



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX  
75 Hawthorne Street  
San Francisco, CA 94105

**MEMORANDUM**

**DATE:**

**SUBJECT:** Approval for Change in Scope and Exemption from the \$2 Million and 12-Month Statutory Limits for Removal Action at the Cove Transfer Stations Site (Third Amendment to Action Memorandum), Tronox Navajo Area Uranium Mines, Cove Chapter, Navajo Nation Indian Reservation, Apache County, Arizona

**FROM:** Randy Nattis, On-Scene Coordinator  
Emergency Response Section (SFD-9-2)

**TO:** Enrique Manzanilla, Director  
Superfund Division (SFD-9)

**THROUGH:** Daniel Meer, Assistant Director, Emergency Response, Preparedness and Prevention Branch, Emergency Response Section (SFD-9-2)  
  
Laurie Williams, Senior Attorney  
Office of Regional Counsel (ORC-3)

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**I. PURPOSE**

The purpose of this memorandum is to request and document approval of a third amendment to the selected removal action for the Cove Transfer Stations Site (Site) on the Navajo Nation Indian Reservation within the Cove Chapter, in Apache County, Arizona. The proposed removal action would address erosion of the cover soils at the Cover Transfer Station #1 portion of the Site and failure of prior efforts to revegetate that cover.<sup>1</sup> The original Action Memorandum was dated September 19, 2012, and there have been two amendments dated June 6, 2013 and August 14, 2013. An exemption from the \$2 million statutory limit for a removal action was requested and approved in the original 2012 Action Memorandum (\$2,039,197) and in the two 2013 amendments (a total of \$3,593,197 in June 2013 and a total of \$4,625,197 in August 2013).<sup>2</sup> However, **total extramural expenditures at or in connection with the Site to date have**

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<sup>1</sup> No additional work is planned for the Cove Transfer Station #2 part of the Site as part of this amendment.

<sup>2</sup> Page 1 of the June 6, 2013 action memo lists a total ceiling for all response costs of \$5,114,997; page 9 states that the total direct extramural project ceiling is \$3,593,197. Similarly, page 1 of the August 14, 2013 action memo lists a

been only \$2,468,781.71 and the estimated direct extramural cost for the proposed action is \$1,152,000. As a result, this third amendment to the original Action Memorandum requests approval of a total direct extramural project ceiling of \$3,620,781.71 (\$2,468,781.71 + \$1,152,000). The funding will be provided from the Tronox Navajo Area Uranium Mines Special Account 09XL. The proposed removal meets the criteria for an Emergency Exemption and will allow the continuance of the removal action at the Site to mitigate exposure to alpha ionizing radiation, radium-226, and uranium contamination to the surrounding community.

In accordance with the Superfund Removal Guidance for Preparing Action Memoranda (“AM Guidance”) (OSWER September 2009), removal actions at non-NPL sites that may affect other sovereign nations, including Indian Tribes, are issues of national significance and require concurrence from the U.S. Environmental Protection Agency (EPA) Office of Land and Emergency Management. Region 9 has sought and obtained concurrence from the Office of Emergency Management. See Attachment IV.

## II. SITE CONDITIONS AND BACKGROUND

Site Status: Non-NPL  
Category of Removal: Time-Critical  
CERCLIS ID: NNN000906016  
SITE ID: 09XL

The original Action Memorandum was approved on September 19, 2012. A first amendment to the original Action Memorandum was approved on June 6, 2013, and a second amendment was approved on August 14, 2013. See Attachment IV.

### A. Site Description

#### 1. Physical Location

The Site consists of two transfer stations located in the Cove Chapter on the Navajo Nation Indian Reservation. The Cove Transfer Stations are 2.2 miles apart and located on opposite sides of Navajo Route 33. This proposed removal action would address Cove Transfer Station #1. The geographic coordinates for the approximate center of the area of concern of Transfer Station #1 are Latitude: 36° 33' 41.00” N, Longitude: 109° 13' 00.00” W. See Attachment II, Site Location Map & Site Photos.

Cove Transfer Station #1 occupies approximately 5.45 acres of land consisting primarily of undeveloped, open grazing land with a single-family residence located on the northern end with vacant land and a second single family residence approximately 200 feet farther to the north. The Cove Day School is located 250 feet from the southernmost corner of the Site. Transfer Station #1 was formerly occupied by a mining operation's field camp and an ore transfer station. Historic operations included stockpiling of uranium-bearing ore from mines located in the nearby Lukachukai Mountains. Between 1954 and 1968, uranium ore was temporarily stored at the

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total ceiling for all response costs of \$6,874,286, and page 9 states that the total direct extramural project ceiling is \$4,625,197.

terminal for subsequent transfer to an off-site processing mill in Shiprock.

## **2. Site Characteristics**

Portions of the Navajo Nation are on geologic formations rich in radioactive uranium ores. Beginning in the 1940s, widespread mining and milling of uranium ore for national defense and energy purposes on Navajo tribal lands led to a legacy of abandoned uranium mines. This Site is one of approximately 520 Abandoned Uranium Mines (AUMs) located on the Navajo Nation. Nearby residents have expressed concern to the Navajo Nation Environmental Protection Agency (NNEPA) regarding the potential for wind-blown and water-borne radioactive particles to migrate from the Site and impact their health as well as the health of their livestock and the environment.

Excavation work at the Site, including native vegetation removal, began in September 2012 and concluded on November 8, 2012. Approximately 12,370 cubic yards of contaminated soil were removed from the excavation zones on Transfer Station #1 and placed on Transfer Station #2. Contaminated soils were found at greater depth than expected at Transfer Station #1 and were left in place based on stability and cost considerations. Based on the elevated gamma activity in this area, excavation continued to a depth of 8 feet and suspected waste ore rocks were found throughout the excavated pit. It appeared that the pit was a former waste rock pit created during mining and/or ore transfer operations. Due to time and cost constraints on the removal action, the suspected waste rock pit was refilled and covered with 2 feet of clean backfill in order to eliminate the potential human health exposure risks. Sparse vegetation, such as trees and bushes, were also left in place to help anchor the existing soils and to preserve the existing vegetative growth. Approximately 5,500 cubic yards of clean fill were excavated from a local borrow source site and placed on top of contaminated soils within the excavated areas of Transfer Station #1. Due to the additional work to address the previously undetected contamination and increasingly unfavorable weather conditions, only a portion of the soil cover could be put in place during 2012. The June 2013 removal action was undertaken to complete placement of the soil cover.

The previous excavation activities around the sparse vegetation, combined with difficulties preserving correct compaction and soil moisture levels in the backfill and cover after completion of the previous actions, resulted in the death of both the old and new vegetation at the Site. The contaminated soils under the dead, mature vegetation are now visible and pose a potential exposure migration pathway. Additionally, the material used for the cover and backfill is eroding, failing to maintain sufficient cover, and creating a risk of exposing the contaminated soils below. If this should happen, there is a risk of potential exposure to the nearby residents and the children at the Cove Day School.

Heavy rains are expected this summer in association with the Southwest monsoons. These summer rains followed by the summer wind storms are likely to create a very high risk of extensive failure of the soil cover previously installed at Transfer Station #1. A restoration site design has been created by the U.S. EPA Environmental Response Team (ERT) special team to ensure a proper rearmament of the Transfer Station #1 cover through slope diversions, terraces, and rolled erosion control products. Additionally, the proposed action would include bringing in and treating backfill and cover soils with organic materials, lining downslope channels with rock

and providing a riprap cover over the steep sloped areas. Finally, straw wattles, a French drain system, vegetation and a low head drip irrigation system would be installed to maintain and ensure vegetative growth. Details of this plan can be found in Attachment III.

### **3. Site Reconnaissance**

On December 15 and 16, 2015, Scientific, Engineering, Response and Analytical Services (SERAS) contractors, in collaboration with the U.S. EPA ERT Work Assignment Manager (WAM), and the Region 9 On-Scene Coordinator (OSC) visited the Site to perform a site walkover and assess the general site conditions, including soil characteristics and local drainage patterns. During this visit, preliminary hydrologic restoration and stabilization designs were discussed. A second visit to the Site occurred on January 12 and 13, 2016, to perform a topographic survey of the slope and adjoining areas using a laser level and global positioning system (GPS) instrumentation. The acquired data was used to assist in evaluating a number of design options (discussed later) for stabilizing the slope and mitigating soil erosion.

### **4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant**

A soil cover of pulverized sandstone was placed within a 100 ft. radius of the residence on Transfer Station #1 during the prior removal actions. Since then, precipitation during winter and spring rain storms have eroded the soil cover in several areas adjacent to and downslope of the septic field of the residence as well as in other areas of Transfer Station #1. In some areas, this has resulted in exposure of underlying contamination. Removal and consolidation of contaminated soils, repairs to the existing soil cover, improvements to drainage and revegetation are needed, in order to restore protectiveness and prevent further erosion of the cover soils.

### **5. NPL status**

The Site is not on nor is it proposed for listing on the National Priorities List (NPL).

### **6. Maps, pictures and other graphic representations**

See Attached.

### **B. Other Actions to Date**

*See September 19, 2012 Action Memo (attached).*

*See June 6, 2013 Amendment 1 of the Action Memo (attached).*

*See August 14, 2013 Amendment 2 of the Action Memo (attached).*

### **C. State and Local Authorities' Roles**

#### **1. State and local actions to date**

No state or tribal actions have taken place at the Site. Formal consultations with the Navajo Nation for a broad range of AUM-related issues have been ongoing for several years,

and formal consultations for this removal action began in 2011. NNEPA is closely involved in the planning and execution of this additional removal action. These discussions satisfy the regulatory requirements of state and tribal referral.

### **III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES**

Current Site conditions pose a threat of ongoing and future releases of hazardous substances, namely: uranium and its progeny (*i.e.*, radium-226 and radon) and ionizing gamma and alpha radiation associated with those progeny. Consistent with the factors set forth in the NCP, 40 CFR § 300.415(b)(2), Region 9 has found that the conditions at the Site pose an imminent and substantial endangerment to the public health or welfare or the environment based on the likelihood of direct human exposure, via ingestion and/or inhalation of hazardous substances, and the threat of future releases and migration of those substances. The factors for this decision, as enumerated at 40 CFR § 300.415(b)(2), include:

#### **1. Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby populations or the food chain**

As described in the initial 2012 Action Memo and June and August 2013 amendments, radium-226 has been documented in soils at the Site. Radium is formed when uranium and thorium break down in the environment. Two of the main radium isotopes found in the environment are radium-226 and radium-228. During the decay process, alpha, beta, and gamma ionizing radiation are released. Radium may be found in air and water. Radium in the soil may be absorbed by plants.

Analytical results indicate that concentrations of radium-226 identified in soils at the Site exceed background and U.S. EPA Preliminary Remediation Goals (PRGs). Acute inhalation exposure to high levels of radium can cause adverse effects to the blood (anemia) and eyes (cataracts). Radium exposure also has been shown to affect the teeth, causing an increase in broken teeth and cavities. Exposure to high levels of radium results in an increased incidence of bone, liver, and breast cancer. The U.S. EPA and the National Academy of Sciences, Committee on Biological Effects of Ionizing Radiation, has stated that radium is a known human carcinogen (ATSDR 1999a). Inhalation of radium contaminated particulates is of particular concern. Radium emits alpha radiation, which, when inhaled, becomes a source of ionizing radiation in the lung and throat, possibly leading to toxic effects.

Ionizing radiation is comprised of particles and rays given off by radioactive material. These include alpha particles, beta particles, x-rays, and gamma rays. Ionizing radioactive particles and rays knock electrons from atoms and molecules (such as water, protein, and DNA) that they hit or pass by. There are myriad sources of low level ionizing radiation including the sun, rocks, soil, natural sources in the body, as well as human made sources. For example, additional exposures accompany each x-ray exam. Background level exposure to environmental ionizing radiation has not been shown to affect the health of children or adults. Exposure to greater than background levels of gamma ionizing radiation may increase the chance of getting cancer depending on a person's level of exposure (ATSDR

1999b).

Exposure to high doses of ionizing radiation can result in skin burns, radiation sickness, and death. If a pregnant woman is exposed to high levels of ionizing radiation, it may increase the chance of brain abnormalities in the developing fetus (ATSDR 1999b).

Uranium is found in small amounts in most rocks and soil. It slowly breaks down to its progeny including radium and radon. Radium and radon enter the environment from the soil, and from uranium mines and sometimes other types of mines. Uranium occurring in a subsurface vein is brought to the surface during mining activities. Thorium is also often present in uranium ore. One of the radioactive properties of uranium is its half-life, or the time it takes for half of the isotope to give off its radiation and change into another substance. The half-lives of uranium and its daughter isotopes are very long (between 200,000 years and 5 billion years). Inhalation and ingestion of uranium can result in kidney damage.

Much of the contaminated material at the Site is fine-grained and therefore likely to result in human exposure via inhalation or ingestion. The Site contamination is readily accessible to onsite full-time residents and potentially to nearby offsite residents. Persons occupying or traversing the Site may be exposed to contaminated dust by inhalation or ingestion of contamination sorbed to particulate matter. Incidences of direct contact with natural and mechanically generated dust during such activities accounts for known contamination exposure scenarios at the Site. Radium-226 and uranium may be entrained in naturally and mechanically generated dust and/or transported on shoes and clothing of residents passing over contaminated areas. Gardening and other yard work, including gathering traditional herbs and plants, also may result in exposure to contamination.

Activities that occur in contaminated areas that may put persons at risk include walking or hiking, livestock grazing, and different modes of transportation including all-terrain vehicles, motorcycles, or horses. Persons may drive their vehicles over contaminated areas as well, which likely contributes to exposure pathways via dust generation. Contamination in yards where children play may also be ingested. Children may eat contaminated soils during play activities.

While the majority of the contaminated material at the Site has been stabilized during the prior actions and consolidated onto Transfer Station #2, other materials remain at Transfer Station #1 that pose an unacceptable risk and would be addressed during the proposed removal action.

**2. High levels of hazardous substances in soils at or near the surface that may migrate**

Contamination in soils at the Site may migrate off-site via wind and water transport mechanisms. Specifically, radium daughter products, such as radon, have a tendency to adhere to dust particles and migrate.

**3. Weather conditions that may cause hazardous substances to migrate or be released**

Rainfall events may lead to transport of the contamination from the Site. High soil

erosion rates may indicate transport of contamination from the Site constituting a release of hazardous substances and resulting in additional areas of contamination. In addition, as noted above, contaminants may migrate during high wind events due to the propensity for contaminants to adhere to windborne dust particles.

**4. Availability of other appropriate federal or state response mechanisms to respond to the release**

NNEPA has informed U.S. EPA that it does not have the resources to address the Site. In 2011, the Navajo Nation sent U.S. EPA a written request for federal action to address the contamination in the Cove Transfer Station area.

**IV. ENDANGERMENT DETERMINATION**

If not addressed by implementing this proposed removal action, actual and threatened releases of hazardous substances from the Site may continue to present an imminent and substantial endangerment to the public health or welfare or the environment.

**V. EXEMPTION FROM STATUTORY LIMITS**

As explained above, the Site conditions continue to meet previously documented statutory emergency exemption criteria specified in the original 2012 Action Memorandum and the June and August 2013 amendments to the 2012 Action Memorandum. Pursuant to EPA delegations 14-2 and R9 1290.03A, the Assistant Director to the Superfund Division is authorized to determine whether an exception from the \$2 million and 12-month statutory limitations is warranted. EPA Region 9 believes that, consistent with the standards for exception stated in 42 U.S.C. § 9604(c)(1)(A) and 40 C.F.R. § 300.415(b)(5), an exception to the cost and time limits for removal actions is warranted for the following reasons:

**1. There is an immediate risk to public health or welfare or the environment**

The hazardous substances documented at the Site present a risk of exposure to external gamma and alpha ionizing radiation, radium-226, and uranium contamination to nearby residents, transient residents, livestock, and wildlife. Exposures to alpha ionizing radiation due to the presence of radium-226 pose an increased risk of toxic effects including cancer. See Section III.1 for more information and other health risks related to exposures to these hazardous substances.

**2. Continued response actions are immediately required to prevent, limit or mitigate an emergency**

If immediate actions are not taken to reduce, abate, and prevent discharges from the Site, then further damage to human health and the environment will continue from the release of radium-226. Contaminated soils at the Site are present in areas that are exposed to wind and water erosion.

**3. Assistance will not otherwise be provided on a timely basis**

The NNEPA does not have the capabilities or resources to carry out this effort in a timely manner. EPA Region 9's funding will come from the Tronox Special Account. As noted above, even after the initial actions taken pursuant to the 2012 and 2013 Action Memoranda, the proposed additional actions meet the criteria for an emergency exemption and are needed to mitigate the threat of exposures to alpha ionizing radiation, radium-226, and uranium contamination.

In conclusion, there is an immediate risk posed by the conditions at the Site, and an emergency exemption to the \$2 million and 12-month statutory limits is necessary to abate these threats.

## **VI. PROPOSED ACTIONS AND ESTIMATED COSTS**

### **A. Proposed Actions**

#### **1. Proposed action description**

U.S. EPA proposes to mitigate the imminent and substantial threats to human health and the environment at Transfer Station #1 by taking steps to prevent the release of radium-226, uranium, and external gamma radiation. The proposed activities include:

- 1) Stabilizing the affected slopes using erosion control measures and constructing slope diversion channels;
- 2) Restoring the roadside ditch with riprap material;
- 3) Removing dead or dying vegetation and excavating and consolidating any contaminated soils on site as appropriate;
- 4) Vegetating the affected slope with seeds and young plants, and providing irrigation with an onsite water tank to feed a drip irrigation system, until plants are established;
- 5) Performing post-restoration site inspections to assess potential maintenance actions; and
- 6) Conducting post-restoration Best Management Practices to ensure the success of newly planted vegetation.

#### **2. Contribution to remedial performance**

U.S. EPA has identified imminent threats posed by external gamma and alpha ionizing radiation, radium-226 and uranium contamination at the Site. This removal action should remove the immediate threats posed by uncontrolled hazardous substances at the Site.

#### **The long-term cleanup plan for the site:**

U.S. EPA's removal activities described in this action memorandum will address the uncontrolled hazardous substances at the Transfer Station #1 portion of the Site. U.S. EPA, in consultation with NNEPA, will make a future determination on the final response action with respect to the contaminated soil at Transfer Station #2.

Threats that will require attention prior to the start of a long-term cleanup:

It is expected that this removal action will eliminate any threat of direct or indirect contact with or inhalation of hazardous substances at the areas addressed at Transfer Station #1.

The extent to which the removal will ensure that threats are adequately abated:

The actions planned for Transfer Station #1 will abate the threat of additional exposures to and releases of contamination.

Consistency with the long-term remedy:

U.S. EPA expects the time-critical removal proposed for this Site to be consistent with any long-term response actions implemented at the Site.

Post-Removal Site Control

After U.S. EPA completes its proposed removal action at this Site, U.S. EPA will perform post restoration site inspections to assess potential maintenance actions in the spring of 2017. U.S. EPA will work with NNEPA and/or the Navajo National Abandoned Mine Lands (NAML) program to determine the appropriate maintenance activities and responsibility for conducting ongoing maintenance work at the Site following that inspection.

**3. Applicable or relevant and appropriate requirements (ARARs)**

Section 300.415(j) of the NCP provides that removal actions must attain ARARs to the extent practicable, considering the exigencies of the situation.

Section 300.5 of the NCP defines applicable requirements as cleanup standards, standards of control, and other substantive environmental protection requirements, criteria or limitations promulgated under Federal environmental or State environmental or facility citing laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location or other circumstances at a CERCLA site.

Section 300.5 of the NCP defines relevant and appropriate requirements as cleanup standards, standards of control and other substantive requirements, criteria, or limitations promulgated under Federal environmental or State environmental or facility citing laws that, while not “applicable” to a hazardous substance, pollutant, or contaminant, remedial action, location, or other circumstances at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site and are well-suited to the particular site.

Because CERCLA on-site response actions do not require permitting, only substantive requirements are considered as possible ARARs. Administrative requirements such as approval of, or consultation with administrative bodies, issuance of permits, documentation, reporting, record keeping and enforcement are not ARARs for the CERCLA actions confined to the site.

Federal ARARs determined to be practicable for the removal action at the Site are:

Native American Graves Protection and Repatriation Act, 25 USC §§3001 *et seq.*  
and its implementing regulations, 43 CFR Part 10.

National Historic Preservation Act, 16 USC §§ 470 *et seq.* and its implementing regulations, 36 CFR Part 800.

Archeological Resources Protection Act of 1979, 16 USC §§ 47000 *et seq.* and its implementing regulations, 43 CFR Part 7.

American Indian Religious Freedom Act, 42 USC §§ 1996 *et seq.*  
Endangered Species Act, 7 USC § 136 and 16 USC §§ 15331-1548, and its implementing regulations, 50 CFR Parts 17 and 403 (applicable if protected species identified in subject area).

RCRA Subtitle D for Disposal of Solid Waste, 42 USC 6901 *et seq.* and relevant and appropriate provisions of implementing regulations, 40 CFR Parts 257 and 258, Clean Water Act, Section 402 NPDES storm water discharges, 40 CFR Parts 122 and 125 (regulations discharges from site, including monitoring and applying best management practices).

Additional Federal guidance to be considered:

U.S. EPA Directive on Protective Cleanup Levels for Radioactive Contamination at CERCLA sites, OSWER Directive 9200.4-18. U.S. EPA Guidance for Developing Best Management Practices for Storm Water, Publication EPA/832/R-92006.

Navajo Nation ARARs determined to be practicable for the Site are:

Navajo Nation Air Pollution and Prevention Act, Air Quality Control Program, Code of Regulations for Air Emissions (outlines Best Management Practices (BMPs) to control dust that would be generated during earth moving activities).

Navajo Nation Endangered Species List, Resource Committee Resolution RCAU-103-05 (applicable if protected species identified within subject area).

**4. Project schedule**

It is estimated that it will take approximately 45 working days to complete stabilizing the affected slopes, construct slope diversion channels, restore the roadside ditch with riprap material, and vegetate the affected slope with seeds and young plants. Site preparation can be initiated as early as [date dependent on HQ concurrence date approvals]. Removal activities are expected to begin on [TBD].

**B. Estimated Costs**

Cost estimates for this proposed removal action are based on existing ERRS rates for the EPA Region 9 contract. Cost estimates may have to be adjusted after potential bids for the removal are received, or if there is a substantial increase in the material that requires attention.

Funds Needed from Special Accounts

Cleanup Contractor (ERRS)	\$840,000
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Technical Contractors	
START	\$100,000
SERAS	\$20,000
Subtotal Extramural Costs	\$960,000
Extramural Costs Contingency (~20%)	\$192,000
<b>TOTAL Removal Action Project Ceiling For This Amendment</b>	<b>\$1,152,000</b>

If this amendment is approved, the total direct extramural project ceiling for the Site will be \$3,620,781.71. The prior total direct extramural project ceiling that was approved in the August 2013 amendment was \$4,625,197. However, total extramural expenditures at or in connection with the Site to date have been only \$2,468,781.71. This proposed action would bring the total direct extramural project cost and ceiling to \$3,620,781.71 (\$2,468,781.71 + \$1,152,000).

**VII. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN**

Given the Site conditions, the nature of the hazardous substances documented onsite, and the potential exposure pathways to nearby populations described in Sections III and IV above, actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response actions selected in this Action Memorandum, may present an imminent and substantial endangerment to public health or welfare or the environment.

**VIII. OUTSTANDING POLICY ISSUES**

There are no outstanding policy issues that have been identified with respect to this Site at this time.

**IX. ENFORCEMENT**

Please see the attached Confidential Enforcement Addendum for a discussion regarding potentially responsible parties (PRPs). U.S. EPA identified Kerr McGee Corporation as a PRP for this Site. Kerr McGee Corporation changed its name to Tronox, Inc. in 2005. Tronox filed for bankruptcy in 2009. As part of a bankruptcy settlement, U.S. EPA initially received approximately \$12 million, which was placed in a special account designated to address the Navajo Area Uranium Mines (NAUMs), including the Cove Transfer Stations Site. In addition, U.S. EPA received a distribution of approximately \$900 million from the settlement of fraudulent conveyance litigation against Anadarko Petroleum and related entities. This funding has been added to the Tronox Special Account for the NAUMs and may be spent at or in connection with the NAUM Sites.

Estimated Intramural Costs<sup>1</sup>

U.S. EPA Direct Costs	\$ 60,000
U.S. EPA Indirect Costs (56.51% of Spending \$1,152,000 + \$60,000)	<u>\$ 710,995</u>
<b>TOTAL Intramural Costs</b>	<b>\$ 770,995</b>

The total U.S. EPA extramural and intramural costs for this amendment to the removal action based on full-cost accounting practices that will be eligible for cost recovery are estimated to be **\$1,922,995** (**\$1,152,000 + \$770,995 = \$1,922,995**).

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<sup>1</sup> Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost-accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the United States' right to cost recovery.

**X. RECOMMENDATION**

This decision document recommends that you approve the change in scope for the Cove Chapter Transfer Stations Site removal action, as described in this action memoranda. This recommendation was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. The response selected is supported by the Administrative Record for the Site. The Index to the Administrative Record is provided as Attachment I.

Because conditions at the Site meet the NCP Section 300.415(b) criteria for a removal and the CERCLA section 104(c) emergency exemption, we recommend approval of the proposed removal action and an exemption from the \$2 million and 12-month limitations. The total project ceiling for direct extramural costs, if approved, will be **\$3,620,781.71** and will be funded from the Tronox NAUM Special Account and not the Regional Removal Allowance. Your approval may be indicated by signing below.

Approve:  \_\_\_\_\_ 7/27/16  
Enrique Manzanilla, Director Date  
Superfund Division

Disapprove: \_\_\_\_\_ \_\_\_\_\_  
Enrique Manzanilla, Director Date  
Superfund Division

cc: H. Allen, SFD-9-2  
Randy Nattis, SFD-9-2  
Laurie Williams, ORC-3  
Clancy Tenley, SFD-6  
Will Duncan, SFD 6-2  
Site File

cc w/o Confidential Enforcement Memoranda:  
Veronica Blackhat, Navajo Nation Department of Justice  
Dr. Donald D. Benn, Navajo Nation Environmental Protection Agency  
Dariel Yazzie, Navajo Nation Environmental Protection Agency  
Freida White, Navajo Nation Environmental Protection Agency  
Site File

**Attachments:**

- I. Index to the Administrative Record
- II. Site Location Map & Site Photos
- III. Site Restoration Preliminary Design Cove Transfer Terminal 1, Cove Chapter, Apache County, Arizona (WORK ASSIGNMENT - SERAS 1-192: TECHNICAL MEMORANDUM)
- IV. Previous Action Memos & OEM Concurrence:
  - Action Memorandum, U.S. EPA, September 19, 2012
  - Action Memorandum, U.S. EPA, June 6, 2013
  - Action Memorandum, U.S. EPA, August 14, 2013
  - OEM Concurrence, [date \_\_\_\_\_]
- V. Confidential Enforcement Memorandum