Attachment IV
Applicable or Relevant and Appropriate Requirements (ARARs)

Attachment IV. Applicable or Relevant and Appropriate Requirements and To Be Considered Requirements for Quivira Mines

Table A-1 and Table A-2 list the federal and Navajo Nation location- and action-specific applicable or relevant and appropriate requirements (ARAR) and "To Be Considered" (TBC) requirements, respectively, that have been identified for all the alternative response actions described in the engineering evaluation/cost analysis (EE/CA) for the Quivira Tronox Mine Site (Quivira Mines). The U.S. Environmental Protection Agency (USEPA) did not identify chemical-specific ARARs or TBCs because potential federal, State of New Mexico, and Navajo Nation chemical-specific ARARs were not as conservative as the risk-based cleanup standards developed for this action. Chemical-related requirements tied to an action such as cap design were included in the action-specific table (Table A-2). Identification and evaluation of ARARs is an iterative process that continues throughout the response process. As site conditions, contaminants, and response alternatives at the Quivira Mines are better understood, the ARARs and TBCs and their relevance to the removal action may change. ARARs and TBCs are finalized in the action memorandum for the selected response action.

Cleanup standards were derived through the USEPA risk assessment process in accordance with the following USEPA guidance.

- "Clarification of the Role of Applicable, or Relevant and Appropriate Requirements in Establishing Preliminary Remediation Goals under CERCLA" (USEPA 1997a)
- "Establishment of Cleanup Levels for CERCLA [Comprehensive Environmental Response, Compensation, and Liability Act] Sites with Radioactive Contamination" (USEPA 1997b)

The following Navajo Nation laws, regulations, and guidance are not considered ARARs or TBCs for the response actions anticipated by this EE/CA; however, they are listed here because situations may arise during implementation of the alternatives discussed in the EE/CA or during future actions at the Quivira Mines where these requirements may be applicable.

- Navajo Nation CERCLA, 4 Navajo Nation Code (N.N.C.) Sections (§§) 2101-2805 The Navajo Nation CERCLA requirements must be complied with during implementation of the response action if petroleum contamination is discovered at the Quivira Mines because Navajo Nation CERCLA Section (§) 2104.Q includes petroleum in the definition of hazardous substance. Based on site investigations thus far, petroleum contamination is not anticipated.
- Navajo Nation Underground and Aboveground Storage Tank Act of 2012 (NNSTA), 4 N.N.C. §§ 1501-1577 If any permanent storage tanks are found at a site, including both underground and aboveground storage tanks and tanks holding not only petroleum but any hazardous substances, NNSTA § 1542(C)(1) requires removal of the tanks. (The guidance for temporary/mobile storage tanks brought on site is included in Table A-2 as a TBC because that situation is anticipated to arise.)
- Navajo Nation Business Opportunity Act, 5 N.N.C. §§ 201-214, and the Navajo Preference in Employment Act, 15 N.N.C. §§ 601-619 While these are not environmental regulations and, therefore, are not ARARs, these regulations give preference to Navajo Nation businesses and individuals when hiring employees and contractors to perform the response actions anticipated by this EE/CA.

Attachment IV. Applicable or Relevant and Appropriate Requirements and To Be Considered Requirements for Quivira Mines

• Navajo Nation Diné Radioactive Materials Transportation Act (RMTA), 18 N.N.C. §§ 1304-1307 – RMTA is not applicable to onsite activities; however, its requirements may be applicable to transportation on public roads on the Navajo Nation between sites that are subject to a combined action pursuant to CERCLA § 104(d)(4), as well as for shipment of radioactive materials through the Navajo Nation generally. RMTA § 1307 includes specific requirements that are not found in federal law, including advance notice of the transportation of radioactive and related substances, equipment, vehicles, persons, and materials over and across the Navajo Nation, as well as license fees, bonding requirements, route restrictions, and curfews.

The EE/CAs for which the ARARs tables below were prepared do not address groundwater and, therefore, ARARs for groundwater are not included. If any groundwater contamination is found at the Quivira Mines, the related ARARs will be addressed at that time.

References:

- U.S. Environmental Protection Agency (USEPA). 1997a. "Clarification of the Role of Applicable, or Relevant and Appropriate Requirements in Establishing Preliminary Remediation Goals under CERCLA." Office of Solid Waste and Emergency Response (OSWER) Directive No. 9200.4-23. August.
- USEPA. 1997b. "Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination." OSWER Directive No. 9200.4-18. August.
- USEPA. 1998. "Use of Soil Cleanup Criteria in 40 CFR Part 192 as Remediation Goals for CERCLA Sites." OSWER Directive No. 9200.4-25. February.
- USEPA. 2014. "Radiation Risk Assessment at CERCLA Sites: Q&A." OSWER Directive No. 9200.4-40. May.

Table A-1. Location-Specific ARARs and TBC Information

Media	Requirement	Requirement Synopsis	Prerequisites, Status, and Rationale	
	FEDERAL	Protects Native American cultural items from unpermitted	Applicable	
	The Native American Graves Protection and Repatriation Act	removal and excavation and requires the protection of such items in the event of inadvertent discovery. Excavation or removal of cultural items must be done under procedures required by this act and the Archaeological Resources	Substantive requirements are applicable if cultural items (meaning human remains and associated or	
Cultural	25 U.S.C. §§ 3002(c) and (d) 43 CFR §§ 10.3(b)-(c) and	Protection Act (Section 3 (c)(1)).	unassociated funerary objects, sacred objects, or cultural patrimony) are inadvertently discovered or intentionally excavated or removed	
Resources	10.4(b)-(e)		within the area to be disturbed. If cultural items are discovered, on-	
			going activity in the area of discovery must stop, the relevant Indian tribe official must be notified immediately, and reasonable effort must be made to protect such cultural items.	
	FEDERAL	Federal agencies are required to consider the effects of	Applicable	
	National Historic Preservation Act	federally funded (in whole or in part) activity on any historic property or objects and minimize harm to any National Historic Landmark. Federal agencies may be required to	Substantive requirements are applicable if a federally funded activity could adversely affect historic property (meaning a prehistoric or historic district, site, building, structure, or object) included on, or	
Cultural Resources	54 U.S.C. §§ 306101(a), 306102, 306107, and 306108	identify historic properties or objects, determine whether proposed activity will have an adverse effect on historic properties or objects, and develop alternatives or		
	36 CFR §§ 800.3(a) and (c); 800.4(a)-(c); 800.5(a)-(b); 800.6(a)-(b); 800.10(a); 800.13(b)-(d)	modifications to the proposed action that could avoid, minimize, or mitigate adverse effects through the National Historic Preservation Act's Section 106 process.	eligible for inclusion on, the National Register of Historic Places.	
	FEDERAL	Protects significant scientific, prehistorical, historical, and	Applicable	
Cultural	Preservation of Historical and Archaeological Data	archaeological data. When a federal agency action may cause irreparable loss or destruction of significant data, the agency must notify DOI and either recover, protect, and	Substantive requirements are applicable if a federal agency action	
Resources	54 U.S.C. §§ 312502(a) and 312503	preserve the data itself or request DOI to do so.	may cause irreparable loss or destruction to significant scientific, prehistorical, historical, or archaeological data.	

Table A-1. Location-Specific ARARs and TBC Information

Media	Requirement	Requirement Synopsis	Prerequisites, Status, and Rationale	
	FEDERAL	Prohibits the excavation, removal, damage, or alteration or	Applicable	
Cultural	Archaeological Resources Protection Act of 1979	defacement of archaeological resources on public or Indian lands unless by permit or exception.	Substantive requirements are applicable if eligible archaeological resources are within the area to be	
Resources	16 U.S.C. §§ 470cc(a)-(c) and 470ee(a)		disturbed.	
	43 CFR §§ 7.4(a), 7.5(a), 7.7, 7.8(a), 7.9(c), and 7.35			
	FEDERAL	Policy of the United States to protect access to and the use	TBC	
Cultural Resources	American Indian Religious Freedom Act	of religious, ceremonial, and burial sites and sacred objects by Native American groups.	Policy should be followed if Native American sacred sites are identified	
	42 U.S.C. § 1996		within the area to be disturbed.	
	FEDERAL	Prohibits the killing, capturing, taking, and incidental taking of	Applicable	
Biological	Migratory Bird Treaty Act	protected migratory bird species, their parts, nests, and eggs without DOI's prior approval. Protected migratory birds species are listed at 50 CFR § 10.13.	without DOI's prior approval. Protected migratory birds.	Substantive requirements are
Resources	16 U.S.C. § 703(a)		applicable if migratory birds or their nests are present at or near the site.	
	50 CFR §§ 10.13 and 21.10		neste are present at or near the site.	
	FEDERAL	Prohibits the unpermitted taking, including the killing, disturbing, or incidental taking, of bald and golden eagles, their parts, nests, and eggs.	Applicable	
	Bald and Golden Eagle Protection Act		Substantive requirements are applicable if bald or golden eagles or	
Biological	16 U.S.C. §§ 668(a)		their nests are identified at or near the site.	
Resources	50 CFR §§ 22.10; 22.80(a), (c)-(f); 22.85(a)-(b) and (d)-(e)		one.	
	50 CFR § 13.21(b)			

Table A-1. Location-Specific ARARs and TBC Information

Media	Requirement	Requirement Synopsis	Prerequisites, Status, and Rationale
	FEDERAL	Federal agencies must ensure that any activities funded,	Applicable
	Endangered Species Act	carried out, or authorized by them do not jeopardize the continued existence of any threatened or endangered	Substantive requirements are
Biological	16 U.S.C. §§ 1531(c); 1536(a)(2), (c)-(d), (g)-(h), and (l); 1538(a) and (g); 1539(a)	species or result in the destruction or alteration of such species' habitats. Endangered and threatened species are listed at 50 CFR Part 17, Subpart B.	applicable if endangered or threatened species are identified at the site.
Resources	50 CFR §§ 17.21(a)- (c);17.22(b); 17.31(a) and (c);17.32(b); 17.82; and 17.94(a)		
	50 CFR §§ 402.09; 402.12 (a)-(b) and (i); 402.14(a); 402.15(a)		
	NAVAJO NATION	Prohibits alteration, damage, excavation, defacement,	Applicable
Cultural Resources	Navajo Nation Cultural Resources Protection Act	destruction, or removal of cultural properties.	Substantive requirements are applicable to activities at the AUM
	11 N.N.C. §§ 1003(S); 1021; and 1031		sites where cultural resources may be encountered.
	NAVAJO NATION	Establishes procedures and guidelines to be followed for	TBC
Cultural Resources	Navajo Nation Policy for the Disposition of Cultural Resources Collections	excavation (as a last resort) and disposition of cultural resources recovered on the Navajo Nation, including the handling of inadvertent discovery.	TBC for activities on AUM sites where cultural resources may be encountered.
	Sections 2 and 6.1 (These sections would trigger other provisions in the policy)		

Table A-1. Location-Specific ARARs and TBC Information

Media	Requirement	Requirement Synopsis	Prerequisites, Status, and Rationale
Cultural Resources	NAVAJO NATION Navajo Nation Guidelines for the Treatment of Discovery Situations	Establish procedures and guidelines to be followed in any situation involving the discovery of cultural or historic property, including historical and prehistoric archaeological sites and traditional cultural properties and human remains whether or not previously identified.	TBC NNHHPD performs these functions pursuant to a contract with BIA under which NNHHPD serves as the BIA's agent.
Cultural Resources	NAVAJO NATION Navajo Nation Policy for the Protection of Jishchaá: Gravesites, Human Remains, and Funerary Items	Establishes principles for locating and handling of gravesites, human remains, and associated artifacts and soil in the area to be disturbed by AUM removal activities. See in particular Section IV (Traditional Concerns), which contains requirements if the AUM activity comes into contact with gravesites, human remains, or funerary items. It imposes specific requirements for how to navigate around, prepare for, and respond to burial grounds and uncovered remains. See also Section V (Encountering Gravesites, Human Remains, and Funerary Items), which specifies the procedures when an inadvertent discovery is made. Sections VI and VII contain additional requirements in that event.	TBC
Biological Resources	NAVAJO NATION Navajo Nation Endangered Species Act 17 N.N.C. §§ 500-508 Navajo Nation Endangered Species List – Resource Committee Resolution RCAU-103-05	NNESA § 507 makes it unlawful for any person to "take, possess, transport, export, process, sell or offer for sale or ship any species or subspecies of wildlife" listed as endangered or threatened on federal or Navajo Nation lists, which also protect those species' critical habitat. NNESA §§ 500-504 and 506-508 also protect, to various extents, game fish, game birds, songbirds, game animals, fur-bearing animals (all defined under § 500), and hawks, vultures, and owls from being taken. The Navajo Nation Endangered Species List includes species that are not on the federal list. It also provides broader criteria for when species would be listed based on their prospects of survival or recruitment within the Navajo Nation (see categories "G2" and "G3"). Category G4 provides a means for the Navajo Nation Department of Fish and Wildlife to include additional species (or exclude species),	Applicable Substantive requirements applicable if protected species or habitat are identified within the area to be disturbed on AUM sites.

Table A-1. Location-Specific ARARs and TBC Information

Media	Requirement	Requirement Synopsis	Prerequisites, Status, and Rationale	
		making it possible for the list to change during the course of work.		

Table A-1. Location-Specific ARARs and TBC Information

Notes:

§ Section
§§ Sections

ARAR Applicable or relevant and appropriate requirement

AUM Abandoned uranium mine
BIA Bureau of Indian Affairs
CFR Code of Federal Regulations
DOI U.S. Department of the Interior

N.N.C. Navajo Nation Code

NNESA Navajo Nation Endangered Species Act

NNHHPD Navajo Nation Heritage and Historic Preservation Department

TBC To be considered U.S.C. United States Code

Table A-2. Action-Specific ARARs and TBC Information

Media	Requirement	Requirement Synopsis	Prerequisites, Status, and Rationale
	FEDERAL	Emissions of radionuclides to the ambient air from DOE	Relevant and Appropriate
	Clean Air Act	facilities shall not exceed those amounts that would cause any member of the public to receive in any year an	This standard is applicable to a DOE
	42 U.S.C. §§ 7401, et seq.	effective dose equivalent of 10 millirems per year.	facility. The site is not a DOE facility; therefore, this standard is not applicable.
Air	40 CFR § 61.92		However, this standard has been determined to be relevant and appropriate during removal action activities because of potential emissions of radionuclides during excavation of the waste and movement of the waste.
	FEDERAL	Radon-222 emissions to the ambient air from a uranium	Relevant and Appropriate
	Clean Air Act	exceed 20 picocuries per square meter per second.	These requirements are applicable to
	42 U.S.C. §§ 7401, et seq.		nonoperational uranium mill tailings piles. The site's waste to be disposed of is not
Air	40 CFR §§ 61.222(a)		uranium mill tailings. These requirements have been determined to be relevant and appropriate to the design of the engineered cover to be constructed in Alternative 2, which consists of onsite containment of the contaminated soil and uranium waste rock.
	FEDERAL	Requires BMPs to abate discharges of pollutants from	Applicable
	Clean Water Act	stormwater discharges, including erosion and sediment control BMPs. All treatment and control systems and	If there are discharges to WOTUS.
Water	33 U.S.C. § 1342(p)(3)(A)	facilities will be properly operated and maintained.	Relevant and Appropriate
vvalei	NPDES – Stormwater Discharges		If there are discharges to Navajo Nation surface waters (as defined in Table 206.1
	40 CFR §§ 450.21		of Navajo Nation Surface Water Quality Standards 2015).

Table A-2. Action-Specific ARARs and TBC Information

Media	Requirement	Requirement Synopsis	Prerequisites, Status, and Rationale
	FEDERAL	Requires implementation of erosion and sediment	Applicable
	Clean Water Act	controls to minimize the discharge of pollutants in stormwater from construction activities. Natural buffers or	For operators of construction activities if
	33 U.S.C. § 1342(p)	equivalent erosion and sediment controls must be	weather events necessitating stormwater runoff controls occur during onsite
Water	NPDES 2022 Construction General Permit for Stormwater Discharges from Construction Activities Part 2. Technology-Based Effluent Limitations. Section 2.2. Erosion and Sediment Control Requirements, Subsection 2.2.1.	provided and maintained for discharges to receiving waters within 50 feet of the site's earth disturbances. For any discharges to receiving waters within 50 feet of the site's earth disturbances, one of the following alternatives must be complied with: i. Provide and maintain a 50-foot undisturbed natural buffer ii. Provide and maintain an undisturbed natural buffer that is less than 50 feet and is supplemented by erosion and sediment controls that achieve, in combination, the sediment load reduction equivalent to a 50-foot undisturbed natural buffer iii. If infeasible to provide and maintain an undisturbed natural buffer of any size, implement erosion and sediment controls to achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.	excavation, waste consolidation, and repository construction.
	FEDERAL Prohibits the unpermitted discharge of dred		Applicable
	Clean Water Act	material into WOTUS other than incidental fallback. Should dredge and fill material be discharged to a	If there are discharges to WOTUS.
	33 U.S.C. § 1344	WOTUS, the chemical, biological, and physical impacts	Relevant and Appropriate
Water	CWA § 404(b) Guidelines 40 CFR §§ 230.10; 230.61, and 230.71-76	to the WOTUS must be tested and evaluated. Any adverse effects shall be minimized by treating the material before discharge, limiting the mobility of the discharge materials and avoiding or limiting impacts to WOTUS that serve as wildlife habitat, recreational space, or other use by humans.	If there are discharges to Navajo Nation surface waters (as defined in NNCWA § 1302(43) and listed in Table 206.1 of Navajo Nation Surface Water Quality Standards 2015).

Table A-2. Action-Specific ARARs and TBC Information

Media	Requirement	Requirement Synopsis	Prerequisites, Status, and Rationale
	FEDERAL	Onsite CERCLA actions conducted by a federal agency	Applicable
	Clean Water Act	that involve the discharge of dredged or fill material into WOTUS must comply with the substantive requirements	If there are discharges to WOTUS.
	33 U.S.C. § 1344	of the Nationwide Permit 38 general conditions, as	Relevant and Appropriate
Water	CWA § 404 Nationwide Permit 38 – Clean Up of Hazardous and Toxic Waste appropriate, and any regional or case-s recommended by the U.S. Army Corps district engineer after consultation.		If there are discharges to Navajo Nation surface waters (as defined in NNCWA § 1302(43) and listed in Table 206.1 of Navajo Nation Surface Water Quality Standards 2015).
	FEDERAL	Requires design of uranium mill tailings disposal sites to	Relevant and Appropriate
	Uranium Mill Tailings Radiation Control Act	provide for control of residual radioactive materials for up to 1,000 years to the extent reasonably achievable and, in any case, for at least 200 years. The uranium mill	These standards are applicable to UMTRCA Title I sites. The site is not a
Repository	42 U.S.C. §§ 7918 and 2022	tailings disposal site must also be designed and stabilized in a manner that minimizes the need for future	Title I site; therefore, these requirements are not applicable. These requirements have been determined to be relevant and
	40 CFR §§192.02(a) and (d)	maintenance.	appropriate to the design of the engineered cover to be constructed under Alternative 2, which consists of onsite containment of the contaminated soil and uranium waste rock.
	FEDERAL	Concentrations of radioactive material that may be	Relevant and Appropriate
	NRC Regulations	released to the general environment in groundwater, surface water, air, soil, plants, or animals must not result	This standard is applicable to NRC sites.
Repository	Protection of the General Population from Releases of Radioactivity 10 CFR § 61.41	in an annual dose exceeding an equivalent of 25 millirems to the whole body, 75 millirems to the thyroid, and 25 millirems to any other organ of any member of the public. Reasonable effort should be made to maintain releases of radioactivity in effluents to the general environment as low as is reasonably achievable.	The site is not an NRC site; therefore, this requirement is not applicable. This standard was found to be relevant and appropriate to the design of the engineered cover to be constructed in Alternative 2, which consists of onsite containment of contaminated soil and uranium waste rock.
All	NEW MEXICO	Requires the protection of the general population from the release of radioactivity.	Relevant and Appropriate
	NMAC § 20.3.13.1317	1010400 of fadioactivity.	

Table A-2. Action-Specific ARARs and TBC Information

Media	Requirement	Requirement Synopsis	Prerequisites, Status, and Rationale
			This regulation is the same as 40 CFR § 192. This requirement is not applicable to the site but is relevant and appropriate.
	NEW MEXICO	Establishes standards for protection against radiation.	Relevant and Appropriate
All	NMAC § 20.3.4		This regulation is the same as 10 CFR § 20. This requirement is not applicable to the site but is relevant and appropriate.
	NEW MEXICO	Establishes performance and reclamation standards and	Relevant and Appropriate
Soil	NMAC §§ 19.10.5.507 and 19.10.5.508	requirements for noncoal mining operations.	This regulation provides revegetation requirements for existing noncoal mining operations, as well as other reclamation requirements.
	NEW MEXICO	Establishes state authority to control and prevent soil	TBC
Soil and Water	New Mexico Soil and Water Conservation District Act New Mexico Statutes Annotated 73-20-25	erosion, prevent floodwater and sediment damage to soil, and conserve natural resources.	This regulation will be a TBC to the extent that it does not conflict with CERCLA, the National Contingency Plan, 40 CFR Part 300, or other federal requirements.
	NEW MEXICO	This guidance is used to assist mine site responsible	TBC
Soil	Joint Guidance for the Cleanup and Reclamation of Existing Uranium Mining Operations in New Mexico (March 2016)	parties in addressing soil radiation at existing uranium mines as part of reclamation activities.	This guidance will be a TBC to the extent that it does not conflict with CERCLA, the National Contingency Plan, 40 CFR Part 300, or other federal requirements.
	NEW MEXICO	Used to implement and evaluate vegetation success and	TBC
Soil	Guidance for Soil Suitability, Revegetation and Self-Sustaining Ecosystem (1996)	soil cover material properties and reclamation.	This guidance will be a TBC for restoration of excavated or covered waste.

Table A-2. Action-Specific ARARs and TBC Information

Media	Requirement	Requirement Synopsis	Prerequisites, Status, and Rationale	
All	NAVAJO NATION Navajo Nation Fundamental Law 1 N.N.C. §§ 201-206 Navajo Nation Guidance on the Uniform Application of Fundamental Law to AUM Cleanup Activities (2022)	The Navajo people have an obligation under the Navajo Nation Fundamental Law to listen to elders and medicine people and respect, preserve, and protect Mother Earth as stewards and guardians for the benefit of future generations. The 2020 guidance explains the principles of the Navajo Nation Fundamental Law and how the principles would be applied at the various stages of AUM cleanup.	reserve, and protect Mother Earth dians for the benefit of future keplains the principles of the Navajo aw and how the principles would TBC Navajo Nation Fundamental Law and the 2022 guidance will be TBCs to the extent that they do not conflict with CERCLA, the National Contingency Plan, 40 CFR Part 300, or other federal requirements.	
Soil and Water	NAVAJO NATION Navajo Nation Underground and Aboveground Storage Tank Act of 2012 – 4 N.N.C. §§ 1501-1577, as amended NNEPA Storage Tank Program Guidance No. 3 (ASTs at Construction Sites) – Section III (Operating Guidelines)	Regulates storage of petroleum and other regulated substances in underground tanks and ASTs. This guidance clarifies that the NNSTA applies to ASTs that are temporarily placed at construction sites within the Navajo Nation. It requires such ASTs to file tank information forms with NNEPA, locate the tank within a secondary containment area, secure the tank to prevent movement on the containment surface or mount it on metal skids (not on an elevated stilt rack), and contact the Navajo Nation Storage Tank Program for an inspection of the AST to check for evidence of soil contamination both before the first deposit of a regulated substance and when the AST is removed from the site.	TBC Guidance should be followed for AUM response activities requiring ASTs to be brought to sites (for example, for fuel needed for equipment and vehicles).	

Notes:			
§	Section	NMAC	New Mexico Administrative Code
§§	Sections	N.N.C.	Navajo Nation Code
ARAR	Applicable or relevant and appropriate requirement	NNCWA	Navajo Nation Clean Water Act
AST	Aboveground storage tank	NNEPA	Navajo Nation Environmental Protection Agency
AUM	Abandoned uranium mine	NNSTA	Navajo Nation Underground and Aboveground Storage Tank Act
BMP	Best management practice	NPDES	National Pollutant Discharge Elimination System
CERCLA	Comprehensive Environmental Response, Compensation, and	NRC	U.S. Nuclear Regulatory Commission
	Liability Act	TBC	To be considered
CFR	Code of Federal Regulations	UMTRCA	Uranium Mill Tailings Radiation Control Act
CWA	Clean Water Act	U.S.C.	United States Code
DOE	U.S. Department of Energy	WOTUS	Waters of the U.S.