255A022
Cohen, Stephen	DISA Technologies	9	ML25255A020
Curtis, Ava	Multicultural Alliance for a Safe Environment	1	ML25239B587
Detweiler, Donna	NA	4	ML25246A615
Elrod, Susan	NA	2	ML25241A316
Fields, Sarah	Uranium Watch (and others)	14	ML25255A025
Goldstein, Janet	NA	3	ML25241A317
Jantz, Eric	New Mexico Environmental Law Center	12	ML25255A023
Prijatel, Jean	U.S. Environmental Protection Agency	10	ML25255A021
Sanderlin, Sarah	Organization of Agreement States	7	ML25248A332
Pollitt, Michael	NA	6	ML25246A617
Stills, Travis	Energy & Conservation Law (and others)	13	ML25255A024
Sheely, Patricia	NA	5	ML25246A616
Vehr, Nancy	Wyoming Department of Environmental Quality	8	ML25248A333

*NA = not applicable

B.2 NRC Responses to Comments

This section reproduces and groups comments of similar topics and provides responses. If comments are very similar, the comments are listed and one response is provided after the last similar comment. If the comments resulted in changes to the EA, the comment response indicates where in the EA changes were made. The comment topics are listed and hyperlinked to their respective sections below.

Comment Topics

- B.2.1 Purpose and Need
- B.2.2 No Action Alternative
- B.2.3 Permits and Approvals
- B.2.4 Project Scope
- B.2.5 NEPA Process and Scope
- B.2.6 Assumptions Underlying the FONSI in the Generic EA¹²
- B.2.7 RCRA Liability¹³
- B.2.8 Site-Specific Contaminant Levels¹⁴
- B.2.9 Water Resources
- B.2.10 Radiological Exposures
- B.2.11 Geology and Soils
- B.2.12 Air Quality
- B.2.13 Waste
- B.2.14 Regulatory Framework and Basis
- B.2.15 References Section of the EA
- B.2.16 Editorial Comments
- B.2.17 New Technology
- B.2.18 General Statements of Opposition

B.2.1 Purpose and Need

Commenter ID: 10 (J. Prijatel)

Comment: The Draft Generic EA and Disa Technologies' Environmental Report frame the purpose and need around issuance of a multi-site license for High-Pressure Slurry Ablation (HPSA) treatment of waste at abandoned uranium mines (AUMs). Both documents also attribute the purpose and need to the EPA (p. 2, Environmental Report p. 9) rather than focusing on the underlying remediation needs of AUMs. While the EPA addresses AUMs where there is a release or threat of release of a hazardous substance under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), CERCLA response actions are explicitly exempt from NEPA under 40 CFR 6.107(d), and the EPA has not established a NEPA purpose and need for the Disa proposed actions. In addition, the EPA is not the only federal agency with responsibilities under CERCLA for cleanup of hazardous substance releases.

Recommendations for the Final EA: Please remove statements attributing the purpose and need to the EPA. Clarify that the purpose and need derives from the risks posed by waste at AUMs and the Nuclear Regulatory Commission's (NRC) independent authority to evaluate HPSA for potential licensing.

Response: *The NRC staff removed the statement in section 1.2 of the EA that connected the EPA to the NRC's potential issuance of a license to DISA. The staff added a sentence to refer to the NRC's authority under the Atomic Energy Act. The remaining text in section 1.2 describes the need to remediate AUM sites.*

Commenter ID: 14 (S. Fields)

Comment: Section 1.2. Purpose of and Need for the Proposed Action...This statement references 10 C.F.R. Part 40 and states that the proposed action would be in accordance with the conditions of the license and the applicable NRC requirements in 10 C.F.R. Parts 20 and 40. However, the EA fails to list and discuss the specific applicable sections of these regulations. The NRC should have included a list and explanation of the specific applicable regulations.

Response: *The EA states that parts 20 and 40 are the general sections of the regulations that apply to this licensing action. The NRC staff's Safety Evaluation Report (ML25226A192) identifies the specific regulations against which the staff conducted its safety review.*

B.2.2 No Action Alternative

Commenter ID: 10 (J. Prijatel)

Comment: The Draft EA states that under the no-action alternative HPSA could not be used, "continuing current site conditions" could occur, and AUM lands may remain unavailable for human use (p. 12). However, this characterization does not reflect EPA's process under CERCLA. If HPSA is not available as an option or is not selected as the recommended action at any given AUM site, the EPA would continue to evaluate and select among other protective cleanup alternatives under an Engineering Evaluation/Cost Analysis. For example, the EPA has already selected excavation and removal at the Northeast Church Rock Mine and has also selected consolidation and capping at other AUMs (p. 12). As such, the no-action alternative would not prevent EPA or other agencies from addressing risk at AUM sites. Instead, it reflects that HPSA would not be one of the options considered and it does not prevent EPA from selecting other protective remedies that address risk at AUM sites.

Recommendations for the Final EA: To ensure an accurate depiction of a future without this action, clarify that the no-action alternative would not prevent EPA or other agencies from addressing risks at AUM sites under CERCLA and that other protective remedies could still be implemented.

Response: *Section 2.2 of the EA already states that sites could be addressed under other programs and under the jurisdiction of agencies other than the NRC, such the EPA, BLM, States, and Tribes. Section 2.2 also includes a discussion of two remediation approaches as examples of how AUM sites might be addressed in the absence of HPSA. However, to address the commenter's concern the NRC added further clarification to this section.*

B.2.3 Permits and Approvals

Commenter ID: 10 (J. Prijatel)

Comment: Section 2.1.4 generally describes the permits and approvals that could be needed for operation of HPSA at sites under NRC jurisdiction. The HPSA could be used either as remediation technique (concentrate transported to waste disposal) or a processing technique (concentrate transported to a uranium recovery facility) (p. 1). However, the EA does not clarify whether these two uses would require different permitting frameworks. Although the Draft EA references EPA and Navajo Nation involvement in AUM cleanup, it does not clearly identify whether these actions fall under CERCLA. The absence of explicit CERCLA discussion in the permits section leaves uncertainty about whether the multi-site license is intended only for non-CERCLA projects or also for CERCLA sites.

Recommendations: To resolve uncertainty about how permitting frameworks and CERCLA authorities apply, the EPA recommends that the Final EA:

- Clarify whether different permits and approvals would apply when the Disa technology is used for remediation versus mineral recovery.
- Describe whether CERCLA decisions would be needed to authorize the use of HPSA at any of the AUMs within the scope of this EA. The EPA is available to

collaborate on the development of a more detailed CERCLA discussion in the Final EA.

Response: *If the NRC issues a license to DISA for HPSA operation, DISA would need to comply with the terms of its license and these terms are not dependent on the disposition of the fines concentrates. In other words, DISA may choose to ship the fines to a licensed recovery facility or to a licensed LLRW facility as long as those facilities are willing and licensed to accept the material. The NRC staff added clarifying sentences to section 2.1.4 concerning the disposition of the fines and concerning the applicability of CERCLA at AUM sites where HPSA might be used.*

Commenter ID: 8 (N. Vehr)

Comment: It is important to note as a foundation for our comments that WDEQ has been delegated primacy over multiple programs by the federal government – water, air, solid and hazardous waste, abandoned mine land reclamation, and coal mining, among others. WDEQ has also received an agreement state status with the Nuclear Regulatory Commission (NRC) for uranium mining and processing in the State of Wyoming; and recently applied for Source Material Program authority.

Response: *The NRC staff acknowledges the State of Wyoming's regulatory authority for multiple areas that could apply to DISA's operation of the HPSA process in Wyoming. Further, because Wyoming is an Agreement State, DISA would need to apply for regulatory reciprocity to operate HPSA in Wyoming. The NRC would not have jurisdiction over the HPSA process operation in Wyoming except on Federal lands within the State. No changes to the EA were made in response to this comment.*

B.2.4 Project Scope

Commenter ID: 10 (J. Prijatel)

Comment: The Proposed Action is described as the issuance of a 10-year multi-site license that would authorize remediation of appropriate waste at an estimated 15,000 AUMs across primarily 14 states. However, Figure 1 also depicts sites in Kansas, Minnesota, and Missouri that are not included in the analysis (p. 13), suggesting the scope may extend to 17 states. In addition, many other states also classify uranium locations under other designations (e.g., prospects, deposits, drill holes, samples, or mills rather than mines), making the total number and type of sites unclear. In addition, the Draft EA does not specify how many sites would be treated per year, how many may be treated concurrently, or how the 15,000 sites are distributed across HPSA operating tiers, ranging from small Tier 1 sites with short project durations to large Tier 5 operations that may require significant excavation and extended water use (Table 1, p.7). Without this information, it is not possible to evaluate the scale of impacts, particularly if multiple Tier 4 or 5 projects occur in the same water-limited basin.

Recommendations: To improve this and future impact analyses, we recommend the Final EA:

- Revise the geographic scope, clarifying whether Kansas, Minnesota, and Missouri are included and whether non-mine designations need to be included in the 15,000-site total and geographic scope.
- Specify the anticipated number of projects per year and clarify the extent to which projects may operate concurrently in the same area.
- Describe how the 15,000 sites are distributed across tiers.

Response: *The generic EA applies to sites within the 14 States DISA identified in its license application. If DISA chooses to pursue HPSA operations in Kansas, Minnesota, or Missouri, DISA and the NRC would account for this difference in the site-specific pre-mobilization notification (PMN) review. The license applies to AUM waste sites only; that is, sites that are AUMs and contain waste from the mining activities, and sites that themselves may not be abandoned or abandoned mine sites, but contain deposited, abandoned uranium mine waste that originated at an AUM. Non-mine sites are only included in the scope of the license if such sites contain abandoned uranium mine waste from an AUM site.*

In the near term, DISA expects to have one to two projects in 2026, two to four projects in 2027, and five to ten projects in 2028. The operating tier applicable to each site is dependent on the size of the site but also on the potential for the waste to be treatable using HPSA. DISA states that, based on limited data to-date, 90 percent of the sites fall within the tier 1 category. The NRC staff has added this information to section 2.1 of the EA.

The EA states that multiple sites could undergo HPSA concurrently. DISA has clarified that the decision to operate at more than one site within an area is “operationally dependent.” DISA may place a unit in a local area and go from site-to-site or place multiple units within a local area depending on the amount of material available for remediation. In the next three years, DISA expects to place one unit in a given local area. The NRC staff has added this information as a footnote in section 2.1 of the EA. The NRC staff has required, as indicated in appendix A of the EA, that DISA inform the NRC in the PMN if several sites would be operating concurrently within a given area.

Commenter ID: 7 (S. Sanderlin)

Comment: 2. Section 2.1 indicates that the expected operations would occur for approximately six months (Tier 1 in Table 1) to 13 years (Tier 5 in Table 1). These timelines are then used as one of the bases to assess the environmental impacts in Section 3. However, according to the “# of days” column in Table 1 and the assumption listed in Table 1’s footnote that HPSA workers would work five 12-hour days per week, the expected operation would actually continue for approximately nine months instead of six months for Tier 1 and 18 years instead of 13 years for Tier 5. For example, for Tier 5, it is expected that the operation will continue for 4630 days. Assuming 5 working days per week and 52 weeks per year, there are 260 working days per year; therefore, the operation would continue for $4630/260 = 17.8$ years. It appears that the “13 years” number assumes 365 working days per year which is inconsistent with the assumption of five working days per week (i.e., 260 working days per year). Therefore, this document underestimates how much time the expected HPSA operation would occur at a site and might potentially underestimate the associated environmental impacts.

Response: *The commenter is correct that the number of days in table 1 is the number of operating days, not total days. The NRC staff has added a clarification to the table and corrected statements in the EA that refer to the amount of time DISA would be onsite.*

Commenter ID: 9 (S. Cohen)

Comment: *Abandoned Uranium Mine Waste* – Multiple references state that Disa is seeking to treat waste at abandoned uranium mine sites. However, Line 41 states that Disa proposes to treat mine waste at abandoned uranium mines. DISA’s site identification and characterization work since January 2025 indicates that the reality on the ground does not match the term “abandoned uranium mine”; therefore, the use of this term could severely limit the number of waste piles DISA’s would be permitted to remediate. Based on our research the uranium mine wastes occurs mostly under the following circumstances:

a. Uranium mine waste was removed from a mine site, but was disposed on unclaimed Federal lands adjacent to or near the mine site. Therefore, the waste is not located on an abandoned uranium mine site.

b. Uranium mine waste is located on Federal lands that are claimed by other mining companies. These mine sites are not in use, and, in some cases, the claimants are not aware that waste is located on their claims. Therefore, the waste is not located on an abandoned uranium mine site.

c. Uranium mine waste is located on private lands on or off an actual mine site. Therefore, the waste is not located on an abandoned uranium mine site.

This demonstrates that the term “abandoned uranium mine” is not applicable to the current state of reality and, again, could severely restrict the number of sites DISA could remediate. DISA proposes to use the term “abandoned uranium mine waste” instead. In this manner, the waste is considered abandoned instead of the mine. This is factually accurate, because it represents the state of uranium mine waste occurrence and the term “abandoned” is a type of “discarded material” under the definition of “solid waste” in 40 CFR 261.2(a).

Response: *In response to this comment, the NRC staff determined that the appropriate term to describe the proposed HPSA operations is “abandoned uranium mine waste sites” or “AUM waste sites.” The staff has made edits in the EA to reflect this clarification.*

B.2.5 NEPA Process and Scope

Commenter ID: 10 (J. Prijatel)

Comment: *FONSI* – In the Draft EA, NRC concludes that licensing Disa would not significantly impact the environment if all mitigation measures and assumptions are met and therefore determined that an EIS is not warranted. We appreciate the many mitigation measures included in the Draft EA. However, to ensure impacts remain below significant, it is important that mitigation commitments are fully implemented, tracked through a robust monitoring program, and corrected if they are not functioning as intended. These commitments also need to be clearly documented in the EA and incorporated into the FONSI. One option could be through a Mitigated FONSI, which the EPA has discussed with NRC in the context of other projects and understand is currently being evaluated as part of the agency’s implementation of the ADVANCE Act.

Recommendations for the Final EA and FONSI: To ensure all mitigation measures are properly implemented in support of a finding of no significance, the EPA recommends the NRC consider developing a Mitigated FONSI that specifically identifies the mitigation commitments necessary to keep impacts below significant, including measurable performance standards or expected results. In this document:

- Identify timeframes so the trigger for and duration of mitigation commitments are clear.
- Establish a monitoring and implementation program to verify that mitigation commitments are carried out and provide feedback to decision makers on their effectiveness.

- Include a corrective action plan that ensures timely remediation when mitigation is not undertaken or does not achieve the level of impact reduction predicted in the EA.

Response: *The generic EA FONSI is dependent on the bounding assumptions, which the NRC staff used in the absence of site-specific information. As noted in section 1.4 of the EA, the NRC will conduct site-specific reviews to determine whether proposed operations at a site would fall within the bounds of the generic EA or if some level of site-specific analysis is necessary. The site-specific review will include consideration of the permits and authorizations DISA would need to obtain and may include further review of the permitted areas, if needed to identify differences in impacts.*

Regarding the requirement and enforcement of mitigation measures, the NRC can only enforce measures under its Atomic Energy Act authority and measures needed for NRC compliance with such laws as the Endangered Species Act and the National Historic Preservation Act. However, the NRC staff expects that DISA would abide by the information in its application, ER, and supplemental application documents. Further, DISA would likely be required to obtain site-specific permits and authorizations from other Federal agencies, State agencies, Tribes, and/or local authorities, and those permits would have their own conditions and enforcement measures. The NRC license would contain many requirements, including operating parameters and monitoring and reporting requirements. The NRC's safety evaluation report also documents these conditions (available in ADAMS at ML25226A192).

Regarding corrective actions, DISA would need to maintain standard and emergency operating procedures that include requirements for implementing, reporting, and monitoring corrective actions. These procedures are described in DISA's application and are identified in the NRC staff's safety evaluation report and in the license. No changes to the EA were made in response to this comment.

Commenter ID: 12 (E. Jantz)

Comment: A. The NRC's actions also violate the National Environmental Policy Act broadly in two ways. First, because issuing a licensing decision is an irreversible and irretrievable commitment of federal resources, the NRC Staff's generic environmental evaluation violates NEPA. Typically, a generic environmental evaluation will consider environmental issues common to all anticipated projects of a certain type, e.g., high-level nuclear waste storage. Generic considerations then become inputs into site-specific licensing decisions, which constitute an irretrievable and irreversible commitment of federal resources, and which must consider alternatives and mitigation measures. Here, however, the generic EA is the environmental analysis for the NRC's licensing decision. Thus, as demonstrated more fully, below, the NRC should have taken a "hard look" at HPSA's environmental consequences, considered alternatives to HPSA, and evaluated mitigation measures, none of which it has done. Further, once the NRC Staff issues DISA's license, there will no longer be a legally cognizable mechanism to review site-specific environmental effects....Thus, while DISA may provide a "pre-mobilization notification," this notice has no basis in NEPA or the Atomic Energy Act, and as demonstrated below, is a wholly insufficient substitute for a site-specific environmental effects analysis.

Second, because the NRC Staff has repeatedly determined that HPSA is milling which creates 11(e)(2) byproduct material, it must either evaluate the environmental effects of HPSA under 10 C.F.R. Part 40, Appendix A criteria or it must seek to change the definition of "milling" and

“byproduct material” under the Atomic Energy Act and the NRC’s implementing regulations through legislation or rulemaking.

Response: *The Commission made the determination to license emerging technologies used for mine waste remediation under the source material framework in 10 CFR part 40, via a service provider license. The Commission further decided to use license conditions in service provider licenses as appropriate to bridge any gaps between the source material/service provider framework and the uranium milling framework to ensure safety. While the license would not be amended for each site, the NRC staff intends to conduct a review of site-specific information to determine whether impacts could differ from those in the generic EA. The staff will document and make publicly available its environmental and safety reviews for each site. In addition, the NRC will establish and maintain a public web page to identify and track the status of specific sites where DISA proposes to conduct operations. This web page will include the PMN information, the NRC staff’s site-specific safety and environmental review documentation, and (after operations conclude) the demobilization notification (DMN).*

Regarding alternatives considered in the EA, the NRC staff is required to evaluate the consequences of denying the requested license (no action). The NRC staff recognizes there are other options for the remediation of AUM waste sites, but the Agency is not involved in policymaking or programmatic decision-making regarding the cleanup of these sites. Therefore, any evaluation in the EA of “alternatives” to issuing a HPSA license would be speculative and beyond the NRC’s statutory authority. Section 2.2 of the EA provides examples of potential consequences of denying a license. While the NRC assumes HPSA could be used under CERCLA for site cleanup, the NRC staff is not aware of plans to use HPSA at specific sites under CERCLA. Regardless, as stated in section 2.2, in the absence of the availability of HPSA, the cleanup of some AUM sites under regulatory programs such as CERCLA could occur using other techniques, as determined by the U.S. EPA in coordination with the State, Tribes, and other agencies. No changes to the EA were made in response to this comment.

Commenter ID: 12 (E. Jantz)

Comment: General B1: The NRC Should have Drafted an Environmental Impact Statement Rather than an Environmental Assessment. Even if the NRC is not conducting an ad hoc rulemaking under the guise of a licensing proceeding and a generic environmental analysis is appropriate, neither of which NM Mining Watch concedes, because the environmental impacts of HPSA are so significant and widespread, the NRC should have drafted an environmental impact statement (“EIS”) rather than an EA....NRC constructed its EA on a raft of assumptions that not only ignore available performance data, but that are also unrealistic. Effectively, NRC assumes HPSA will work flawlessly, postponing even the possibility of an environmental review until DISA proposes an actual project.

Response: *Because specific sites are not known, the NRC staff does not have specific information on which to base a more detailed analysis of potential impacts. DISA states that, based on its initial accounting of sites available for treatment using HPSA, 90 percent of the sites would be tier 1 sites. Potential impacts at these smaller sites would generally not be significant (mindful that Disa must also acquire approvals from other Federal, State, Tribal, and/or local authorities). For any site DISA identifies, the NRC staff would evaluate whether proposed impacts could be different from those evaluated in the EA. The staff will develop site-specific environmental documentation that is commensurate with the potential impacts at the site (and any sites that may operate concurrently within an area). The NRC staff agrees that the generic EA FONSI assumes DISA would comply with all requirements for construction, operation, and demobilization.*

Regarding limited performance data, before conducting any operations at the tier 1-5 level, DISA would conduct a pilot test at a site yet to be identified. The result of this test would provide further information and data regarding the effectiveness of HPSA. Further, before mobilizing to any site, DISA would conduct laboratory analyses to determine whether the material at the site can be effectively treated using HPSA, and DISA would not go to a site if the material cannot be treated effectively. The NRC staff's safety evaluation report (ML25226A192) discusses these requirements. The NRC staff has added information about the pilot test in section 2.1.1 of the EA.

Commenter ID: 12 (E. Jantz)

Comment: General B2: The NRC Failed to Consider a Reasonable Range of Alternatives. NEPA further requires that an agency consider a reasonable range of alternatives to the proposed action that would meet the proposed project's purpose and need. 42 U.S.C. § 4233(C)(iii). The NRC has failed to do so in the EA....NM Mining Watch suggests at least two additional alternatives the NRC should have considered. First, the NRC could have considered the alternative of granting DISA a license to conduct a commercial-scale pilot project at a clearly and definitively identified site....Second, the NRC should have evaluated the alternative of removing uranium mine waste to an appropriately engineered disposal facility.

Response: *The NRC considered the no action as a reasonable alternative to the proposed licensing action. DISA has not yet identified sites for HPSA operation, and the Commission's direction to grant a service-provider license does not include a requirement for DISA to identify sites as a condition of license issuance. The NRC's process of issuing a license to DISA would be phased in that the first step after license issuance would be for DISA to conduct a pilot test. After reviewing the results of the pilot test, the NRC would amend DISA's license to add new requirements if necessary or to revise requirements where necessary. While the pilot test will not be at a commercial scale, it will provide additional information and insights regarding the effectiveness of HPSA.*

In its NEPA evaluations for materials licensing actions, the NRC is not required to consider alternatives to the proposed action that are beyond its authority. While the NRC could impose a requirement on DISA to remove all coarse material from a site under the source material licensing framework, the NRC does not regulate this material beyond the requirements in 10 CFR 20.1402. DISA would need to demonstrate before mobilizing to a site that the coarse material would meet requirements in the license for unrestricted release, and DISA would not mobilize to a site if it determines the coarse material from that site would not meet the requirements. Therefore, the alternative of requiring DISA to remove all coarse material from all sites would not be reasonable. No changes to the EA were made in response to this comment.

Commenter ID: 13 (T. Stills)

Comment: The only alternative in the DGEA – issue a generic license for unspecified sites - would require owners and operators to update mine plans and approvals to allow shipment of unprocessed ores to a licensed uranium mill....A reasonable alternative to a generic license is for NRC staff to cooperate with the approvals and regulatory programs of the federal land management and state permitting agencies, based on sites-specific conditions....Designating the contemplated uranium mines as Superfund sites provides an alternative that must undergo NEPA analysis. However, that alternative was not considered by NRC staff or included in the GDEA...Although numerous federal and state agencies with jurisdiction and specialized expertise would play a critical role in the deployment of the generic license, none were included in the NRC staff's NEPA analysis. The actual purpose and need - reclamation and remediation

of thousands of uranium mines - is far reaching and will impact the Western United States for decades, but the narrow scope of the DGEA excludes the outreach and consultation required by NEPA.

Response: *If the NRC issues a license to DISA, that license would only authorize DISA to operate HPSA under the NRC's authority. Further, the license would only allow DISA to process waste from abandoned uranium mines. This waste might be present on an abandoned mine site or might have been deposited on another site during mining operations. Issuance of the license would not preclude the need for DISA to comply with any other requirements outside the NRC's authority, and DISA would need to determine what other requirements apply at a site. If the U.S. EPA proposes to remediate an AUM site under CERCLA, the EPA would have primary authority for coordinating with other agencies and identifying the proposed remedial solution, which could involve the use of a technology such as HPSA. Unless the proposed remediation of a site involves NRC-licensed activities, the NRC would not be involved in decision-making regarding these sites.*

The NRC staff agrees that Federal, State, Tribal, and local agencies may play a role in the oversight of HPSA operations, depending on the location and nature of the site. The NRC provided an opportunity to file a hearing request and has published the draft EA for comment. The NRC staff also sent direct notifications to the 14 States identified by DISA for potential operations and sent notifications to all Federally-recognized Tribes regarding the draft EA's availability for comment. No changes to the EA were made in response to this comment.

Commenter ID: 13 (T. Stills)

Comment: The Licensing Proposal Triggers ESA and NHPA Consultation. Part 40 licensing is an "agency action" potentially triggering ESA consultation, and an "undertaking" triggering National Historic Preservation Act duties. However, the GDEA fails to address either of these statutory duties, despite available information regarding the locations where the controversial, experimental technology is likely to be deployed...The information regarding the locations for likely deployment of the portable uranium mill is known now, and compliance with NHPA and ESA cannot be deferred until later decisionmaking tiers.

Response: *While the locations of approximately 15,000 AUM sites are known, there are many other factors that affect whether an AUM waste site would be proposed for HPSA operations. For example, potential HPSA sites would need to be located in accessible areas on land where DISA has permission to operate. DISA would need to demonstrate that the waste at an AUM waste site could be effectively treated, and DISA would need to obtain all necessary approvals that are outside the NRC's authority (in addition to NRC acceptance of the PMN). Consultation under the ESA or NHPA cannot begin until a specific action area or area of potential effect can be delineated. No changes were made in response to this comment.*

Commenter ID: 12 (E. Jantz)

Comment: Specific E: Proposed Site-Specific Environmental Review Process is Inadequate. The EA indicates that DISA will submit a pre-mobilization notification to the NRC approximately 90 days before it intends to begin operations, which will include DISA's analysis of site-specific environmental impacts. EA at 7:35 – 8:23. This process, however, is insufficient to protect the health and safety of those communities where HPSA milling will occur. Ninety days is insufficient time for the NRC to conduct a meaningful site-specific review. Ninety days is insufficient for the public to conduct a meaningful review of the site-specific data and submit comments. Ninety days is insufficient to conduct tribal consultation as required by the National

Historic Preservation Act, the Native American Graves Protection and Repatriation Act and the NRC's obligations as federal trustee to Native American Tribes.

Response: *The NRC staff plans to conduct site-specific reviews within the 90-day period. DISA would likely not pursue operating HPSA at a site if Tribal governments with jurisdiction at the site appears unwilling to allow the project to move forward. NRC acceptance of a PMN does not relieve DISA of its obligation to acquire any other needed Federal, State, Tribal, or local approvals. No changes to the EA were made in response to this comment.*

Commenter ID: 13 (T. Stills)

Comment: Although federal law requires NRC staff to inform the public and consider informed public comments before issuing a license, the current licensing process prevents informed public comment. Expending NRC staff resources should be halted until such time as Disa and NRC staff publicly disclose the information required to meet NRC's Part 40 licensing duties. The limited information does confirm that the proposed license cannot be lawfully issued in the manner NRC staff sets forth in the materials offered for public comment.

Response: *While this EA provides a generic analysis and relies on assumptions about conditions at specific sites, the NRC staff has outlined a process for reviewing site-specific conditions and operations to determine whether environmental impacts would be consistent with or different from the impacts described in the EA. The staff will ensure that the site-specific PMN is made publicly available upon submission and that documentation of the staff's PMN review is also made publicly available. No changes to the EA were made in response to this comment.*

Commenter ID: 13 (T. Stills)

Comment: The Deficient Application Confirms Public Comment and NEPA Analysis is Premature. The audit confirms that Disa's initial supplements did not address the deficiencies identified by NRC staff. Moreover, the DGEA and audit appear to be based on information that Disa shared with NRC staff, but which NRC staff attempted to shield from public view by not downloading copies of Disa's documents. ML25217A322 at 4 (NRC "audit team members did not download copies of documents shared."). All documents from these and other meetings where NRC staff did not retain records used in the meetings must be included in the administrative record and be made promptly available on ADAMS....The GDEA does not identify any mechanism for making "application supplements" available to the public before NRC staff issues site-specific approvals, and there is no indication when or how Disa will provide the required information to NRC staff for inclusion in the NEPA process. Instead, radiation release criteria will be excluded from the NEPA process by "addressing release criteria for each site" in a "pre-mobilization notification." Id. This non-NEPA approach to licensing Disa to use untested technology to create and dispose of mill tailings (aka 11e2 byproduct material disposed on site) also has no basis in 10 C.F.R. Part 40 or NEPA itself....There is no basis to issue an UMTRCA license based on a licensee's commitment to someday provide required information. UMTRCA's licensing requirements must be met by information contained in a license application and disclosed in a NEPA analysis subject to public comment. The Audit Report confirms that NRC staff has not, and will not, base its licensing decision and public comment duties on the information found in a Part 40 compliant application...The comment period closed September 8, but no surety information was available for public comment....In short, 10 C.F.R. Part 40 does not allow an assumption-based process to supplant NEPA disclosure, comment, and analysis of actual conditions at each proposed milling and disposal site, as required by Part 40 Appendix A.

Response: *The NRC staff conducted an audit to ascertain information needed for the staff's safety and environmental reviews. This process was used as a way to facilitate the efficient*

transfer of information. Any information provided in the audit on which the staff based its Safety Evaluation Report (available at ML25226A192) or the EA was submitted on the docket in the form of DISA's application supplement, and the supplement was made publicly available. Any documents not relied on by the NRC staff do not need to be submitted on the docket.

This licensing process to issue a service-provider license under the source material framework in Part 40 requires that the NRC conduct site-specific safety reviews to determine appropriate release criteria based on site conditions. The NRC staff's Safety Evaluation Report provides detailed discussion of the site-specific reviews, including information that will be required and conditions that DISA must meet at each site. The NRC staff will conduct financial and environmental reviews for each site as well. DISA may not mobilize to a site before the NRC has completed these site-specific reviews and given authorization. No changes were made to the EA in response to this comment.

Commenter ID: 14 (S. Fields)

Comment: 15. Section 7.0 List of Preparers. The list of EA preparers does not contain any information about the preparers experience associated with the licensing and regulation of uranium recovery operations. It does not appear that any of the preparers have any legal experience associated with NRC licensing decisions and the administration and enforcement of the Uranium Mill Tailings Radiation Control Act of 1978 and the applicable NRC and EPA regulations.

Response: *The NRC staff's review of DISA's application includes both an environmental review and a safety review. The team of staff involved in both of these reviews included several staff who have experience with the licensing and regulation of uranium recovery operations and with UMTRCA. No changes were made to the EA in response to this comment.*

B.2.6 Assumptions Underlying the FONSI in the Generic EA

Commenter ID: 9 (S. Cohen)

Comments: DISA expressed concerns about many of the assumptions in the draft EA that support the NRC staff's FONSI. DISA stated that the assumptions were developed in a manner such that DISA would not be able to operate at virtually any site without requiring additional NRC analysis. DISA requested the assumptions be based on radiological safety. DISA stated that some assumptions appeared to limit DISA's ability to operate, or that the NRC exceeded its authority in stating assumptions that pertain to non-radiological topics. DISA also stated, "Considering the layers of government regulation to which DISA must address, many of the assumptions presented by the NRC staff will be reviewed by other agencies. In those cases, DISA should be allowed to simply reference those permits/applications in its premobilization notification (PMN)." DISA described its concerns with 17 of the assumptions presented in the draft EA and stated the list of concerns was not limited to these assumptions. The specific comments are not reproduced here and can be found in DISA's comment submittal, as identified in table 1 of this appendix.

Response: *In the absence of any site-specific information, the NRC staff identified assumptions in the generic EA to bound the potential impacts such that the staff could make a FONSI determination for the licensing action. The assumptions of the NEPA document do not restrict DISA's ability to operate at a site, and only provide that the staff may need to review certain site-specific conditions or proposed operations if they would be different from the description in the EA. In requesting information about site characteristics, operations, and potential impacts for consideration under NEPA, the NRC is not exceeding its authority.*

As suggested in the comment, the NRC staff expects that site-specific reviews would in many cases involve a review of the other permits and authorizations DISA would need for a site. In response to DISA's comments, the NRC staff modified appendix A (environmental information requirements for the PMN) to (1) revise some assumptions; (2) focus the PMN information needs on aspects that would not already be required for the safety review and eliminate redundancies; and (3) remove assumptions that were only references to regulations and are already stated in other parts of the EA. The staff revised text in section 3 of the EA where needed for consistency with appendix A.

Commenter ID: 13 (T. Stills)

Comment: The NEPA-mandated means for disclosing and conducting interdisciplinary analysis of specific impacts – data-based, site-specific NEPA analysis – is dispensed with entirely in favor of generic, untethered assumptions. This is contrary to NEPA's commands that agencies "(D) ensure the professional integrity, including scientific integrity, of the discussion and analysis in an environmental document" and "(E) make use of reliable data and resources in carrying out [NEPA]." 42 U.S.C. § 4332 (2) (E-F). Despite NEPA's action-forcing mandates, the DGEA simply fails to inform the public and decisionmakers of likely impacts....Despite NRC staff's actual knowledge of significant impacts, the DGEA relies on assumptions regarding impacts and mitigation that are hypothetical, generic, and nonbinding. The DGEA does not identify any mitigation measures that would be made mandatory across all potential sites. The mitigated FONSI cannot avoid the significant impacts involved with the Disa's license request, or NRC staff's proposed licensing action. Consideration of the Disa proposal requires an EIS. The GDEA fails to assess a range of reasonable alternative to the proposal to issue an assumption-based license, valid throughout the Western United States.

Response: *The generic EA for this licensing action does not have site-specific information and relies on assumptions as a basis for the FONSI. Many of the assumptions state that DISA would comply with other requirements that may apply to HPSA operations at a site, including other Federal requirements, State and Tribal requirements, and local requirements. If DISA's site-specific information is not consistent with the assumptions and impacts assessed in the generic EA, the staff would assess the potential for differences in impacts and prepare supplemental evaluation and documentation as appropriate.*

Regarding mitigation measures, the NRC can impose enforceable mitigation measures that relate to its authority under the Atomic Energy Act or relate to other laws that the NRC must comply with, such as the Endangered Species Act and the National Historic Preservation Act. The NRC staff's Safety Evaluation Report (ML25226A192) discusses all of the requirements that the NRC would impose in the license, including certain mitigation measures (e.g., dust control measures, requirement to identify cultural resources before ground-disturbance). Permits DISA would need to obtain from other authorities, such as stormwater management permits, could contain required mitigation measures that would be enforced by the permitting agency. No changes were made to the EA in response to this comment.

B.2.7 RCRA Liability

Commenter ID: 13 (T. Stills)

Comment: RCRA Liability. The DGEA confirms that the Resource Conservation and Recovery Act ("RCRA") would create compliance requirements and liability for past and present owners and operators of mines where Disa deploys its technology, but simply assumes RCRA compliance without any analysis or information to support RCRA compliance.... Critically, NRC staff's proposal to accept Disa's application as an UMTRCA-licensed activity converts the

regulatory status of uranium mines, which have been considered exempt from RCRA, into sites requiring compliance with RCRA, as implemented by EPA. The DGEA does not disclose or analyze the radical changes in regulatory status triggered by DISA's proposal for a generic Part 40 license to conduct on-site processing and concentration of uranium and subsequent disposal of 11e2 byproduct materials. A range of other federal laws, including the Clean Water Act and Clean Air Act would also apply differently to uranium mines where portable uranium processing, concentration, and milling constitutes beneficiation that eliminates the RCRA exemption. The proliferation of 11e2 byproduct material that NRC staff proposes to create and leave on site, without the benefit of perpetual licensing required by UMTRCA, would warrant RCRA enforcement in numerous cases. The DGEA fails to alert land management agencies, government officials, Tribes, and commenters to the radical regulatory shifts and liabilities that would be triggered by NRC staff's novel and illegal approach to Disa's deficient application.

Response: *The NRC staff disagrees with the commenter's statement that issuing a license to DISA would result in changing the regulatory status of the AUM waste sites. Any material that DISA leaves onsite would need to meet NRC standards for unrestricted release in 10 CFR part 20 and as specified in license conditions. Regarding RCRA compliance, the NRC would require in the license that DISA provide an analysis of RCRA metals content and other constituents in the coarse material before disposition. DISA would also need to ascertain whether the disposition of the coarse material would need to comply with other Federal, State, or Tribal requirements. The EPA would determine whether AUM sites need to be addressed under any other regulatory program, or whether a licensed HPSA operator might play a role in any remediation under CERCLA. No changes were made to the EA in response to this comment.*

B.2.8 Site-Specific Contaminant Levels

Commenter ID: 10 (J. Prijatel)

Comment: The Draft EA and Environmental Report were not clear on how radionuclide distribution in waste and separation effectiveness would be assessed across sites. The High-Pressure Slurry Ablation Treatability Study Report (Treatability Study) (2023) confirms that radionuclide distribution in waste varies by site and that following treatment of various wastes, elevated levels of contaminants were detected in both fine and coarse fractions. This demonstrates that coarse fractions cannot be presumed "inert" without further verification, and management strategies need to reflect this variability to ensure protectiveness. The July 2025 Application Supplement partially addresses this issue through leach testing requirements and certain provisions for site-specific sampling. It also specifies premobilization laboratory batch testing of uranium mine waste at Disa's Mills, Wyoming facility, including collection and analysis of coarse material samples for uranium, radium-226, and thorium-230. The NRC has indicated that batch testing would be required through the license's safety checklist, providing an important safeguard. Including this information in the Final EA would provide needed clarity on how site-specific contaminant variability would be addressed.

Recommendations: To ensure that site-specific variability in radionuclide distribution is addressed, the EPA recommends that the Final EA:

- Highlight that radionuclide distribution across fine and coarse fractions is site dependent and may result in varying effectiveness of HPSA at sites.
- Clarify that leach testing alone does not demonstrate radionuclide partitioning or inertness.
- Cross-reference NRC's license safety checklist to explain how pre-mobilization batch testing requirements would be incorporated into site-specific decision-making.

- Require documentation demonstrating when coarse fractions can be considered “inert,” ensuring protective measures are applied appropriately.

Response: *The NRC staff has added clarifying text in section 3.11.2 of the EA to address the recommendations above. As described in detail in the NRC’s Safety Evaluation Report (ML25226A192), DISA’s license would contain several conditions to ensure the coarse fraction would meet NRC unrestricted release requirements.*

Commenter ID: 12 (E. Jantz)

Comment: Specific D: NRC Failed to Take a Hard Look at the Environmental Consequences of DISA’s Proposed Method of Determining Natural Background. NRC also fails to take a hard look at one of the most important aspects of DISA’s speculative project – characterizing natural background levels for uranium and radium. Taking a hard look at DISA’s proposed process for characterizing natural background is critical because natural background will be the basis for determining whether DISA has achieved release standards, i.e., 25 mrem per year above natural background. Characterization must be accurate so that the NRC can determine and set final remediation levels....DISA’s proposed sampling protocol is too vague to satisfy NEPA’s hard look requirement, even generically....DISA’s background reference area selection criteria is too vague, even for a generic EA, to adequately evaluate or comment upon....For example, DISA provides no meaningful indication of how DISA would select reference sites. The only factor the NRC mentions is that the reference site would be upwind and upgradient....Further, the EA provides no indication of instruments DISA would use to measure gamma radiation....Finally, the EA provides no indication of whether or which statistical methods DISA would use to insure reliability of conclusions from background sampling.

Response: *The NRC staff agrees that the characterization of background levels of radioactivity is important for assessing DISA’s compliance with NRC requirements. The staff’s detailed review of how the natural background at a site is determined, including the selection of background sample plot locations, can be found in the NRC staff’s Safety Evaluation Report for this licensing action (ML25226A192).*

Commenter: 11 (B. Cohen)

Comment: DISA’s High Pressure Slurry Ablation leaves behind most of the waste rock which still has a contamination risk. Although there are no commercial scale data that indicate HPSA can remediate uranium mine waste to safe levels, the data available from smaller tests indicate that in many cases HPSA cannot remediate uranium mine waste to pre-mining levels or even levels that protect residential or agricultural use.

Commenter: 1 (A. Curtis)

Comment: Furthermore, HPSA still leaves behind much of the waste rock. While this rock has lower levels of contamination than before it is still contaminated. What the communities living near this waste rock need is for the rock to be completely removed from their land not treated and put back.

Commenter: 5 (P. Sheely)

Comment: The process removes only a limited amount of uranium leaving the problem that we started with --what to do with the remaining contaminated rock. The process is incapable of removing uranium so that the waste is at pre-mining levels. Desperate people are willing to believe that this can and will happen. The promotion of this process has been questionable in its truthfulness.

Response: *DISA would conduct analyses of the treatability of mine waste for each site before determining whether to pursue HPSA operations at a site. If DISA chooses a site for HPSA operations, the results of those analyses would be included in DISA's PMN for NRC staff review. After treating waste, DISA would need to demonstrate that the coarse material meets NRC standards for unrestricted release in 10 CFR part 20 and other requirements, as described in the NRC staff's Safety Evaluation Report and specified in license conditions. DISA would also need to ascertain whether the disposition of the coarse material would need to comply with other Federal, State, or Tribal requirements. No changes were made to the EA in response to these comments.*

B.2.9 Water Resources

Commenter ID: 10 (J. Prijatel)

Comment: *Supply and Use in Tiered Remediation* – The Draft EA and supporting Environmental Report state that project activities would not result in impacts to groundwater, and that surface water impacts would be minimal and site dependent. These conclusions are overly broad given the geographic scale of the multi-site license. While the Draft EA states that water would be brought to the sites and would not be taken from the local surface water or groundwater (p. 25), water must still be obtained from finite local or regional sources, where availability, allocation, and competing demands vary. Because Disa may not be able to control where water is sourced, the determination on page 25 that groundwater impacts would not be significant is uncertain.

In arid regions of the western U.S., where long-term drying trends, rapid population growth, and declining groundwater storage are occurring, even modest withdrawals can stress already scarce resources. The Draft EA cites 2015 water use data from Las Animas County, Colorado as evidence that “most counties in the western U.S. have sufficiently large water supply systems” (p. 24). This characterization assumes an additional 3.5 percent of public supply water is available, but does not account for snowpack-dependent variability in Colorado nor does it apply to Arizona, New Mexico, Nevada, or Utah, where groundwater is often the only water source and is already over allocated. Therefore, it is important to acknowledge that impacts to water resources could occur across the license area and that the magnitude of impacts would vary.

The Draft EA states that the HPSA treatment technology would require approximately 800,000 to 1,360,000 gallons of water per month (p. 24) depending on the size of the HPSA unit. However, Section 3.4.2 indicates that a four-unit Tier 5 system operating at 100 tons per hour could use up to 4,380,000 gallons per month (144,000 gallons per day). These quantities of water in an arid area may be considered significant when water resources are limited, therefore accurate estimates of water volumes and HPSA operating tiers are critical, and mitigation may be needed to reduce water supply impacts.

Finally, Appendix A requires identification of any water intake wells or water withdrawals occurring within one mile of the site (p. A-2). This distance may be too limited to properly characterize potential hydrologic connections. Groundwater pumping or surface water withdrawals beyond one mile may influence water availability or create conflicts, especially in arid or over-allocated basins.

Recommendations: To strengthen the analysis and provide a clearer basis for evaluating water supply impacts, the EPA recommends the Final EA:

- Highlight that it is essential that water supply for remediation originate from a defined source and that associated water resource impacts could occur. Clarify that the magnitude of these impacts would vary by site depending on basin conditions, allocation status, and whether trucking would be required.
- Update the discussion of western water supply to avoid reliance on the Las Animas County example, which may not be representative of all of Colorado and does not represent conditions in many parts of Arizona, New Mexico, Nevada, or Utah.
- Clarify estimates of water volumes for HPSA operating tiers and describe the calculations used to estimate water needs.
- Consider revising Appendix A's premobilization notification to include:
 - Identification of the source of water (i.e., surface or groundwater), and an evaluation of the feasibility and impacts of trucking in water from external sources.
 - Expand the spatial scope for identifying nearby water withdrawals and intake wells beyond one mile or require future site-specific evaluation of the hydrologic area of influence to ensure potential conflicts are fully assessed.

Response: *The generic FONSI assumes DISA would obtain the needed permissions for water use and that water use authorities would not grant permission unless the water source could accommodate the demand that HPSA operations would pose. If DISA does not obtain the necessary water use authorizations, they could not legally operate at the site. The NRC staff's site-specific reviews would review the status of water use permits against the impacts assessed in the EA, and the staff would conduct additional reviews where needed for each site. The staff has added clarifying edits in section 3.4.2 of the EA.*

Regarding water volumes, section 3.2.4 states that the high estimate is 200,000 gallons per month for a single 50-TPH unit and 384,000 gallons per month for a single 100-TPH unit, which would result in approximately 800,000 to 1,536,000 gallons per month if four 50-TPH or four 100-TPH units were operating concurrently. The NRC staff is not aware of a situation in which Disa would be using 4.4 million gallons a month, which would require operating three tier 5 sites in an area concurrently.

The NRC staff does not agree that the spatial scope for identifying nearby water withdrawals and intake wells must extend beyond one mile. DISA stated in the ER that they do not plan to operate any groundwater wells at the site for intake, discharge, or monitoring, nor will DISA discharge significant quantities of water on the site. While the NRC staff agrees that there may be impacts to groundwater at the withdrawal well for the source of water used, the NRC staff does not expect that source to be onsite. The NRC staff would conduct a site-specific review if DISA indicates in a PMN that it intends to withdraw water from onsite wells.

Commenter ID: 10 (J. Prijatel)

Comment: *Effluent Release* – The Draft EA states that process water would be disposed on site once it is shown to meet NRC regulations for water effluent release in 10 CFR Part 20 Appendix B, and that groundwater at most sites is anticipated to already be impacted by previous mining (p. 24). However, the Draft EA does not provide effluent discharge concentrations, compare NRC criteria with potentially applicable state or Tribal water quality standards, or analyze the effectiveness of the proposed water treatment system. Without this information, it is not possible to determine whether water discharges would be fully protective of groundwater and surface water, or aquatic resources. Attachment 3 of the July 2025 Application

Supplement describes a treatment system consisting of filtration through bag filters and adsorption media, with discharge via irrigation nozzles to prevent runoff. It also outlines grab sampling procedures and reliance on NRC Appendix B limits for discharges. While these details provide important context, the Draft EA does not incorporate them or analyze whether the proposed controls are adequate compared to broader applicable groundwater or surface water standards. In addition, the July 2025 Application Supplement specifies method SM 7500 RA-B for radium analysis, but this method was developed decades ago for drinking water screening and may not be reliable for effluent that behaves more like leachate. Validation with a leachate matrix at the applicable action level is needed.

Recommendations: To ensure water discharges and treatment systems are fully protective, the EPA recommends the Final EA:

- Disclose that surface water or groundwater quality standards in addition to NRC discharge criteria may apply.
- Provide a table that includes numerical NRC effluent limits and applicable state and Tribal groundwater and surface water standards, or National Recommended Water Quality Criteria.
- Include the treatment system description from Attachment 3 and evaluate its effectiveness against these standards.
- Clarify how water treatment solids would be managed (i.e., disposal or recycling with fine concentrates) and evaluate whether this approach is protective of groundwater and surface water resources.
- Require validation of radioanalytical methods for process water using the Multi-Agency Radiological Laboratory Analytical Protocols criteria, or other regulator-approved methods shown to be appropriate for leachate-type matrices.

Response: *The effluent discharge concentrations that would be applicable at each site are dependent on the specific characterizations of the AUM waste at each site. Section 2.1.2 of the EA states that the process water would need to meet NRC standards as well as any other Federal, State, or Tribal standards applicable to the site. The effluent discharge concentrations, along with any applicable State or Tribal water quality standards, would be considered in the NRC staff's review of site conditions and proposed operations. The NRC staff would consider during the PMN review whether DISA has, or has applied for, the appropriate permits for each site. The NRC staff has added clarifying text to section 3.4.2 of the EA regarding process water discharge requirements.*

To treat the process water, as discussed in section 2.1.2 of the EA, DISA would use a bag filter system and another filter system with absorbent media and reagents. As discussed in section 3.12.2.2, the solids from water treatment would be sent either to a uranium recovery facility or to an LLRW facility.

The NRC staff would evaluate the results of analyses using the SM 7500 RA-B method or other methods DISA may use and determine if the methods adequately test for the presence of radium in treated process water and are consistent with the Multi-Agency Radiological Laboratory Analytical Protocols criteria.

The NRC would impose a license condition regarding the criteria DISA needs to meet for process water analyses and discharges, including radioactive materials and RCRA metals. The requirements for analyses, testing, and verification that NRC standards would be met are discussed in detail in the NRC's Safety Evaluation Report (ML25226A192).

Commenter ID: 10 (J. Prijatel)

Comment: *Surface Water and Aquatic Resources* – The Draft EA states that “ephemeral streams typically do not contain communities of aquatic organisms” (p. 26). This characterization oversimplifies the ecological role of ephemeral and intermittent streams. These systems provide habitat for fish, amphibians, reptiles, birds, mammals, and invertebrates, especially in arid and semi-arid regions. Their ecological importance is often underestimated because use is intermittent and depends on highly variable flow regimes. Proper evaluation requires multi-year, multi-season surveys. Without this context, the Draft EA risks understating the potential for impacts to aquatic and terrestrial species that depend on ephemeral and intermittent streams.

Section 3.4.1 of the Draft EA (Section 3.4.1) further states that “most sites would not include a river or other perennial stream” and that Disa would provide site characterization of surface waters in the premobilization notification for NRC review. However, the U.S. Army Corps of Engineers and EPA are the authorities for determining whether waters are jurisdictional under the Clean Water Act (CWA). In addition, some features may qualify as Waters of the State or meet Tribal waters criteria. Under CWA Section 401, no federal permit or license may be issued for an activity that discharges into waters of the United States without water quality certification (or waiver) from the state or Tribe with jurisdiction; if no state or Tribe has authority, EPA is responsible for certification. While Section 3.4.3 of the Draft EA notes that Disa would obtain permits or licenses from Federal, Tribal, or State authorities when required, it also suggests that NRC and Disa would determine jurisdiction, creating ambiguity.

Recommendations: To strengthen the analysis, the EPA recommends the Final EA:

- Disclose the ecological importance of ephemeral and intermittent streams in arid and semi-arid regions.
- Include known perennial rivers on the overview map of potential project sites.
- Commit to coordination with federal (USACE, EPA), state, and/or Tribal representatives to determine jurisdictional status of surface waters (e.g., seeps, springs, wetlands, ephemeral or perennial streams) prior to mobilization.

Response: *The NRC staff agrees that sites could contain fragile ecological systems that include ephemeral and intermittent streams. The NRC staff understands that the presence of any surface waters on a site would be determined by non-NRC agencies, as the commenter described. The NRC is requiring DISA to provide information on site conditions for possible further evaluation under NEPA and for consultation under Section 7 of the Endangered Species Act. The staff would coordinate with other agencies whenever needed and expects DISA to do the same as it explores potential sites for HPSA operation. As stated in the EA, the NRC staff expects that DISA would obtain all necessary permits and authorizations to operate at a site. The staff has added and revised text in sections 3.4.1 and 3.5.1 to emphasize the importance of ephemeral and intermittent streams and that DISA and the NRC would coordinate with other agencies as needed regarding the presence of surface waters. Figure 1 includes major rivers, but the staff has revised the figure to add more rivers and increase their visibility on the map.*

Commenter ID: 10 (J. Prijatel)

Comment: *Surface Water and Aquatic Resources* – Windblown dust generated during remediation operations and transportation can impact surface water quality. The Draft EA does not address this pathway or identify potential mitigation measures.

Recommendations: To address potential windblown dust impacts on water quality, the EPA recommends that the Final EA describe the potential for impacts to water resources from fugitive dust generated by implementation of HPSA and associated transportation. Identify and describe mitigation measures to minimize these impacts and cross-reference other EA sections that discuss dust suppression measures to ensure consistency and completeness.

Response: *The NRC staff acknowledges the potential impacts of fugitive dust on surface waters at sites where there are surface waters at or near the area of operation. The staff has added a description of potential impacts on water quality from dust to section 3.4.2 of the EA.*

Commenter ID: 7 (S. Sanderlin)

Comment: *Water Table – 3. Section 3.3.3 and Appendix A, Section 3.0, indicate that the generic Environmental Assessment (EA) assumes that any ground disturbance to process native soils underneath the waste rock piles would not reach the site water table (EA Assumption Number GS-3) and would not break through the confining layer of an underlying aquifer and result in the creation of a new pathway for water recharge of that aquifer (EA Assumption GS-4). However, in Appendix A, Section 2.0, it does not appear that site-specific hydrology or hydrogeology information will be provided to show the depth of site water table and the geological location of underlying aquifers. Without such information, EA Assumption GS-3 and GS-4 cannot be verified. We suggest the above-mentioned information be included in Appendix A, Section 2.0.*

Response: *The NRC staff has modified section 1 of appendix A to include water table information. Other information DISA provides in the PMN regarding site and surrounding characteristics (e.g., water intake wells) and proposed operations would inform the NRC staff's decision on whether an analysis of potential groundwater impacts is needed. Further, the license would require that DISA must provide details on the proposed depth of any ground disturbance.*

Commenter ID: 8 (N. Vehr)

Comment: To ensure that applicable water resources, including wetlands that are not “waters of the United States”, are protected, the NRC should consider the following:

- Pg. 25, Section 3.4.3. Assumption 10 states “Disa would obtain Clean Water Act (CWA) Section 404 approval from USACE, if required.” WDEQ request this be revised to “Disa would obtain a Clean Water Act (CWA) Section 401 Water Quality Certification from the state certifying authority and a CWA Section 404 permit from the USACE, if required.” In conjunction with a USACE Section 404 Permit, States, including Wyoming, issue Section 401 Water Quality Certifications to ensure the discharge authorized under the USACE permit complies with state surface water quality standards. Conditions established within the 401 Water Quality Certification become enforceable conditions under the USACE Permit. Therefore, assumption 10 should include a description of complying with both CWA Sections 401 and 404.
- Pg. 25, Section 3.4.3. The assumptions currently do not include the protection of waters that are nonjurisdictional (i.e., not “waters of the United States”), as determined by the USACE. Although nonjurisdictional waters are not subject to the jurisdiction of the CWA, they may still be regulated under state statutes and rules. Therefore, WDEQ recommends an “assumption” be added to ensure necessary state issued dredge and fill

permits are obtained if non-jurisdictional waters, including wetlands, will be impacted by the project.

Response: *The NRC staff has modified section 3.4.3 of the EA as suggested in the comments.*

Commenter ID: 12 (E. Jantz)

Comment: Specific A: NRC Failed to Take a “Hard Look” at HPSA’s Water Quality Impacts and its Finding of No Significant Impact on Water Resources is Unwarranted.... The only data in the EA about HPSA’s efficacy is the TetraTech Report. While those data are limited, they reveal that the HPSA treated coarse fraction (the ablation waste that DISA will leave on site) does not meet EPA drinking water or New Mexico groundwater standards in many cases. TetraTech Report at 50, Ex. 14; 51, Ex. 15; 52, Ex. 16. The TetraTech Report, which is the only data the NRC relies upon, and to NM Mining Watch’s knowledge is the only available data on this issue, provides Synthetic Precipitation Leaching Procedure (“SPLP”) leachability test results, which demonstrate that natural precipitation leaching through the coarse fraction left onsite after ablation is complete would exceed state and federal water quality standards in many cases. In its speculative scenario where it assumes DISA’s hypothetical HPSA operations will perform flawlessly, NRC fails to consider the only actual data available that indicates HPSA waste (coarse fraction) will, in many cases, leach contaminants into the ground and groundwater. By any standard, the NRC failed to take the required “hard look” at HPSA.

In addition, in the EA, NRC consistently repeats the fallacious assertion that because the coarse fraction is “inert,” it will meet water quality standards. EA at 9. As defined in the EA, “inert” means that the coarse fraction is not water-soluble and does not rot like organic material. Id., fn.3. This definition reveals nothing about whether the coarse fraction may leach contaminants into ground or surface water.

Finally, the NRC fails entirely to evaluate the environmental and public health impacts of the alternative of off-site removal in the EA....To adequately comply with NEPA, rather than just assuming ablation byproduct material will not leach contaminants into water resources when left in place or plowed into existing soil, the NRC should have evaluated the water resources impacts of requiring DISA to remove the coarse fraction to a lined waste disposal site with leak detection systems and monitoring.

Response: *The dose modeling performed by DISA to develop screening criteria equivalent to the unrestricted release criteria assumes that there is no potable water for use at the site. For sites where the assumptions used to develop the screening criteria are not applicable (e.g., sites with potable water wells), DISA would use dose modeling to reflect the site-specific land uses and pathways. Details about the dose modeling for sites can be found in the NRC staff’s Safety Evaluation Report (ML25226A192). Disa would be required to meet all applicable local, State, Tribal, and Federal regulations at each site. Disa would have to demonstrate compliance with applicable regulations prior to releasing process water at the site. Disa would also have to demonstrate compliance with NRC radiological release criteria prior to placing coarse fraction material at the site. If the dose from the coarse fraction does not meet NRC regulatory limits, then Disa would not be allowed to place the material back on the site and would be required to either treat the material again or dispose of it at a LLRW facility.*

The EA does not use the term “inert” in the assessment of potential impacts in section 3.4, and the NRC staff has removed the term “inert” from other sections of the EA. The NRC staff would review site-specific information to confirm the coarse fraction at the site meets the NRC’s regulations prior to approving discharge at the site. Disa would be required to demonstrate that the coarse fraction does not include quantities of leachable radionuclides that would negatively

impact site groundwater. The NRC staff's Safety Evaluation Report describes the specific requirements for the coarse material that would be included in the license.

Regarding an alternative of removing the coarse material from the sites, DISA would need to demonstrate before mobilizing to a site that the coarse material would meet requirements in the license, and DISA would not mobilize to a site if premobilization analyses indicate that the coarse material from that site cannot be treated sufficiently.

Commenter ID: 12 (E. Jantz)

Comment: Specific C: NRC Failed to Take a Hard Look at HPSA's Impacts on Water Quantity....the EA only considers a single county water system in Colorado as the basis for evaluating HPSA's impact on water supplies and NRC's conclusion that it will not have any significant environmental impacts. This evaluation does not satisfy NEPA's hard look requirement. Additionally, NRC fails to consider impacts of climate change on water availability.

Response: *The NRC staff provided an example of water resources in a single county but that example is not represented as indicative of water availability throughout fourteen western states. Some sites will be in areas of the country with limited water availability. The NRC staff review of the PMN would consider whether the assumptions in the EA are consistent with site-specific conditions. The PMN would also describe applicable permits and licenses necessary to operate at the site, which could include local, State, Tribal, and Federal permits for water consumption and use. The NRC staff has added clarifying information to section 3.4.2 of the EA.*

Commenter ID: 14 (S. Fields)

Comment: The processing of materials at a uranium mine site would also be subject to EPA Ore Mining and Dressing Effluent Guidelines at 40 C.F.R. Part 440 Subpart C, Uranium, Radium and Vanadium Ores Subcategory. These regulation apply to the discharge of water at a uranium ore processing site....Section 3.4.2 - This section fails to consider any possible requirements for discharge of mine water pursuant to EPA Regulation at 40 C.F.R. § 440.30 Ore Mining and Dressing Point Source Category, Uranium, Radium and Vanadium Ores Subcategory. The EA also fails to consider the fact that any on-site or off-site discharges...are discharges of 11e.(2) byproduct material and subject to existing NRC and EPA regulations under the Uranium Mill Tailings Radiation Control Act of 1978. The EA fails to mention the type of NRC license or permit that the owner or administrative authority of the sites where the HPSA processing would take place must obtain to authorize the use of the Disa HPSA technology to process ore and produce wastes that meet the definition of 11e.(2) byproduct at the former mine sites.

Response: *Regarding the applicability of 40 CFR 440.30, while the NRC does not regulate mines or mine discharge, this regulation would appear not to apply to the activities proposed by DISA under a service-provider license within the 10 CFR part 40 source material framework. Likewise, per SRM-SECY-23-0055, because the proposed HPSA AUM remediation is not uranium milling, any wastes generated by the process are not 11e.(2) byproduct material under UMTRCA.*

Commenter: 11 (B. Cohen):

Comment: Ablation also uses a lot of water which must be protected in our arid climate. The NRC's EA says that DISA's HPSA technology will use hundreds of thousands of gallons of fresh water every month over the span of eight months to thirteen years. Most uranium mine waste is in rural communities, so this water use will put an enormous and additional strain on rural

municipal water systems. It is inhuman and reckless to test this new technology on living beings in a fragile desert environment.

Commenter: 1 (A. Curtis)

Comment: Lastly, in the New Mexico desert water is a precious and very limited resource. You need only come out to our deserts and see for yourself why we value water so highly. HPSA uses water to blast off the uranium from waste rock, wasting an astronomical amount of fresh water that could be used by livestock or communities.

Commenter: 4 (D. Detweiler)

Comment: I wish to second the conclusions of communities that would be affected by the water-intensive uranium rock washing process. I consider any impact in such a dry climate to be significant. And where is the wash water to go that would be any safer than leaving it where it is? Without further testing I object to subjecting indigenous lands to additional contamination. Thank you for your ear.

Commenter: 3 (J. Goldstein)

Comment: The process is not harmless and will exacerbate the problem of water scarcity in rural municipal systems.

Commenter: 5 (P. Sheely)

Comment: The process takes a lot of water which is a limited commodity that our communities depend on for life. The NRC's EA says that DISHA's HPSA technology will use hundreds of thousands of gallons of freshwater every month for years. The wastewater will be contaminated and can easily reenter the aquifer. Is there a proven process for cleaning the water?

Response: *DISA would need to obtain authorization from the applicable water use authority or authorities to obtain water for HPSA use. DISA would identify the water source in the PMN, and the NRC staff would assess whether potential water use impacts associated with HPSA operations at a site could be different from the impacts in the EA. DISA would be required to meet all applicable local, State, Tribal, and Federal regulations prior to releasing process water at the site. No changes were made in the EA in response to these comments.*

B.2.10 Radiological Exposures

Commenter ID: 10 (J. Prijatel)

Comment: *Radiological Exposure Pathways* – The Draft EA identifies potential radiological exposures of up to 11.82 millisieverts per year (mSv/yr) (1,182 millirem per year (mrem/yr)) for workers and 0.88 mSv/yr (88 mrem/yr) for the public from HPSA operations at a Tier 5 site (p. 32). Table 8 also reports higher modeled external dose rates and annual doses. By comparison, EPA's radionuclide National Emission Standards for Hazardous Air Pollutants (NESHAP) standard (40 CFR Part 61) limits public exposure via air emissions to 10 mrem/yr to the maximally exposed member of the public, while EPA's standard for uranium fuel cycle facilities (40 CFR Part 190) is 25 mrem/yr, and NRC's limits are 100 mrem/yr for the public and 5,000 mrem/yr for workers.

The Draft EA does not clearly distinguish between internal and external dose components or explain why the reported levels appear to exceed applicable federal limits. For example, values labeled as "maximum radiological exposure" on page 32 differ from those in Table 8 (p. 47), which presents external dose rates only and explains that the highest values reflect unrealistic

bounding scenarios. Internal dose estimates are limited to a single occupational value (5.6 mrem/yr, p. 46), with additional data deferred to the license application. These inconsistencies make it difficult to evaluate exposure pathways or compare results against regulatory benchmarks.

In addition, the Draft EA does not fully evaluate how exposures could vary with land use (e.g., grazing, residential, restricted access) or from handling and transport of material streams. Although residential proximity is acknowledged, it is not meaningfully assessed as a reasonably foreseeable condition for future site-specific analyses. EPA's Treatability Study further shows that radionuclides concentrate in fine fractions, underscoring the importance of dust and handling risks across all material streams.

Recommendations: To address uncertainties in reported dose values and ensure exposures are clearly evaluated against regulatory standards, the EPA recommends that the Final EA:

- Revise and expand Table 8 to break out and specify dose rate and annual dose into internal, external, and total dose for workers and members of the public.
- In the text, clearly describe pathways, exposure scenarios, and calculation methods.
- Incorporate radiological exposure results from Section 3.11 into the broader exposure analysis, with attention to land use scenarios.
- Clarify how dose levels (up to ~1,000 mrem/yr) are evaluated in relation to federal radiation protection standards.
- Identify control technologies, mitigation measures, or project modifications necessary to reduce exposures and demonstrate compliance.
- Expand Appendix A's premobilization checklist to require:
 - An evaluation of anticipated post-remediation land uses emphasizing protectiveness under realistic scenarios.
 - Disclosure of residential proximity, with protective measures such as residential reuse standards, enhanced dust monitoring, or institutional controls.
 - Site-specific dust control and monitoring for excavation, processing, and hauling.

Response: *Section 3.11.2.1 of the EA notes that the maximum reported dose in table 8 is above NRC regulatory limits. However, this dose is illustrative and not expected; it is highly conservative and assumes workers would behave in unrealistic ways (e.g., standing adjacent to the source term for the full 8-hour workday every day). The maximum occupational external dose was calculated in Section 3.11.2.1 to be 1176 mrem for a site with 1 HPSA unit. The bounding maximum dose for a tier 5 site with 4 HPSA units is 4793 mrem. The internal dose in Table 14-5 from the application supplement is added to this value for a total effective dose equivalent of 4798 mrem, which is below the NRC regulatory limit in 10 CFR 20.1201 of 5000 mrem. Additionally, this dose is also highly conservative because no worker would be exposed to the maximum external dose from all 4 HPSA units concurrently.*

The NRC staff has revised section 3.11 to clarify whether doses are internal, external, or totaled. Exposure pathways for the public are heavily dependent on local land use. Variance in exposure due to land use is considered in the NRC staff's safety evaluation and dose modeling. Without site-specific information, potential exposure pathways contain significant variability. The generic EA considers a conservative bounding condition, and the staff would conduct reviews of

site-specific exposure scenarios during the PMN review prior to DISA mobilizing to a site. The requirement for detailed dose modeling in the PMN is described in section 3.11.2.3 of the EA and the NRC's Safety Evaluation Report, and would be a condition of the license.

B.2.11 Geology and Soils

Commenter ID: 10 (J. Prijatel)

Comment: In order for the coarse material to remain at the site, Section 3.3 of the Draft EA states that Disa must meet NRC regulatory requirements for unrestricted site reuse 10 CFR 20.1412 (p. 20). However, NRC requirements may not always be sufficient to protect land use and human health at specific sites. For example, AUMs on the Navajo Nation may require more stringent cleanup levels. To meaningfully evaluate whether Disa's technology can treat mine wastes to protective levels, it is recommended that the Final EA disclose the range of criteria and requirements that would need to be achieved in comparison to the results of the Disa treatability studies.

Recommendations: To clarify cleanup expectations and evaluate whether HPSA can achieve protective levels across jurisdictions, the EPA recommends that the Final EA:

- Describe that more stringent soil cleanup goals may apply at certain sites to ensure protection of human health and meet standards.
- Include a table presenting NRC's unrestricted use requirements alongside the numerical range of cleanup levels/criteria that may be required from other jurisdictions (i.e., states, Navajo Nation).
- Evaluate the ability of HPSA to meet the full range of applicable protective levels that could be required.

Response: *Federal, State, or Tribal requirements may apply to specific sites and those requirements may be more stringent than the NRC's limits. DISA must obtain all needed authorizations from other agencies with authority over a given site and meet all applicable requirements. At this time, the NRC staff has no specific information about potential sites. DISA would conduct an evaluation to determine its ability to meet applicable protective levels when it identifies a site as part of the PMN and in obtaining any other authorizations. The NRC staff has clarified in section 3.3.2 of the EA that more stringent soil cleanup criteria may apply at some sites.*

Commenter ID: 7 (S. Sanderlin)

Comment: 1. In the Final High-Pressure Slurry Ablation Treatability Study Report submitted to the U.S. Environmental Protection Agency by Tetra Tech, Inc. and Disa Technologies, Inc. in December 2023, key findings included that the high pressure slurry ablation process did reduce uranium and radium-226 concentrations but was insufficient to achieve clean up goals for uranium and radium-226. The draft environmental assessment indicates Disa Technologies, Inc. will leave treated coarse materials on-site for disposal after treatment in accordance with 10 CFR 20.1402, but it is not clear how those treated materials will meet 10 CFR 20.1402 if one of the key findings presented by Disa Technologies, Inc. was that high pressure slurry ablation was insufficient to achieve clean up goals for uranium and radium-226.

Response: *The potential dose from the treated coarse material is a function of site-specific properties and the expected land use and will need to be evaluated on a site-specific basis. DISA would need to demonstrate to the NRC before mobilizing to any site that the waste from the site could be treated using HPSA such that the coarse material would meet NRC's requirements for unrestricted release. DISA is responsible for ensuring it meets any other*

Federal, State, or Tribal requirements that may apply to the coarse material being reintegrated into the site after HPSA operations conclude.

Commenter ID: 12 (E. Jantz)

Comment: Specific B: NRC Fails to take a Hard Look at the Soil Impacts of DISA's Hypothetical Projects and its FONSI is Unwarranted. The TetraTech Report, which is the sole data source for the NRC's analyses, indicates that ablation 11(e)(2) byproduct material, i.e., the coarse fraction left behind after ablation, would have uranium and radium concentrations high enough to make areas where the coarse fraction remains unsuitable for residential or agricultural use in most cases.... Even though the HPSA process reduced uranium and radium levels in the ablated wastes, the upper end of the resulting concentration ranges exceeded residential and sheep camp standards for both contaminants, and in some cases, exceeded the higher uranium standards in EPA's residential screening criteria and for Navajo open space lands. Residual radium concentrations in the ablated wastes did not satisfy the Navajo Nation release standards, and were even greater than NRC's 10 CFR Part 40 Appendix A standard for residual radium in the first 6 centimeters ("cm") of remediated soils of 5 picoCuries per gram ("pCi/g") around uranium mill tailings piles.... The lack of complete quantitative data to inform the EA and FONSI is another deficiency in NRC's review of the DISA application. Rather than take the requisite hard look at whether available data support the assertion that ablated sites will be remediated to allow for unrestricted release, the NRC specifically avoids that analysis, deferring it to a site-specific inquiry

Response: *Disa must demonstrate that a treated site meets the unrestricted release dose criteria prior to demobilization using concentration-based screening criteria based on the 25 mrem/year unrestricted release dose limit, or dose modeling (see the NRC staff's Safety Evaluation Report at ML25226A192). The majority of data available for HPSA treatability is from the 2023 treatability study. The phased licensing approach will require a pilot study to provide additional data, and before mobilizing to any site Disa would perform laboratory testing on site material to confirm that the HPSA process can effectively remediate the waste to meet NRC requirements. DISA would determine the applicability for each site of any other regulatory requirements, such as Navajo Nation regulations. As the NRC is not licensing this technology under the uranium milling framework, as set forth in SRM-SECY-23-0055, appendix A to 10 CFR part 40 does not apply. The staff has added information about the pilot test to section 2.1.1 of the EA.*

B.2.12 Air Quality

Commenter ID: 8 (N. Vehr)

Comment: Chapter 6, Section 2, Permitting. For diesel generators (such as those mentioned in Section 3.6.2.1 of the Environmental Assessment) and other air pollution-emitting sources that will be utilized during the project, it is recommended that the New Source Review (NSR) Program be contacted to ascertain whether a permit is required. This should be done prior to the installation of the sources.

Response: *NSR could be applicable to HPSA operations, and DISA should consult with appropriate agencies to determine whether a permit would be needed. The staff has revised section 3.6.1.2 in response to this comment.*

B.2.13 Waste

Commenter ID: 14 (S. Fields)

Comment: Since the proposed license is for the possession and processing of source material ore, pursuant to 10 C.F.R. Part 40, then the processing wastes are subject to NRC and EPA regulations applicable to the handling and disposal of 11e.(2) byproduct material....The Implementation Guidance for 10 CFR Part 40 clearly states that under a general license, “you may not concentrate or extract uranium or thorium in ores if the primary purpose of the process is to concentrate or extract the source material because you would create waste, which is considered 11e.(2) byproduct material and would require a specific license to possess.” Therefore, the waste produced from the HPSA process to extract and concentrate source material (that is uranium and/or thorium) is considered to be 11e.(2) byproduct material and requires a specific license to possess.

Commenter ID: 14 (S. Fields)

Comment: The wastes from the processing of source material ore at abandoned uranium mine sites are not Low Level Wastes, they are 11e.(2) byproduct material. Treating those wastes as Low Level Wastes and not 11e.(2) byproduct material is a clear violation of the Atomic Energy Act and applicable NRC and EPA regulations.... Section 3.12.2 Environmental Impacts, Table 10. Table 10 provides false and misleading information, because it is not based on existing NRC and EPA regulations for the processing of any ore for its uranium and/or thorium content. There is no statutory or regulatory basis for the information provided in Table 10.

Response: *The proposed service-provider license is for the possession of source material under the source material framework in 10 CFR part 40, not the uranium milling framework. Therefore, the coarse material resulting from the HPSA process would not be classified as 11e.(2) byproduct material. The coarse material would need to meet NRC criteria for unrestricted release before being placed back onto the site. No changes were made in response to this comment.*

B.2.14 Regulatory Framework and Basis

The NRC received numerous comments pertaining to the regulatory framework for the proposed issuance of a license to DISA.

Commenter ID: 12 (E. Jantz)

Comment: General A: The NRC’s Actions Violate both NEPA and the Atomic Energy Act as Amended by the Uranium Mill Tailings Radiation Control Act. Preliminarily, the process by which the NRC is generically licensing DISA’s HPSA operations is contrary to law. As NRC Staff has previously declared on at least four separate occasions, HPSA is uranium milling and therefore subject to 10 C.F.R. Part 40, including Appendix A.

Commenter ID: 13 (T. Stills)

Comment: Instead of implementing the strict licensing provisions that UMTRCA requires for the uranium processing and concentration activities and instead of providing the site-specific analysis required by NEPA and UMTRCA, the DGEA/FONSI seeks to clothe NRC staff with the authority to make ad hoc site-specific approvals for milling activities that create 11e2 byproduct materials that require licensed disposal and perpetual care. The FONSI fails to recognize significant impacts from milling activities that “could range from six months for small sites to almost 13 years for large sites.” EA at 1. The DGEA contradicts an uninterrupted line of state

and federal determinations that have confirmed the activities proposed by Disa creates 11e2 byproduct material that requires UMTRCA Part 40 licensing.

Commenter ID: 13 (T. Stills)

Comment: Instead of addressing known and foreseeable impacts now, the DGEA leaves NRC staff free to quietly allow a proliferation of mill tailing disposal sites throughout the Western United States without site-specific UMTRCA licensing and NEPA analysis....The proposed use of “pre-mobilization notice” to compare assumptions in the GEA with the actual site has no basis in UMTRCA, Part 40 regulations, NEPA, or federal public lands law.

Commenter ID: 14 (S. Fields)

Comments: The commenter expressed concerns that the NRC’s classification of mine waste as “source material ore” triggers regulatory obligations under the Atomic Energy Act and NRC and EPA regulations. The commenter stated that the EA and the *Federal Register* notice included the word “ore” without discussing the statutory and regulatory framework for the proposed action. The commenter stated that if the NRC is issuing a milling license, the resulting coarse material would be classified as 11e.(2) byproduct material, but if the NRC is issuing a different type of license, the NRC needs to clarify the regulatory framework for this license. The commenter stated that the EA must be withdrawn because the proposed licensing action does not conform to the milling regulatory framework. The commenter also stated that the NRC is attempting to establish a new regulatory framework for the processing of ores for their uranium and/or thorium content. The commenter stated that the coarse material would meet the definition of 11e.(2) by product material and that its disposition onsite would occur outside the Atomic Energy Act and NRC and EPA regulatory frameworks. The commenter raised concerns about the difference between managing milling wastes (under permanent government control) and managing the materials resulting from the HPSA process. The commenter stated that the EA’s evaluation of impacts, especially concerning the use of water, is not meaningful because the proposed activities lack a legal framework. The commenter stated that the EA and FONSI must be withdrawn and revised to comply with existing legal and regulatory standards.

Response: *The NRC staff would determine in site-specific reviews whether the site-specific conditions and proposed activities warrant further review, including whether potential site-specific impacts could be significant. Regarding section 1.1 of the EA and a statement in the NRC’s Federal Register notice announcing the availability of the draft EA, the NRC staff agrees the use of the word “ore” was incorrect. The draft EA and the notice explained that use of the HPSA process to separate uranium and thorium fines from mine waste rock and soils would result in licensable quantities and concentrations of source material, and the NRC has further clarified in section 1.0 of the final EA that the NRC did not consider this material to be ore per SRM-SECY-23-0055 and AEA § 11e.(2). The NRC staff has added a discussion of the regulatory framework to section 1.0 of the EA. The NRC staff’s Safety Evaluation Report provides a complete list of the regulations and guidance that informed the NRC staff’s safety review of DISA’s application (available at ML25226A192).*

Commenter ID: 1 (A. Curtis)

Comment: There is also a question around the legality of this. Mining of uranium is not allowed on Navajo Nation, and while Disa markets HPSA as a remediation solution, it does produce ore, which would be transported to the White Mesa Mill in Southern Utah, this mill only accepts ore. It is unclear to me how Disa is able to say that this is a byproduct of remediation while it is on Navajo Nation, but when it is moved to the mill it becomes ore.

Response: *The NRC staff acknowledges Navajo Nation law prohibiting uranium mining and related activities on Navajo lands. The NRC staff's understanding is that DISA would need to obtain authorization from the Navajo Nation to operate HPSA on any Navajo Tribal lands or Tribal Trust lands, in addition to any other Federal, State, Tribal, or local approvals. The NRC is proposing to license DISA for HPSA operations as a service-provider under the source material framework in 10 CFR part 40. Under this framework, for each site where Disa intends to operate, Disa develops the information required by license condition for inclusion in the PMN, the NRC staff reviews the PMN to ensure that the safety and environmental reviews appropriately bound the site-specific proposal, and the staff performs any site-specific supplemental evaluation as appropriate. If the NRC concludes that the PMN is adequate, it will accept the PMN and Disa will have NRC approval to use HPSA to treat the AUM waste site. In addition, Disa will need to acquire any other Federal, State, Tribal, or local approvals for its operations, including any plans to ship the fines concentrates to another facility.*

Commenter ID: 13 (T. Stills)

Comment: De Facto Rulemaking. the DGEA proposes to create a new regulatory gap that would avoid Part 40 licensing of Disa's proposed processing and concentration of uranium from ores at these mine sites, for the express purpose of shipping the milled product for further processing into yellowcake. This is both contrary to law, and a waste of resources that should be focused on other persistent problems, such as poorly designed and leaking uranium tailings cells, ineffective groundwater remediation, and other unresolved regulatory/disposal issues at existing facilities....NRC staff should either propose new legislation or a comprehensive rulemaking that addresses persistent and controversial licensing deficiencies across NRC's Part 40 licensing program. Whichever route NRC staff chooses, Administrative Procedure Act rulemaking or legislation, NRC staff must inform the public and provide comment opportunities via the NEPA process.

Response: *The proposed action is to issue a service-provider license to DISA under the existing source material framework in 10 CFR part 40. The NRC staff's review is based on the evaluation of Disa's license application. Rulemaking is not necessary to issue the subject license, as "ore" is not defined in AEA § 11e.(2) or NRC regulations.*

With respect to agency resources and ongoing oversight of licensees, these comments are outside the scope of this EA. The NRC has an established program for providing oversight of existing uranium milling facilities, although most are now located in NRC Agreement States where the State, not the NRC, is the regulator. Additionally, any member of the public may raise potential health and safety issues in a petition to the NRC per § 2.206 of the NRC's regulations.

Commenter ID: 9 (S. Cohen)

Comment: *Use of the Word "Ore" – Section 1.1, Lines 33 and 34. Staff states that it's going to issue a license for possession and processing of source material ore. This is not true. DISA is treating abandoned uranium mine waste. DISA is being licensed for the source material that it will be generating in the fines concentrates, but the material DISA is treating is a waste not an ore. If we were processing ore, then we would be milling, which is not allowed under our currently licensing framework.*

Response: *The NRC staff has deleted the word "ore" from the sentence.*

B.2.15 References Section of the EA

Commenter ID: 14 (S. Fields)

Comment: 16. Section 8.0 References. The list of References fails to include 1) EPA regulations that are applicable to source material ore and its processing, mine ore dressing, and regulation of discharge of mine water from uranium recovery operations off-site; 2) correspondence between the NRC staff and various entities (members of the public, State of Colorado, Navajo Nation, Western Uranium and Vanadium Corporation, and others) related to the NRC opinions regarding the use of ablation as a technology to process uranium ore; 3) NRC SECY-23-0055; and 4) the development of NRC guidance related to the use of new technologies to process materials at abandoned uranium mines.

Response: *The NRC staff has added SECY-23-0055 (ML23121A271) and the associated Staff Requirements Memorandum (ML24269A245) to the References section of the EA.*

B.2.16 Editorial Comments

Commenter ID: 8 (N. Vehr)

Comment: Page 7, Table 1. The final column (Area Needed for Treatment) should be updated to include the units (i.e. square feet) as described on page 8, paragraph 3 (lines 25-34).

Response: *The NRC staff has updated the table as suggested in the comment.*

B.2.17 New Technology

Commenter ID: 11 (B. Cohen)

Comment: There are many reasons that this is a terrible and dangerous idea. First, DISA's ablation technology is still in an experimental stage. DISA has never conducted a commercial scale HPSA operation and as has too often been the case throughout U.S. history, DISA and the federal government have chosen to try out unproven technology on Indigenous communities.

Commenter ID: 1 (A. Curtis)

Comment: High Pressure Slurry Ablation is a largely experiential technology that has never been tested as scale. For far too long, new technologies have been tested on indigenous lands and indigenous peoples and that is exactly what Disa is seeking to do here. We should be using tested, reliable, proven methods to restore land on Navajo Nation but relying on new experimental technologies.

Commenter ID: 6 (M. Pollitt)

Comment: Using an unproven method (ablation) to clean up uranium waste on Indian Nation lands using a large amount of precious water is backward thinking and yet one more way of stepping on the rights of people who were here before us. The process has not been tried on a large scale and been proven to work. I believe that even "trying" this technology will set back uranium mine clean up for years.

Response: *DISA's HPSA operation is a new technology, as the commenters stated. Before operating at a site, DISA would conduct a small pilot test of HPSA operations to demonstrate the process can effectively concentrate uranium and thorium, removing them from the mine waste. DISA would not be able to operate at a site without appropriate permissions from other*

Federal, State, and Tribal agencies, as applicable for each site. No changes were made in the EA in response to these comments.

B.2.18 General Statements of Opposition

Commenter: 11 (B. Cohen)

Comment: As a resident of the state of New Mexico for over 40 years, and in respect and protection of our indigenous Native American friends and neighbors and the land we all share, I am writing to tell you that I oppose the proposal of DISA Technology, Inc.'s proposal to use High Pressure Slurry Ablation (HPSA) to clean up radioactive waste from abandoned uranium mines on the Navajo Nation including in the Red Water Pond Road Community.

Commenter: 2 (S. Elrod)

Comment: There are better ways to handle this ablation. Please remember the downstream and long term effects of this procedure.

Commenter: 3 (J. Goldstein)

Comment: I oppose High Pressure Slurry Ablation as a solution to the problem of clean-up of harmful radioactive waste on Indigenous lands.

Commenter: 5 (P. Sheely)

Comment: I am a citizen of McKinley County, New Mexico. I am concerned about the past, present, and future impact of uranium mining on the Navajo people and its impact on the environment. It is highly unethical to use the Navajo Nation and its people as a test site. Touting this technology will allow anyone considering further uranium mining to claim that cleanup is no longer an issue. The amount of uranium recovered will not be financially profitable. In closing, the ablation process will expose people, the environment, and our aquifers to further radiation contamination without really solving the problem.

Response: *The NRC staff understands there is opposition to this technology. If the NRC issues a license to DISA, DISA would need to abide by the conditions of the license and any site on which DISA operates would need to be left in a condition that meets NRC unrestricted release standards. The concentrated uranium and thorium material (fines concentrates) would be removed from the sites and sent to a licensed facility. The coarse material would be reintegrated back onto the site only after DISA demonstrates that it meets NRC requirements. DISA would not be able to operate on any site without obtaining all applicable permissions and authorizations, including additional Federal, State, Tribal, and local authorizations that may apply. No changes were made in the EA in response to these comments.*