criteria specified below. After review of public comments received on the site-wide EE/CA, the Forest Service determined it was not necessary to revise the selection of these preferred alternatives for the Project area in response to public comments. The Forest Service has determined that implementing the proposed action in this way is expected to result in post-reclamation conditions at the Project area that are materially consistent with the stated objectives of the preferred alternatives, Forest Service responses to comments, appropriate risk reduction requirements and criteria established in this Action Memorandum by the Forest Service, and the requirements of the NCP.

1. Proposed Action Description

The proposed action is to contain, consolidate, stabilize, and vegetate contaminated soil, spoils, and sediment associated with the historic mining activities within the Riley Pass Uranium Mines site associated with Bluffs B, C, D, E, G, and H that are on lands administered by the Forest Service. The proposed actions will substantially lower the human health risk to an approximate value of 1×10^{-5} which is considered safe by both the U.S. EPA and Forest Service by mitigating exposures to acutely and significantly contaminated materials as explained immediately below and then in Section 1.a. At its discretion Tronox may be involved during this removal action with the mitigation of material (including contaminated material) on adjacent private lands that have migrated from historic mining activities on lands administered by the Forest Service. This may involve the return of impacted materials that have migrated off of National Forest System lands back to NFS lands. Management of these materials will be in accordance with the criteria established herein.

The proposed action will be accomplished by implementing the preferred alternatives for these bluffs identified in the EE/CA and in doing so, applying the reclamation criteria specified below. The selection of one alternative over another was based, as described in the EE/CA, on the presence of acutely contaminated material on a given bluff and the relative reduction of the human health and environmental risks required at each bluff to meet U.S. EPA risk-protective standards. The preferred alternatives that constitute the proposed action are:

Alternative 3: Minimal Grading and Sediment Control (proposed action for Bluffs C, D, and E)

Alternative 3 is the preferred alternative for bluffs where the presence of significantly or acutely contaminated materials was not documented in the EE/CA. It involves, in those areas disturbed by mining where a protective vegetative cover has not successfully re-established and active erosion is occurring, smoothing of spoils and berm piles located on top of the bluffs and possibly using excess materials to spread over areas of high concentrations of arsenic, molybdenum, radium^{226}, and uranium^{235} and exposed lignite that may be identified. After any regrading of such areas, the materials would then be amended with organic material and/or fertilizer followed by the seeding of the area. Sediment basins and control ditches may be incorporated into the design as part of a Best Management Practice (BMP).

Alternative 5: Comprehensive Grading, Consolidation and Containment of Acutely Contaminated Materials, and Sediment Control (proposed action for Bluffs B, G, and H)

Alternative 5 is the preferred alternative for bluffs where the presence of significantly or acutely contaminated materials was documented in the EE/CA. It includes regrading the disturbed areas on portions of a bluff that contain limited amounts of contamination, and mitigation of significantly contaminated materials. Side slopes may need to be graded to allow for successful establishment of vegetative covers and for safety of workers during the implementation of the action. Partial removal of acutely contaminated waste materials would occur within the Project area. This removal and isolation is necessary for areas containing high concentrations of arsenic, radium^{226} and uranium^{235}, and to prevent more waste materials from entering the drainages of Schleichart Draw and Upper Pete's Creek. These acutely contaminated materials would be placed in engineered waste consolidation areas located within a bluff. Additional, excess waste materials from the side slopes may be excavated, hauled, and placed next to the high walls or within waste consolidation areas. Conceptual locations and designs of the waste consolidation areas were stated in the EE/CA. However, further work to locate and design appropriate waste containment areas will occur as part of the Removal Action. Construction of sediment basins would occur to control sediments from being carried from the area. As part of this alternative, run-on/runoff control ditches may be incorporated into the design to control storm water events. All re-graded areas will be amended with organic material or fertilizer and seeded.

The reclamation objectives are to reduce long-term maintenance requirements, ensure adequate rooting depth for grasses, shrubs, forbs, and/or other plants that will be planted, or may naturally establish, on the Project area, and prevent erosion of the soils and sediment.

The cleanup criteria defined below will determine the extent of excavation, re-grading, mitigation, and internment of the contaminated soils, spoils, and sediment. Cleanup levels established by these criteria (see Section 1.a., below) are protective of humans and ecological receptors from exposure to all contaminants (including the primary contaminants arsenic and radium^{226}). A direct correlation exists between arsenic and radium^{226} concentrations, therefore cleanup of the Project area to a risk-protective radium^{226} concentration will result in arsenic concentrations that, when combined with the risk associated with the radium^{226} will be protective of human health and potential environmental receptors. In addition, using radium^{226} as the direct clean-up guideline will allow for direct quantifiable measurements to be made in the field during the course of the removal action.

The following specific criteria will be met in the implementation of the Removal Action

Criteria 1: Applicable to Bluffs B, G, and H

The Forest Service has defined the following soil reclamation criteria that it has determined to be risk-protective and that will be applied to these bluffs. These criteria define the reclamation and materials handling requirements for these bluffs where there is demonstrable disturbance attributable to surface mining activities. Measurement to confirm attainment of these criteria will be based on surface gamma radiation readings correlated to radium^{226} activity and based on block averaging. Existing gamma survey data will be reviewed and limited supplemental surveys may be conducted as required to refine reclamation plans. This will provide the basis for applying the reclamation criteria. Upon completion of the site reclamation, Bluffs B, G, and H will be divided into appropriately sized grids. Utilizing radiation detector equipment, a transect survey will be conducted to the extent practical across each grid in order to record readings to verify that cleanup criteria have been met. Areas such as side slopes and highwalls will be scanned to the extent safety and accessibility allow. The average of the radiation readings collected in a specific grid block will be used to determine if the criteria have been met for that block.

Category 1: Less than or equal to 30 pCi/g Ra-226

If materials in this category at these bluffs are vegetated and sufficiently stable (i.e., no significant erosion occurring), they will be left undisturbed to the extent practical. If the materials are poorly vegetated and active significant erosion is occurring, they will be addressed by grading, compaction or otherwise stabilized and revegetated. Soil amendments needed to assist in a successful re-vegetation program will be determined by field test plots. Areas where the base rock is exposed will not be recovered and re-vegetated. Areas are to be monitored for successful re-vegetation for a period of 3 years.

Category 2: Greater than 30 pCi/g but less than or equal to 50 pCi/g Ra-226

For materials in this category at these bluffs, mitigation efforts will be implemented to bring average radium measurements down to less than or equal to 30 pCi/g by any practical combination, as necessary, of covering, removing, or other means identified in the field so long as the desired goal is achieved. Areas will be vegetated to achieve soil stability and prevent erosion as described above. Areas are to be monitored for successful re-vegetation for a period of 3 years.

Category 3: Greater than 50 pCi/g Ra-226

Materials in this category at these bluffs which were historically covered by significant volumes of overburden will be excavated and placed in a designed disposal repository located at the Project area. In the case of exposed coal seams in the highwall that exceed these criteria, the seams will be covered or otherwise mitigated where technically feasible but not excavated. While the number of disposal sites will be

limited, there may be more than one to allow for flexibility and efficiency in getting the material to a repository. Disturbed areas will be vegetated to achieve soil stability and prevent erosion as described above. Areas are to be monitored for successful re-vegetation for a period of 3 years.

Criteria 2: Applicable to Bluffs C, D, and E

The Forest Service has defined the following soil reclamation criteria that it has determined to be risk-protective and that will be applied to these bluffs. In areas at these bluffs where minimal overburden was historically present and vegetation has stabilized the soils so that no significant erosion is occurring, no reclamation will be required. In areas where only the base rock is exposed, no reclamation will be required provided no substantial erosion is occurring. In those small areas where active significant erosion is occurring due to poor vegetation cover, appropriate stabilization efforts will be performed along with the establishment of a vegetative cover. Materials associated with historic mining activities existing on and immediately adjacent to Forest Road 3130 in the area of Bluff E exceeding the Criteria 1; Category 2 Radium^{226} concentration will be relocated to an area away from the road, then stabilized and vegetated. Institutional controls such as signs or fencing may be temporarily implemented if deemed necessary until vegetative covers have been established and no erosion is exposing soil material. Areas are to be monitored for successful re-vegetation for a period of 3 years.

e. Address Identified Human Health and Environmental Threats

Regrading, stabilizing, and re-vegetation of spoil materials at the Project area will result in the development of a vegetative barrier between the human/environmental receptor and these materials, and will prevent migration of these materials from the Project area. Removal and isolation of acutely contaminated materials and mitigation of significantly contaminated materials is an appropriate response because it will stabilize soils and prevent sediment from migrating into the surface waters or coming into contact with or exposing human or environmental receptors to unacceptable risks.

Given the complex mineralogical make-up of the Riley Pass area and the corresponding background concentrations of certain metals and radioactive elements, the appropriate protective human health risk value for the area based on background arsenic conditions and scenarios described in the EE/CA, is 2 x 10^{-5}. The cleanup criteria selected by the Forest Service will result in a more protective post-reclamation risk level of 1 x 10-5.

A radium^{226} soil concentration of 30 pCi/g is protective to the 1 x 10^{-5} risk level for the most exposed individual described in the EE/CA (Permit Holder based on a 10% locally produced beef consumption scenario). When the radium^{226} soil concentration is 30 pCi/g, the corresponding arsenic concentration at Riley Pass is expected to be approximately 142 mg/kg (see Table 3- Bluff H data, below). This arsenic concentration in soil conservatively results in an estimated risk to the Permit Holder of 1 x 10^{-5}.

Exposures of ecological receptors at the Project area will also be risk-protective with

the implementation of the 30 pCi/g radium^{226} soil cleanup concentration. U.S. EPA recently published arsenic Eco-Soil Screening Levels (SSL) for protection of representative species of birds and mammals (March 2005). These SSLs support the selected criteria and cleanup levels. For birds the conservatively protective arsenic EcoSSLs range from 43 mg/kg (protective of an avian insectivore consuming all food from a confined area) to 1100 mg/kg for an avian carnivore. Similarly, for mammals, the range is 46 mg/kg for an insectivore confined to the area to 170 mg/kg for carnivores. The proposed action will result in average arsenic concentrations at or below 142 mg/kg in the most contaminated areas, and well below this concentration across the entire ecological exposure area.

TABLE 3 – Estimated Chemical Concentrations at 30 pCi/g Ra-226 in Soil

COPC*	Bluff H Average Soil concentrations mg/kg or pCi/g	Normalized to Ra-226 at 1 pCi/g mg/Kg or pCi/g	With Ra-226 at 30 pCi/g mg/kg or pCi/g
Arsenic	477.6	4.73	142
Molybdenum	616.6	6.10	183
Selenium	1.5	0.01	0.45
U-238	131	1.30	39
U-234	136	1.35	40
Th-230	135	1.34	40
Ra-226	101	1.00	30
Pb-210	101	1.00	30
U235	6.22	0.06	2
Pa-231	6.22	0.06	2
Ac-227	6.22	0.06	2

* Contaminant of Potential Concern

b. Justification for Proposed Response

The USDA Forest Service has proposed a Project area response which is a combination of EE/CA alternatives 3 and 5. This response was selected for the various areas within the Project area because it reduces post-reclamation exposures and risks to levels that are well within the range defined by U.S. EPA as protective of human health and the environment and provides the best combination of effectiveness, implementability, and cost as evaluated in the EE/CA.

Re-vegetation studies will be conducted as part of the removal action to determine the best soil stabilization, plant species mix, fertilizer, and amendment procedures that will ensure continued stabilization of the Project area and protection to human health and the environment.

c. Technical Feasibility and Probable Effectiveness

The proposed actions will effectively reduce exposure levels as well as contaminant mobility at the Project area by establishing a barrier between materials with contaminants at concentrations above risk-protective levels (acutely or significantly contaminated materials) and the human/environmental receptor. The proposed actions

for the various areas are technically and administratively feasible. The actions will reduce the human health risks to the $1X10^{-5}$ level which is protective under U.S EPA standards, and appropriate for this Project area given the fact that the natural background conditions (due to the complex mineralization of the area) constitute human health risks at a level greater than $1X10^{-6}$. Key project components such as equipment, materials, and construction expertise, although distant from the Project area, are available and would allow the timely implementation and successful execution of the alternatives.

Stabilizing and isolating contaminated soils and sediment will effectively eliminate pathways for human health risks such as inhalation/ingestion of contaminated soils and sediment, dermal contact with the contaminated material and gamma irradiation from direct exposure to the contaminated material. This action will require little maintenance and provide long-term effectiveness.

d. Further Information

No further information is needed to select the proposed action.

e. Verify Extent of Contamination

Final contours, visual observations, and field testing will be used to determine the completeness of the removal action. In particular, direct gamma measurements will be used to accurately quantify the radium^{226} concentrations. The direct gamma measurements will be accomplished by dividing the reclaimed areas into appropriate grids and by obtaining the average gamma reading for the individual grid cell to determine that the cleanup for that cell is met. This method will be used to direct the extent of the removal action since it is easily implemented in the field, allows for instant results, and because there is a direct correlation between radium^{226} and arsenic concentrations, it will allow for simultaneous verification of arsenic concentrations.

f. Sensitive Environments

Increased sedimentation may result during the implementation of the action at the Project area. These impacts can be mitigated by limiting the construction period to the drier months of the year and by implementing best management practices for storm water runoff. Since the Project area and surrounding locations are known to contain a high heritage site density, areas of new disturbance must be reviewed and approved by a Forest Service approved consultant or the Forest Archeologist prior to initiation of restoration work.

g. Access

The FS has legal access into the North Cave Hills across the county Tufte and Johnson Roads. Access roads will be maintained during the construction season. Any temporary access roads will be reclaimed at the completion of the construction season.

h. Uncertainties

Uncertainties associated with implementing these actions are limited to the uncertainty of knowing the exact volumes of the various categories of contaminated soils and sediment that will be addressed or isolated.

i. Institutional Controls

Following construction, a temporary 4-strand barbed wire fence may be constructed around the perimeter of reclaimed areas to protect against livestock and vehicle damage. The fencing will be removed once the area is re-vegetated.

Appropriate control measures will be instituted, such as recording a summary of the removal actions in land status documents and deed notices to notify potential users and possible future land purchasers of onsite hazards. These, and other control measures, will be reviewed and could be revised during future actions taken at the Riley Pass Uranium Mines site.

j. Off-Site Disposal

Off-site disposal was considered in the EE/CA, but was not brought forward for further evaluation since the contaminated materials are being disposed on-site and the benefits of transporting the material off-site would not justify the prohibitively high costs.

k. Post-Removal Site Controls

Post-removal site controls will be required. An operation, monitoring and maintenance plan will be prepared to define these controls. Post-removal site control at excavation and re-grading sites will involve monitoring to identify any problems with revegetation, drainage, or erosion.

l. Changes Resulting from Public Comments

Written comments were received on the final draft (June 2005) EE/CA from the EPA, South Dakota Department of Environmental & Natural Resources, South Dakota Game, Fish & Parks, Tronox, and other public and private entities. The comments and Forest Service responses are included in the Final EE/CA that is included with this Action Memorandum.

2. Short-Term Impacts

The major short-term impact to the closest community, residents, recreational users, and wildlife involves increased vehicle traffic and temporary delays to passage on various roadways surrounding the Project area. An increase in traffic will occur during mobilization and demobilization of construction equipment. Travel delays may also be necessary during removal and transport of contaminated material from various sediment

retention areas within the Pete's Creek and Schleichart Draw drainages. Increased traffic may impact wildlife by either changing their daily migration patterns or exposing them to a higher potential for injury or death due to collisions with vehicles. In addition, contaminated material that may be removed from private lands may temporarily impact the land owner's economic use of the area due to the short term removal of that land from agricultural uses.

3. Contribution to Remedial Performance

The selected Removal Action will likely be followed by other actions in the Riley Pass Uranium Mines Site area. This Removal Action will not mitigate all the mining impacts at the site. This source stabilization and removal will, however, address contributions from the major contributing areas within the Project area. This includes sediment impacts to surface water, and, in combination with the sum of all response actions for the overall site, is expected to meet project goals, objectives, and ARARs to the extent practicable. In addition the proposed action will lower the risk to human health and the environment. The proposed action will not impede future responses based on available information.

4. Description of Alternative Technologies

General response actions potentially capable of achieving response action objectives and goals were screened in the EE/CA (Pioneer, 2006). These included no action, institutional controls, engineering controls, excavation and treatment, and in-situ treatment.

a. Institutional Controls

Institutional controls include land use and access restriction. Institutional controls by themselves will not prevent migration of the contaminants off-site through surface water, or air. Therefore, institutional controls as a separate alternative were not considered by themselves in detail. However, institutional controls as components of other alternatives were considered.

b. Engineering Controls

Engineering controls limit the release or threat of release of hazardous substances generally by limiting mobility through isolation, and/or by limiting physical processes necessary for mobility. These measures included removal, containment, chemical fixation, and surface controls. All of these measures were incorporated into the alternatives considered for this Project area.

c. Waste Disposal

Waste disposal options are used as a source control measure by placing contaminated media in an engineered repository. The EE/CA evaluated excavation of the contaminated soils and sediment for disposal in an on site engineered repository.

However, due to the remoteness of the site and the large volumes of material in question, the EE/CA did not evaluate the excavation of the contaminated material for transport and placement in an off-site engineered repository.

d. Miscellaneous Alternatives

No evaluation was conducted for technologies that directly address surface water because water treatment technologies are beyond the scope of this phase of the response action. The removal of solid wastes from contact with the environment makes it likely that a reduction in contaminant concentrations will occur in surface water and streambed sediments.

Various response actions and technology types were evaluated but rejected due to a variety of reasons including uncertainties in effectiveness and high cost. These response actions included onsite reprocessing of the material to extract residual mineralization. The concentrate generated by reprocessing would be shipped offsite for processing, while byproducts of reprocessing would be consolidated and placed in an onsite repository, amended, if necessary, and revegetated.

5. Engineering Evaluation/ Cost Analysis (EE/CA)

Pioneer Technical, on contract to the Forest Service, prepared the final EE/CA that details site characteristics and identifies, develops, and evaluates alternatives. This undertaking was accomplished with substantial input from Forest Service specialists who analyzed the effects of the alternatives identified in the EE/CA and considered public comments. From this effort the Forest Service was able to select the preferred alternative. A copy of the EE/CA is attached (Pioneer, 2006).

6. Applicable or Relevant and Appropriate Requirements (ARARs)

Section 300.415(i) of the National Contingency Plan (NCP) and guidance issued by the Environmental Protection Agency (EPA) require that removal actions attain ARARs under federal or state environmental laws or facility siting laws, to the extent practicable considering the urgency of the situation and the scope of the removal (EPA, 1993). In addition to ARARs, the lead Agency may identify other federal or state advisories, criteria, or guidance to be considered for a particular release.

ARARs are categorized as either applicable or relevant and appropriate. Applicable requirements are those standards, requirements, criteria, or limitations promulgated under federal or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, or contaminant found at a site. Relevant and appropriate requirements are those standards, requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that are not applicable to a particular situation but apply to similar problems or situations, and therefore may be requirements for a response action to address.

The following tables identify those ARARs that were evaluated during the development of the EE/CA, and present the Forest Service's final determination of ARARs for the proposed action.

During preparation of this Action Memorandum, the Forest Service identified certain typographical errors in the ARARs tables contained in the Final EE/CA. All identified errors have been corrected in the tables below. The Forest Service reviewed the evaluation of alternatives in the EE/CA relative to ARARs and has determined that the evaluation and selection of the preferred alternatives is consistent with the final ARARs presented below.

FEDERAL ARARs FOR THE RILEY PASS PROJECT

FEDERAL- CHEMICAL SPECIFIC

Standard, Requirement Criteria Or Limitation	Citation	Description	ARAR Status
Ambient Water Quality Criteria	40 CFR Part 131 Quality Criteria for Water 1976,1980, 1986	Sets criteria for water quality based on toxicity to aquatic organisms and human health.	Not an ARAR for the actions being considered for this project
Soils Cleanup Criteria	40 CFR Part 192 Subpart B	This citing sets guidelines for the cleanup of sites that were used to process Uranium ores and as a result generated mill tailings that contain radio-nuclides. The actions proposed for this Project area are based on site-specific risk based clean up goals.	Not an ARAR for the actions being considered for this project
Exposure Limits for Radioactive Wastes	40 CFR Part 190 (10 CFR 20.1301)	Sets radiation exposure limits to the public	Relevant and Appropriate

FEDERAL- LOCATION SPECIFIC

Standard, Requirement Criteria Or	Citation	Description	ARAR Status

Limitation			
National Historic Preservation Act	16 USC § 470; 36 CFR Part 800; 40 CFR 6.310(b)	Requires Federal Agencies to take into account the effect of any Federally-assisted undertaking or licensing on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places and to minimize harm to any National Historic Landmark adversely or directly effected by an undertaking.	Applicable
Archaeological and Historic Preservation Act	16 USC § 469; 40 CFR § 6.301(c)	Establishes procedures to provide for preservation of historical and archaeological data, which might be destroyed through alteration of terrain, as a result of a Federal construction project or a Federally licensed activity or program.	Applicable
Historic Sites, Buildings and Antiquities Act *Appendix A, Executive Order No. 11, 990*	16 USC §§ 461-467; 40 CFR § 6.301(a)	Requires Federal agencies to consider the existence and location of landmarks on the National Registry of Natural Landmarks to avoid undesirable impacts on such landmarks.	Applicable
Protection of Wetlands Order	40 CFR Part 6, Appendix A, Executive Order No. 11,990	Avoid adverse impacts associated with destruction or loss of wetlands and avoid support of new construction in wetlands if a practicable alternative exists.	Applicable
Fish and Wildlife Coordination Act	16 USC §§ 2901-2912; 40 CFR Part 6.302(g)	Requires consultation when Federal department or agency proposes or authorizes any modification of any stream or other water body and adequate provision for protection of fish and wildlife resources.	Applicable
Floodplain Management Order	40 CFR Part 6	Requires Federal agencies to evaluate the potential effects of actions they may take in a floodplain to avoid the adverse impacts associated with direct development of a floodplain. (Only substantive portions are applicable to on-site actions)	Applicable
Endangered Species Act	16 USC §§ 1531-1543; 40 CFR 6.302(h); 50 CFR Part 402	Activities may not jeopardize the continued existence of any threatened or endangered species or destroy or adversely modify a critical habitat.	Applicable

Migratory Bird Treaty Act	16 USC §§ 703	Establishes a federal responsibility for the protection for the international migratory bird resource and requires consultation with the USFWS during reclamation design and reclamation construction to ensure the cleanup of the Project area does not unnecessarily impact migratory birds. Specific mitigation measures may be identified for compliance with this requirement. (Only substantive portions are applicable to on-site actions)	Applicable
Resource Conservation and Recovery Act Criteria for Classification of Solid Waste Disposal Facilities and Practices	40 CFR Part 257	Establishes performance criteria for solid waste disposal facilities and practices to avoid adverse effects on health or the environment	Relevant and Appropriate (For issues pertaining to the design and construction of a suitable repository)

FEDERAL- ACTION SPECIFIC

Standard, Requirement Criteria Or Limitation	Citation	Description	ARAR Status
Clean Water Act National Pollutant Discharge Elimination System (NPDES)	40 CFR Part 122.26	Requires permits for the discharge of pollutants from any point source into waters of the United States. The State of South Dakota has been delegated authority to implement the Clean water Act and enforces these through the Surface Water Discharge System. Sites under CERCLA are required to meet the substantive requirements of the permit but do not have to obtain an actual permit	This is not an ARAR for the actions being taken at this Project area because the action will not cause a point source discharge.
Hazardous	49 CFR Parts	Regulates the transport of hazardous waste	Relevant and

Materials Transportation Act Standards Pertaining to Transporters of Hazardous Waste	106-180	by rail, aircraft, vessel, or public highways. This includes metals that are listed under CERCLA.	Appropriate (If work utilizes State or County highways)
Resource Conservation and Recovery Act Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities	40 CFR Parts 264.116 through 264.310	Establishes minimum national standards that define the acceptable management of hazardous waste for owners and operators of facilities that treat, store, or dispose of hazardous waste. Because of the Bevill Amendment for mine wastes these regulations can not be considered applicable and only substantive portions of the regulations are relevant and appropriate to on-site actions)	Relevant and Appropriate (For issues pertaining to the design and construction of a suitable repository)

STATE ARARs FOR THE RILEY PASS PROJECT

STATE CONTAMINANT SPECIFIC

Standard, Requirement Criteria Or Limitation	Citation	Description	ARAR Status for the Riley Pass Project
Drinking Water Standards	ARSD 74:04:05	Established the MCLs for public water systems. These standards are not applicable because they apply to community water supply systems.	(See Note# 1 below)
Regulated Substances	ARSD 74:34:01:02	Prohibits the un-permitted release of regulated substances to the environment. No person may discharge to the environment a regulated substance listed in § 74:34:01:03 except pursuant to and in compliance with the conditions of a federal or state permit or by activities allowed by federal or state law or rule. The mixture of a listed regulated substance with a non-regulated substance subjects the mixture to full regulation under this chapter.	(See Note# 1 below)
Ambient Air Quality Standards	ARSD 74:36:02:01	Establishes air quality guidelines.	Relevant and Appropriate

Standard, Requirement Criteria Or Limitation	Citation	Description	ARAR Status for the Riley Pass Project
	ARSD 74:36:02:02	Establishes ambient air quality standards. South Dakota has adopted the ambient air quality standards listed in 40 C.F.R. §§ 50.1 to 50.12, inclusive (July 1, 1997), except as revised in publication 62 Fed. Reg. 38711 to 38712 and 38894 to 38895 (July 18, 1997). They define the types and levels of air pollution above which the ambient air would limit the attainment of the goals specified in § 74:36:02:01. These standards apply to the entire state of South Dakota, and no person may cause these standards to be exceeded. The standards stated in 40 C.F.R. §§ 50.1 to 50.12, inclusive (July 1, 1997), except as revised in publication 62 Fed. Reg. 38711 to 38712 and 38894 to 38895 (July 18, 1997), include normal background levels of air pollutants.	Relevant and Appropriate
Surface Water Quality Standards	ARSD 74:51:01	Establishes water quality standards for surface water in the state of South Dakota.	
	ARSD 74:51:01:02	Requires compliance with the criteria of a designated beneficial use. A person may not discharge or cause to be discharged into surface waters of the state pollutants that cause the receiving water to fail to meet the criteria for its designated beneficial use or uses.	(See Note# 1 below)
	ARSD 74:51:01:05	Prohibits materials causing pollutants to form in waters. Wastes discharged into surface waters of the state may not contain a parameter that violates the criterion for the waters' existing or designated beneficial use or impairs the aquatic community as it naturally occurs. Where the interaction of materials in the wastes and the waters causes the existence of such a parameter, the material is considered a pollutant and the discharge of such pollutants may not cause the criterion for this parameter to be violated or cause impairment to the aquatic community.	(See Note# 1 below)

Standard, Requirement Criteria Or Limitation	Citation	Description	ARAR Status for the Riley Pass Project
	ARSD 74:51:01:06	Prohibits visible pollutants. Raw or treated sewage, garbage, rubble, un-permitted fill materials, municipal wastes, industrial wastes, or agricultural wastes which produce floating solids, scum, oil slicks, material discoloration, visible gassing, sludge deposits, sediments, slimes, algal blooms, fungus growth, or other offensive effects may not be discharged or caused to be discharged in surface waters of the state.	(See Note# 1 below)
	ARSD 74:51:01:07	Establishes that no materials may be discharged or caused to be discharged which affect the pH of the receiving waters by more than 0.5 pH units. This does not apply to pH fluctuations of more than 0.5 pH units attributable to natural influences.	(See Note# 1 below)
	ARSD 74:51:01:08	Prohibits taste- and odor-producing materials. Materials which will impart undesirable tastes or undesirable odors to the receiving water may not be discharged or caused to be discharged into surface waters of the state in concentrations that impair a beneficial use.	(See Note# 1 below)
	ARSD 74:51:01:11	Establishes for the protection of wetlands as surface waters of the state. The discharge of pollutants from any source, including indiscriminate use of fill material, may not cause destruction or impairment of wetlands	(See Note# 1 below)
	ARSD 74:51:01:12	Establishes criteria for the biological integrity of surface waters of the state. All waters of the state must be free from substances, whether attributable to human-induced point source discharges or non-point source activities, in concentrations or combinations which will adversely impact the structure and function of indigenous or intentionally introduced aquatic communities.	(See Note# 1 below)

Standard, Requirement Criteria Or Limitation	Citation	Description	ARAR Status for the Riley Pass Project
	ARSD 74:51:01:14	Establishes allowable concentrations of radioactive iodine, radium, strontium, and tritium. The average dissolved concentrations including the naturally occurring or background concentrations of iodine-131, radium-226, strontium-89, strontium-90, and tritium may not exceed the following concentration limits: iodine-131, 5 pCi/L; radium-226, 5 pCi/L; strontium-89, 100 pCi/L; strontium-90, 10 pCi/L; and tritium, 300 pCi/L.	(See Note# 1 below)
	ARSD 74:51:01:15	Establishes allowable concentrations of miscellaneous radionuclides. For all radio nuclides not listed in § 74:51:01:14, the average dissolved concentration limits in surface waters of the state are 1/150 of the corresponding maximum permissible concentration in water for continuous occupational exposure for a 168-hour week as contained in pages 24 to 91, inclusive, of Handbook 69.	(See Note# 1 below)

Standard, Requirement Criteria Or Limitation	Citation	Description	ARAR Status for the Riley Pass Project
	ARSD 74:51:01:16	Establishes that where there is a mixture of dissolved radionuclides in surface waters of the state, the following relationship must be satisfied: $\frac{C}{L} + \frac{C}{L} + \ldots + \frac{C}{L} = 1.00$ With C denoting the average concentration or the respective radionuclide and L denoting its concentration limit established in § 74:51:01:14 or 74:51:01:15.	(See Note# 1 below)
	ARSD 74:51:01:18	Establishes criteria for suspended radionuclides. For radionuclides associated with suspended materials in the water, the average concentration limits are 1/150 of the corresponding maximum permissible concentration in water (insoluble form) for continuous occupational exposure for a 168-hour week as contained in pages 24 to 91, inclusive, of Handbook 69. In stream sedimentation of those materials may not produce solids beds and result in noncompliance, because of leaching, with the provisions of § 74:51:01:14, 74:51:01:15, or 74:51:01:16.	(See Note# 1 below)
	ARSD 74:51:01:19	Establishes that the maximum concentration for any one sample may not exceed three times the average concentration limits of radio nuclides specified in §§ 74:51:01:14 to 74:51:01:18, inclusive.	(See Note# 1 below)
	ARSD 74:51:01:34	Establishes the anti-degradation policy for surface waters of the state.	(See Note# 1 below)
	ARSD 74:51:01:38	Establishes policy for anti-degradation of water quality reviews for non-point source	(See Note# 1 below)