

FINAL EXPLANATION OF SIGNIFICANT DIFFERENCES

NEWTON COUNTY MINE TAILINGS SUPERFUND SITE OPERABLE UNITS 01/02

EPA Region 7

September 2018

INTRODUCTION AND STATEMENT OF PURPOSE

The U.S. Environmental Protection Agency is presenting this Explanation of Significant Differences, or ESD, to document the significant increase in estimated costs of the remedy selected in the 2010 Record of Decision, or ROD, for non-residential mining and milling wastes in Operable Units 01/02, or OUs 01/02, of the Newton County Mine Tailings Superfund site, or Site. The EPA, the lead agency, developed this final ESD in coordination with the Missouri Department of Natural Resources, or MDNR, the support agency.

Under Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, or CERCLA, as amended, the EPA is required to publish an ESD when, after issuance of a ROD, subsequent enforcement or remedial actions differ in any significant respects from the final plan set forth in the ROD. Sections 300.435(c)(2)(i) and 300.825(a)(2) of the National Contingency Plan, or NCP, set forth the criteria for issuing an ESD and requiring that an ESD be published if, after issuance of the ROD, there is a significant, but not fundamental, difference in the scope, performance, or cost of the remedy. A difference is significant but not fundamental if it affects basic features of the remedy such as timing and cost, but does not affect the overall approach to managing hazardous waste at the Site.

This ESD and supporting documentation have been added to the Administrative Record for the Site by means of an Administrative Record addendum. This final ESD will be available in the Administrative Record (NCP 300.825(a)(2)). The Administrative Record file and all associated documents are available for public review at the following website: <u>https://www.epa.gov/superfund/newtoncountymine</u>.

The remedial investigation, or RI, performed by the EPA identified lead, cadmium, and zinc in mining and milling waste, soils, and sediments as the contaminants of concern. The EPA's 2010 ROD estimated that it would cost \$19.3 million to implement the selected remedy addressing 1.4 million cubic yards at the Site.

The OU 01/02 remedial action, or RA, for the Site began in November 2014 with the award of an interagency agreement, or IA, with the U.S. Army Corps of Engineers, or USACE. Under the USACE, the RA contract was awarded in October 2015 to begin activities in the Granby subdistrict. As the RA contractor was performing initial screening of the assigned areas, many areas were found to extend further than originally designed. By the completion of the RA contract in 2017, a total of 177 acres and 711,225 cubic yards of mine waste and contaminated soils were remediated in the Granby subdistrict and additional areas were identified for cleanup.

In addition, the EPA identified other areas based on comments from the public during two public availability sessions in November 2016. The EPA also conducted limited soil sampling in 2016 that indicated the source materials covered much larger areas than estimated in the 2010 ROD.



A targeted assessment of surface soil was completed in 2017 and 2018 to delineate the newly identified areas in the Granby subdistrict. The targeted assessment provided data for a RA contract to be awarded in 2018 to continue the site cleanup. Under the new RA contract, newly identified areas in the subdistricts will be further sampled and delineated; additional nearby areas will also be sampled when necessary. A map of the Site indicating the location of the 2010 ROD waste areas is shown on Figure 1-1 (attached). Maps of the Site, indicating both the 2010 ROD waste areas along with the newly identified areas in the subdistricts, are shown on Figures 2-6 (attached).

Based on this sampling, the EPA determined that the volume of contaminated wastes, soils, and sediments that needs to be excavated is greater than what was originally estimated in the 2010 ROD. In addition, based largely on more up-to-date engineering estimates and actual costs to date, the EPA determined that the "per unit" cost of various tasks required by remediation work is greater than what was originally estimated. As a result of the increased volume of contaminated wastes, soils, and sediments and the increased per unit costs of remediation activities, the current estimated cost of remediating the Site has increased to \$64 million.

SITE HISTORY AND CONTAMINATION

The Newton County Mine Tailings site is located in the northern half of Newton County, Missouri, and is part of the Tri-State Mining District which encompasses approximately 2,500 square miles of Missouri, Kansas, and Oklahoma. The Tri-State Mining District's historic lead and zinc production formerly ranked as one of the highest in the world with total ore production estimated to have been slightly more than 500 million short tons. The Missouri portion of the district accounted for approximately 200 million short tons of the ore production. Mining at the Site was conducted from around 1850 to 1970.

The Site is a concern because of the mining and milling wastes remaining on the surface throughout the county. The wastes constitute a significant source of heavy metals contamination with potential for exposure to people and environmental receptors. Past mining and milling practices have also resulted in the contamination of surface soil, sediments, surface water and groundwater in the shallow aquifer. The primary contaminants of concern are lead, cadmium, and zinc.

The EPA placed the Newton County portion of the Tri-State Mining District on the National Priorities List, or NPL, on September 29, 2003. The NPL is a national list of Superfund sites that prioritizes cleanups in order of the most serious contamination problems and greatest threats to human health and the environment. The Site includes wastes in and around 14 mining camps located within approximately 300 square miles of Newton County. These locations have been grouped into five subdistricts: Spring City/Spurgeon, Diamond, Granby, Stark City, and Wentworth. The Site was split into two operable units, or OUs, for tracking purposes of responsible-party-led activities and EPA-lead activities. OU 01 was designated as the responsible party portion of the Site and was centered around the Spring City/Spurgeon and Granby subdistricts. OU 02 was the remainder of the Site as EPA-lead activities.

In 1986, the EPA conducted a preliminary assessment in the Granby area revealing elevated levels of lead, cadmium, and zinc significantly above background concentrations in soil and groundwater. In 1989, MDNR reconfirmed elevated lead levels in surface water and soil. In 1995, the EPA conducted an expanded site investigation around Granby, Wentworth, and Stark City that focused on determining heavy metals concentrations in mining and milling wastes, surface soils, surface water, and stream sediments. The discovery of an elevated blood lead level in a child living in the Spring City area in 1995

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resulted in further assessment of residential yard soil and private drinking water wells in and around Spring City. As a result of these assessments, the EPA expanded its investigations of private water wells and residential yard soil in known mining areas throughout the county.

Due to the large number of private residential drinking water wells identified with high levels of lead and cadmium throughout the Site, the EPA began providing bottled water to homes in 1998. This action served as a temporary response action while public water supply systems were designed and constructed as part of a removal action to replace the contaminated wells. In 2003, the EPA began construction of the public water supplies which were completed in 2012. In total, over 100 miles of new public water supply mains were installed throughout the Site to serve areas with contaminated residential wells. Additionally, approximately 100 individual deep-aquifer drinking water wells were installed by the EPA and responsible parties for homes where it was not feasible to install public water supply mains.

In 1999, the EPA began a removal action for lead-contaminated residential yard soil at approximately 100 properties in the OU 02 portion of the Site. Meanwhile, the responsible parties removed lead-contaminated residential yard soil at approximately 300 properties in the OU 01 portion of the Site, mostly in the city of Granby, under an Administrative Order on Consent.

The removal actions for contaminated residential yard soil and the installation of public water supplies to replace the private residential water wells have been completed; therefore, the immediate health risks to people have been addressed. The remaining risks to the environment and potential human exposure at the Site result from the presence of the mining and milling wastes located throughout the county. In 2008, the EPA conducted a RI that focused on these wastes and associated soil. After completion of the RI, the EPA conducted a Feasibility Study, or FS, which was completed in September 2009. The FS assessed the information about the nature and extent of the contamination in the subdistricts and developed alternatives for the remedial action for the entire Site. The remedial alternatives developed and evaluated in the FS formed the basis for the 2010 ROD.

Following completion of removal activities, the EPA entered into a settlement agreement with the responsible parties for the OU-01 portion of the 2010 ROD. The parties elected a "cash-out" settlement that was approved by the U.S. Federal District Court, Western District of Missouri in a Consent Decree, Civil No. 6:11-cv-03408-ODS. The EPA has undertaken the remedial action for both OUs 01/02.

SELECTED REMEDY

The cleanup of mining and milling wastes under the 2010 ROD is needed to mitigate the principal threat of exposure from the contaminants of concern to aquatic and terrestrial ecosystems through soils, sediments, and surface water. Additionally, the cleanup of the mining-related wastes will mitigate the risks to people living near or recreating on the waste piles and associated contaminated soils. The main component of the selected remedy in the 2010 ROD, Alternative 3, was excavation of source materials with disposal in a central on-site repository. The ongoing remedial action is essential to provide long-term protection of human and ecological health from exposure to the mining and milling wastes. The selected remedy will continue to significantly enhance the effectiveness of earlier OU removal actions by removing and isolating from the environment the very materials that caused extensive site-related contamination of the environment.

The major components of the selected remedy in the 2010 ROD are briefly summarized below.

- Removal of metals-contaminated mining and milling wastes, soils, and intermittent tributary stream sediments;
- Disposal of the contaminated wastes, soils, and sediments in a central repository to be constructed on an existing mining waste pile in an upland area;
- Capping of the repository with an 18-inch soil cover;
- Recontouring the excavated areas to promote drainage;
- Revegetation of the excavated areas and the repository with native grasses;
- Deep tilling of source materials where only thin layers of wastes, less than six inches, remain at the surface to achieve the cleanup levels instead of excavation and disposal;
- Monitoring Site streams to assess the effect of cleanup; and
- Implement environmental covenants for land use controls to protect the central repository.

Institutional Controls

Various institutional controls, or ICs, were identified in the FS and discussed in the Proposed Plan to the 2010 ROD. Land use restrictions, under the Missouri Environmental Covenants Act, or MOECA, were selected as the most appropriate IC to provide long-term protection of the remedy. The ongoing process of establishing land use restrictions for non-residential properties will be between the EPA and the property owners.

The restriction will prevent the development on and disturbance of the caps placed over the wastes. A restrictive covenant is in place with the county for the central repository located in Granby, Missouri.

DESCRIPTION OF SIGNIFICANT DIFFERENCES

The EPA estimated that it would cost \$19.3 million to remediate the Site based on data generated during the RI and FS. The principal assumptions underlying the original estimate were: (1) number of acres; (2) the number of areas within each subdistrict; (3) the extent of contamination at the areas in the subdistricts; and (4) type of source material and affected media.

Based on the results of the 2016-2018 sampling, the EPA has determined that the number of acres of source material and affected media, the number of areas within each subdistrict, and the extent of contamination at the areas in the subdistricts are all greater than what was originally estimated. For example, the estimated acreage increased from 260 to 805 acres. These 805 acres include the 49-acre central repository located in Granby, which is situated on an associated 49 acres of source material.

The EPA has determined that these newly identified acres of source materials present the same risks to human health and the environment as those described in the 2010 ROD. The same remedial action objectives and selected remedial action are necessary to mitigate the unacceptable risks to human health and ecological risks. Fundamentally, the selected remedy has not changed due to these differences.

However, the volumes of contaminated material to be addressed have significantly increased, which is the main reason for this ESD and opportunity for public comment.

These changes have increased the total estimated volume of contaminated wastes, soils, and sediments to be excavated significantly, from approximately 1.4 million cubic yards to nearly 4 million cubic yards. This increased quantity of contaminated wastes, soils, and sediments correspondingly increased the construction management costs and the contingency costs.

In addition, due to the increase in quantity, the EPA has determined that additional repositories are necessary for disposal of the contaminated wastes, soils, and sediments from historic lead and zinc mining, milling, and smelting operations in Newton County. The use of additional repositories will accommodate the capacity needs with little additional cost and will result in a cost savings by reducing the haul distances for some excavated materials. The additional long-term operation and maintenance cost associated with these additional repositories is not significant.

The EPA has determined that mining waste materials may be disposed in the existing repositories located in the adjacent Oronogo-Duenweg Mining Belt site, or ODMB. Please refer to the July 18, 2018 memorandum to the site file within the Administrative Record. This Site is a component of the Missouri portion of the Tri-States Mining District, or TSMD, located in Missouri, Kansas and Oklahoma (see Site History section above). Both the 2010 ROD for this Site and the OU1 ROD 2004, as amended, for the ODMB site selected excavation and disposal in repositories with ICs. The EPA determined in both RODs that disposal of mining waste materials in on-site repositories meets statutory requirements for achieving applicable or relevant and appropriate requirements, including the regulations under the Resource Conservation and Recovery Act. (See 2010 ROD, Section 14.2, Table 4 and 2004 ROD, Section 14.2, Table 5.) Initial investigations of the TSMD considered Newton and Jasper Counties to be the same site because of the contiguous nature of the mining waste. For example, many mine waste piles lie directly on county lines. An existing central repository, the East 17th repository, is an appropriate location for disposal of mining wastes in accordance with the 2010 ROD. It is a central repository with ample space for the additional volume of mining waste from Newton County and it is located on existing mining waste in an upland area. Additionally, an estimated 40,000 cubic yards of material is required to complete another existing repository in the Iron Gates Extension Designated Area. Mining wastes from Newton County are in close proximity to these central repositories compared to other mining waste areas in the TSMD sites.

The agency believes this change in the remedy for the Newton County site to take mining wastes to more than one central repository is significant because the 2010 ROD specified only one central repository located in Granby, Newton County, Missouri. At that time, the community expressed a preference for only one repository. Please refer to the Responsiveness Summary in the 2010 ROD. The EPA believes use of additional existing repositories is appropriate and meets protectiveness and statutory requirements for the selected remedy. The best location for these additional repositories is within the adjacent, contiguous ODMB site.

In 1994, the agency divided the Missouri portion of the TSMD into two Superfund sites for administrative convenience and NPL listing due to the enormous size of the TSMD mega sites (2,500 square miles). Although the Sites are listed on the NPL separately, the remedial actions are carefully coordinated across state and regional boundaries when conducting investigations and making decisions at the TSMD sites. For example, the ongoing investigation of the Spring River cleanup spans the multiple TSMD sites. The engineering and IC components of the 2010 selected remedy require a central repository for disposal of mining waste. That does not change with this ESD; only the location of such a repository changes. The existing mining waste repositories in the ODMB site meet the requirements of the 2010 ROD. Although technically located in the ODMB site, one is actually in the Iron Gates Extension Designated Area in Newton County.

The EPA also determined that some upland chat areas may be addressed without excavation or deep tilling, provided the property owners agree to environmental covenants for land use controls, e.g., no

residential development. Use of ICs rather than deep tilling provides the same degree of protectiveness for these upland chat areas.

In addition, based largely on more up-to-date engineering estimates and application of actual costs at the Site, the EPA has determined that the per unit cost of various tasks involved in remediation is greater than what was originally estimated.

Previously, the estimated cost for the selected remedy for OUs 01/02 was \$19.3 million; currently, the estimate is \$64 million.

The major changes to the 2010 selected remedy are summarized as follows:

- Increase in the volume of on-site wastes and the associated increase in cost;
- Disposal of the contaminated wastes, soils, and sediments in additional central repositories located on existing mining waste piles in upland areas;
- ICs as needed for upland chat areas where property owners agree to environmental covenants; and
- Use of existing central repositories within the ODMB portion of the TSMD sites.

The ESD cost estimate included as Appendix B provides a full explanation of the significant differences between the original and current cost estimates.

SUPPORT AGENCY COMMENTS

Comments received from the MDNR were reviewed and addressed in the Responsiveness Summary, attached as Appendix C.

FIVE YEAR REVIEWS

This remedy results in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure. The EPA will review the remedy no less often than every five years from the start of construction to ensure that the remedy is, or will be, protective of human health and the environment.

STATUTORY DETERMINATIONS

The remedy selected in the 2010 ROD remains fundamentally unaltered, and the statutory determinations made in the ROD still apply. The significant change to the remedial action is an increase in the cost due primarily to an increase in the estimated volume of metals-contaminated mining and milling wastes, soils, and intermittent tributary stream sediments.

The remedy will continue to be protective of human health and the environment and will comply with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action. The remedy remains technically feasible, cost-effective, and satisfies the requirements of CERCLA §121.

PUBLIC PARTICIPATION AND THE ADMINISTRATIVE RECORD

Pursuant to NCP §300.435(c)(2)(i), the EPA will publish a brief description of this final ESD in the local newspaper. An electronic copy of this ESD will also be available online at: <u>https://www.epa.gov/superfund/newtoncountymine</u>, under Site Documents & Data. The EPA held a 30-day public comment period from July 27, 2018 to August 27, 2018. Although no public comments were received, the support agency comments were addressed in Appendix C – Responsiveness Summary.

Pursuant to NCP §300.825(a)(2), once this ESD is finalized, it will become part of the Administrative Record file for the Site. The Administrative Record for the response actions related to the Site is available for public review online at: <u>https://www.epa.gov/superfund/newtoncountymine</u>, under Site Documents & Data.

AUTHORIZING SIGNATURE

The lead agency formally authorizes this ESD by the signature below.

9/26/18

Date

James B. Gulliford Regional Administrator













Appendix A 2010 ROD Cost Estimate Summary

Alternate 3

	Estimated					Present Worth Costs - 7%	
Item Description	Units	Quantity	U	nit Price	Capital Cost	Discount Rate	
Coophanial ane disting							
Geochemical remediation							
Contractor Mobilization/De-mobilization	LS	1	5	100,000	\$100,000		
Excavation and consolidation of source materials							
Excavation and consolidation of source materials	CY	1,425,000	\$	9	\$12,825,000		
Restore excavation area						1.1.1	
Grade excavation to promote drainage	Acres	171	\$	1,000	\$171,000		
Revegetate excavated area	Acres	171	\$	1,800	\$307,800		
Erosion and sediment control	LS	1	\$	40,000	\$40,000		
Cap consolidated source material							
Install soil cap	CY	118580	\$	12	\$1,422,960		
Vegetate cap area	Acres	49	\$	1,800	\$88,200		
Erosion and sediment control	LS	1	\$	100,000	\$100,000		
Deep till upland vegetated chat							
Deep till upland vegetated chat	Acres	39	\$	3,500	\$136,500		
Revegetate tilled area	Acres	39	\$	1,800	\$70,200		
Erosion and sediment control	LS	1	\$	30,000	\$30,000		
Reporting							
Draft Completion Report, Final Completion Report	LS	1	\$	9,460	\$9,460		
SUBTOTAL					\$15,301,120		
Contingency (15% of capital costs)		a de la com			\$2,295,168		
SUBTOTAL				die 185	\$17,596,288		
Prime Contractor Fee (10% of capital costs)					\$1,759,629		
TOTAL Capital Cost		A DEC AND			\$19,355,917		

ANNUAL O&M COSTS								an and an and a second second
O&M - Inspections, Maintenance and Repairs		EA	\$	30	\$	5,000.00	\$	140,187
SUBTOTAL	South as he for the south	and the second second				ANTIGUE AL ALLAN	\$	140,187
Contingency (15% of annual O&M)						Carl and a	\$	21,028
SUBTOTAL			S. Saider	Sec. 3	alles de la	Sec. The State States	\$	161,215
Contractor Fee (10% of annual O&M)							\$	16,121
TOTAL Annual O&M Cost	AN CALLER					State Sec.	\$	177,336
and the second					(haijina	ALL AND A DESCRIPTION	1.50	
TOTAL PRESENT WORTH COST		1 States					\$	19,533,253

Legend: LS - Lump Sum CY - Cubic Yards

Note added to 2010 ROD Cost Estimate within 2018 ESD Appendices.

Appendix B - ESD Cost Estimate Summary							
Alternative 3							
		Estimated					
Item Description	Units	Quantity	Unit Price	Capital Cost			
CAPITAL COSTS							
Mobilization							
Contractor Mobilization/De-mobilization	LS	3	\$100,000.00	\$300,000			
Excavation and consolidation of source materials							
Clearing and grubbing	Acres	805	\$1,330.00	\$1,070,650.00			
Excavation and consolidation of source materials	CY	3779747	\$10.20	\$38,553,419			
Restore excavation area							
Grade excavation to promote drainage	Acres	805	\$1,000.00	\$805,000			
Select fill for drainage	CY	50252	\$20.04	\$1,007,050			
Top soil as amendment	CY	12562	\$27.91	\$350,605			
Stream restoration (riprap)	LS	3	\$83,908.62	\$251,726			
Revegetate excavated area	Acres	687	\$1,800.00	\$1,236,600			
Erosion and sediment control	LS	10	\$40,000.00	\$400,000			
Cap consolidated source material							
Install soil cap (clay layer)	CY	192000	\$20.04	\$3,847,680			
Install soil cap (topsoil)	CY	96000	\$27.91	\$2,679,360			
Vegetate cap area	Acres	118	\$2,142.00	\$252,756			
Erosion and sediment control	LS	3	\$100,000.00	\$300,000			
Deep till upland vegetated chat							
Deep till upland vegetated chat	Acres	0	\$3,500.00	\$0			
Revegetate tilled area	Acres	0	\$1,800.00	\$0			
Erosion and sediment control	LS	0	\$30,000.00	\$0			
Reporting							
Draft Completion Report, Final Completion Report	LS	1	\$9,460.00	\$9,460			
SUBTOTAL	0.2			\$51,064,307			
Contigency (15% of capital costs)	1			\$7,659,646			
Prime Contractor Fee (10% of capital costs)				\$5,106,431			
TOTAL Capital Cost				\$63,830,383			

*Besides calculation corrections, there are no changes to O&M costs from 2010 ROD.

ANNUAL O&M COSTS				
O&M - Inspections, Maintenance and Repairs	1 EA	30.00	\$5,000	\$150,000.00
Contigency (15% of annual O&M)				\$22,500.00
Contractor Fee (10% of annual O&M)				\$15,000.00
TOTAL Annual O&M Cost				\$187,500.00

\$64,017,883

TOTAL ESTIMATED COST

Legend:

LS - Lump Sum CY - Cubic Yards

Notes:

1. Cost estimate applies to entire remedial action in all subdistricts.

2. Additional cost estimate line items such as 'clearing and grubbing' are included in the 2018 ESD cost estimate for clarity of assumptions, utilizing recent site costs.

3. Funds received from responsible parties are included in assumed sources of funding for the remedial action.

Appendix C Responsiveness Summary Final Explanation of Significant Differences (OU 01/02) Newton County Mine Tailings Superfund site Newton County, Missouri

This Responsiveness Summary has been prepared in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, or CERLCA, as amended by the Superfund Amendments and Reauthorization Act, and the National Contingency Plan, 40 CFR 300.430(f). This document provides the U.S. Environmental Protection Agency's response to all significant comments received from the public and stakeholders on the Proposed Explanation of Significant Differences, or ESD, for the increase in cost at the Newton County Mine Tailings Superfund site, or Site during the comment period.

This document is provided to accompany the Final ESD and reflects input resulting from the public comment process.

Overview

The Proposed Plan and supporting documents included in the Administrative Record file were made available for public review and comment from July 27, 2018, to August 27, 2018. This Responsiveness Summary contains a summary of significant comments and the EPA responses.

Comment: The Missouri Department of Natural Resources reviewed the draft proposed Explanation of Significant Differences for the Newton County Mine Tailings Site Operable Units 01 and 02. As the support agency, the Department participated in public availability sessions held in November 2016, during which additional property owners granted access for sampling; and also participated in collection of samples during 2016-2018, which confirmed additional mining waste material beyond what was documented in the 2010 ROD. The Department appreciates the property owners who granted access during this time. In addition to these properties, other waste was found beyond previously assessed areas. The Department acknowledges that the waste be addressed under this ESD.

The Department understands and supports the increase proposed in the ESD but requests clarification on the funding of the ESD specifically regarding how much of the proposed work will be addressed by Special Account funds received from settlement agreements with the potentially responsible parties versus what portion will be CERCLA-funded, requiring a 10 percent state match for cleanup and potentially 100% of long-term operation and maintenance.

The state also is interested in seeing public comments submitted during the public comment period.

Response: The EPA has reviewed your request for clarification on funding of the Remedial Action work described in the ESD, specifically regarding how much of the RA work will be addressed by Special Account funds. Historically, funds received from settlement agreements with the responsible parties totaled over \$16.8 million and the special account reached over \$17.5 million due to accrued interest. To date, \$14.6 million from the special account has been used to fund RA work at the site,

for which the state was not required to pay state match. Remaining special account funds have been utilized for remedial design activities and technical assistance needs, such as the current water well sampling.

The revised cost of the remedy detailed in the proposed ESD is \$64 million. Having already expended \$14.6 million from the special account for RA work, the remaining \$49.4 million would be Comprehensive Environmental Response, Compensation, and Liability Act, or CERCLA-funded and would require state match.