



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 7**

11201 Renner Boulevard  
Lenexa, Kansas 66219

**ACTION MEMORANDUM**

**SUBJECT:** Request for a Time-Critical Removal Action and Emergency Exemption from the 12-Month and \$2 Million Statutory Limits at the Viburnum Trend Lead Haul Roads, Operable Unit (OU) 02 – St. Joe Minerals Corp, city of Viburnum Site in Iron, Crawford, and Washington Counties, Missouri

**FROM:** Kirk Mammoliti, On-Scene Coordinator  
Response, Removal and Emergency Preparedness Section

**THRU:** Danny O'Connor, Acting Chief  
Response, Removal and Emergency Preparedness Section

Lynn Juett, Acting Chief  
Assessment, Emergency Response and Removal Branch

**TO:** Mary P. Peterson, Director  
Superfund and Emergency Management Division

Site ID#: A75J

**I. PURPOSE**

The purpose of this Action Memorandum is to request and document approval of the proposed removal action as well as the invocation of an emergency exemption from the 12-month and \$2 million statutory limits on removal actions for the Viburnum Trend Lead Haul Roads, Operable Unit (OU) 02 – St. Joe Minerals Corp, city of Viburnum site, referred herein as Site. This removal action will provide for the excavation, treatment, and disposal of lead-contaminated soils for residential properties where surface soil lead concentrations are greater than or equal to ( $\geq$ ) 1,200 parts per million (ppm) or surface soil lead concentrations are between 400 and 1,200 ppm and a sensitive population (as defined by EPA Guidance) is currently present at the property. At all eligible properties, the removal action will achieve the Removal Management Level (RML) of 400 ppm for lead or implement engineering controls when the RML cannot be achieved. This removal action will generally follow procedures described in the *Superfund Lead-Contaminated Residential Sites Handbook* (Office of Solid Waste and Emergency Response [OSWER] 9285.7-50A, August 22, 2003).

This response action satisfies the criteria for a removal action pursuant to 40 *Code of Federal Regulations* (CFR) 300.415(b)(2). Less than six months is required for on-site activities to be initiated; therefore, this will be conducted as a Time-Critical Removal Action. This removal action is anticipated to exceed the 12 month and \$2 million statutory limits. The EPA has determined, as detailed in this Action Memorandum, that this removal action meets the



emergency exemption criteria pursuant to Section 104(c)(1) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9604(c)(1).

## II. SITE CONDITIONS AND BACKGROUND

Site Name:	Viburnum Trend Lead Haul Roads, Operable Unit 02 – St. Joe Minerals Corp, city of Viburnum
Superfund Site ID (SSID):	A75J
NRC Case Number:	N/A
EPA ID:	MON000704445
Site Location:	Viburnum; Iron, Crawford, and Washington Counties; Missouri
Lat./Long.:	37.7144147, -91.1342096
Potentially Responsible Party:	Doe Run Resources Corporation
NPL Status:	Non-NPL
Removal Category:	Time-Critical
Nationally Significant:	No

### A. Site Description

#### 1. Removal site evaluation

Mining-related activities have occurred in around the city of Viburnum, Missouri since approximately 1960. As a result of these mining-related activities, hazardous substances, pollutants and/or contaminants have been released into the environment in quantities sufficient to present an imminent and substantial danger to public health and welfare. The potentially responsible party (PRP) and the U.S. Environmental Protection Agency have documented high levels of lead in residential surface soils at the site.

In September 2005, the EPA issued an Administrative Order on Consent (AOC) (CERCLA-07-2005-0339) to the PRP, the Doe Run Resources Corporation (Doe Run) (corporate successor to St. Joe Minerals Corporation), requiring it to conduct a removal Preliminary Assessment/Site Inspection (PA/SI) at the site. The primary objective of the PA/SI was to identify lead-contaminated properties in and around the city of Viburnum. In July 2006, Doe Run submitted the PA/SI report to the EPA that detailed the results of the sampling investigation. Lead levels in the soil exceeded EPA's residential regional screening level (RSL) of 400 ppm at 222 properties (73 percent).

Based upon PA/SI results, the EPA issued a subsequent AOC (CERCLA-07-2007-0013) to Doe Run in May 2007 requiring it to conduct a time-critical removal action at the site. The AOC required Doe Run to address residential properties and child high use areas (CHUA) where surface soil lead concentrations were  $\geq 1,200$  ppm or where surface soil lead concentrations were less than 1,200 ppm but greater than 400 ppm that had a child less than 72 months in age in residence. That time-critical removal action was conducted from 2006 to 2018 and provided complete remediation for 105

properties at the site and partial remediation at 11 properties. The remaining properties, including those partially remediated, were to be addressed as part of a non-time-critical removal action by Doe Run.

The EPA continued negotiations with Doe Run from 2008 to 2017 to finalize the disposal of the soil waste generated as part of the time-critical removal action and to engage in negotiations of a non-time critical removal action for the remaining unremediated properties. In February 2020, the EPA reviewed and approved an Engineering Evaluation/Cost Analysis (EE/CA) for a non-time-critical removal action that was completed by Doe Run. The EE/CA and administrative record file were made available for public comment in March 2020. No public comments were received. In July 2020, Doe Run declined to continue negotiating an AOC for the non-time critical removal action.

Beginning in August 2020, the EPA reviewed all available site-related data and determined that further residential lead assessment was warranted. EPA data review identified previously unsampled residential properties and residential properties assessed during the 2006 PA/SI with surface soil lead concentrations  $\geq 400$  ppm that were not included in the list of properties identified for remediation in the EE/CA. These properties may not have been identified for remediation by the PRP in the EE/CA for a variety of reasons, including (1) Doe Run could not obtain access to conduct removal; (2) the surface soil lead concentrations in excess of 400 ppm were observed in the drip zone only; and (3) one portion (quadrant) of the yard had qualified for and had previously been addressed as part of the time-critical action. The remaining quadrants of such yards have soil lead concentrations in excess of 400 ppm. The EPA data review identified a total of 377 residential properties within the site boundaries. The summary table below provides a list and description of these identified residential properties included in EPA's assessment and data review.

Beginning in November 2020, the EPA began an assessment of previously sampled properties and initial assessment at unsampled properties in accordance with the *Superfund Lead Contaminated Residential Sites Handbook*. During the assessment, the EPA sampled 119 residential properties within the site boundaries. The sampling results identified 64 properties with surface soil lead contamination  $\geq 400$  ppm. An additional five properties had lead contamination  $\geq 400$  ppm in the "drip zone", or the immediate perimeter around the house or other structure. Sampling access was denied, or property owners could not be reached at 27 residences where surface soil lead concentrations  $\geq 400$  ppm were previously identified during the 2006 PA/SI. Sampling access was denied, or property owners could not be reached at seven residences that have not been assessed. The EPA will continue efforts to assess these properties.

Property Data Review and Assessment Result		# of properties	Total
Properties within Site boundaries meeting the criteria for this Removal Action	Property with surface soil lead > 400 ppm but < 1,200 ppm and sensitive population with Elevated Blood Lead	1	26*
	Property with surface soil lead > 400 ppm but < 1,200 ppm and sensitive population	8	
	Property with surface soil lead > 1,200 ppm Identified during EPA Assessment	15	
	Property with surface soil lead > 1,200 ppm Identified during Doe Run PA/SI	2	
Properties to be addressed in the future	Property with surface soil lead > 400 ppm but < 1,200 ppm and no sensitive population - Identified during EPA Assessment	40	56
	Property with surface soil lead > 400 ppm but < 1,200 ppm and no sensitive population - Identified during Doe Run PA/SI	16	
Properties yet to be assessed	Property that has not been assessed by EPA or Doe Run	7	
Properties with no planned action currently	Property with surface soil lead > 400 ppm in “drip-zone” only - Identified during EPA Assessment	5	
	Property with surface soil lead > 400 ppm in “drip-zone” only - Identified during Doe Run PA/SI	16	
	Property with surface soil lead <400 ppm	162	
	Property previously remediated by Doe Run	105	

\* This value is based on currently available data and may increase if additional eligible properties are identified during this removal action

## 2. Physical location

The site is mainly located in Iron County with smaller portions extending into portions of Crawford and Washington Counties in the southeastern region of Missouri (see Attachment A). It is part of what is commonly known as the New Lead Belt or Viburnum Trend (see Attachment A). Coordinates for the approximate center of the site are latitude 37.715084N, longitude -91.135118W.

## 3. Site characteristics

The site is defined as any residential property (1) within the city of Viburnum, Missouri, adjacent to the city of Viburnum or within the cross hatched area on the map attached as Figure 2; (2) adjacent to and within 200 feet of either edge of the haul roads from the city of Viburnum to the Viburnum 27, 29, and Casteel mines; (3) within 1,000

feet of the head frames of Viburnum 27, 29, and Casteel mines; and (4) within the area within 1,000 feet from the edge of all Doe Run and St. Joe Minerals-Viburnum mine waste disposal areas (e.g., tailings piles). An updated map, according to the 2007 AOC, is provided in Attachment A as Figure 2. *The Superfund Lead-Contaminated Residential Sites Handbook* (OSWER 9285.7-50, August 2003) defines a residential property as any area with high accessibility to sensitive populations, and includes properties containing single- and multi-family dwellings, apartment complexes, vacant lots in residential areas, schools, day-care centers, community centers, playgrounds, parks, green ways, and any other areas where children may be exposed to site-related contaminated media.

The Doe Run Resources Corporation – Viburnum Division (formerly St. Joe Minerals Corp – Viburnum) is located in and near the city of Viburnum, Missouri at the northern end of the Viburnum Trend Lead Mining District. The Viburnum Division includes four mines where ore was brought to the surface: Viburnum Mine 27 in Crawford County, Viburnum Mine 29 in Washington County, Viburnum Mine 28 in Iron County, and Casteel Mine in Iron County. The mined ore was previously transported overhaul roads to the Viburnum Central Mill which was located at Viburnum Mine 28 in Iron County and is currently inactive. From the Viburnum Central Mill, the processed lead (called lead concentrate) was hauled to various smelters or shipped overseas. Currently, only Viburnum Mine 29 and the Casteel Mine are operating. Viburnum Mine 27 was closed in 1983 and Viburnum Mine 28 was closed in 2004. Ore from the from the Viburnum Mine 29 is currently brought to the Viburnum Central Mill Complex where it is crushed and then hauled over public roadways, primarily to the Buick Mill for concentrating. The lead ore from the Casteel Mine is also hauled over public roadways to other mine ore concentrators within the Viburnum Trend Mining District for further processing. In addition to the mines and mills, there are two large tailings piles in the area that were created from processing of ore at the Viburnum Central Mill Complex.

During construction development and early operation of these mines, it was not uncommon for lead contaminated materials such as tailings and/or poor rock to be used for construction materials in the building of the city of Viburnum, which was built by the St. Joe Minerals Corporation to support mining operations. Poor rock is a term used to describe low grade ore that is removed during mine development but not purposely mined or concentrated. Poor rock commonly contains higher than one percent lead (10,000 ppm). In addition to the mine waste scenario, the Central Mill in Viburnum was a likely source of air pollution and lead fallout from hauling, crushing, and processing of ore and/or concentrate, particularly prior to requirements to reduce air emissions.

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

A hazardous substance release has occurred at the site as demonstrated through analytical data collected during numerous environmental assessments. The release mechanisms are described in Section 3. The primary contaminants of concern are lead

and lead compounds. Concentrations of lead are present in residential surficial soils at the site that exceed EPA's health-based value for residential soil scenarios. Lead is a hazardous substance as defined in Section 101(14) of CERCLA and is designated a hazardous substance in 40 C.F.R. § 302.4. The term "release," as defined in Section 101(22) of CERCLA, means spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment.

The EPA has identified 26 residential properties which meet the criteria for this removal action. Additional assessment activities conducted concurrent with this response action may identify additional properties meeting the removal action criteria established in this Action Memorandum. If deemed appropriate, the EPA will include additional eligible properties in this removal action. The *Superfund Lead-Contaminated Residential Sites Handbook* identifies residential as any area with high accessibility to sensitive populations, and includes properties containing single- and multi-family dwellings, apartment complexes, vacant lots in residential areas, schools, day-care centers, playgrounds, parks, green ways, and other areas where children may be exposed to contaminated media. Sensitive populations are defined as those 12 to 72 months in age (*Recommendations for Default Age Range in the IEUBK Model* [Office of Land and Emergency Management, Directive 9200.2-177]) and pregnant women (*Superfund Lead-Contaminated Residential Sites Handbook*).

**5. National Priority List (NPL) Status**

The site is not currently on the National Priorities List.

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

Maps depicting the site's location, layout, and aerial characteristics are provided as Attachment A.

**B. Other Actions to Date**

**1. Previous actions**

See subparagraph II.A.1 above (Removal Site Evaluation).

**2. Current actions**

There are no current EPA removal actions occurring at the Operable Unit 02 site.

**C. State and Local Authorities' role**

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

The EPA is the lead agency for this action. The EPA has remained in close coordination with the Missouri Department of Natural Resources (MDNR) and Missouri Department of Health and Human Services. The EPA will continue to

coordinate with the MDNR, other supporting agencies and local officials as the removal action progresses.

## **2. Potential for continued state/local response**

There are no current plans for a state or local response at the site.

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

#### **A. Threats to Public Health or Welfare**

In determining the appropriate extent of action to be taken in response to a given release, the lead agency shall first review the removal site evaluation and the current site conditions to determine if removal action is appropriate. 40 C.F.R. § 300.415(a)(2), also requires the lead agency to make an initial effort to determine whether the responsible party can and/or will perform the necessary action promptly or properly. The EPA has determined that the responsible party does not currently have the financial capacity to perform the action promptly or properly.

When the lead agency makes the determination, based on factors listed in 40 C.F.R. § 300.415(b)(2), that there is a threat to public health, welfare or the environment, the lead agency may take any appropriate removal action to abate, prevent, minimize, stabilize, mitigate or eliminate the release or threat of release. The factors in 40 C.F.R. § 300.415(b)(2) that apply to the site are:

#### **300.415(b)(2)(i) – Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.**

Elevated concentrations ( $\geq 400$  ppm) of lead have been found within 100 feet of residential locations at the site. Children playing in and around the contaminated areas have the highest potential to be exposed.

Lead is classified by the EPA as a probable human carcinogen and is a cumulative toxicant. The early effects of lead poisoning are nonspecific and difficult to distinguish from the symptoms of minor seasonal illnesses. Lead poisoning causes decreased physical fitness, fatigue, sleep disturbance, headache, aching bones and muscles, digestive symptoms (particularly constipation), abdominal cramping, nausea, vomiting and decreased appetite. With increased exposure, symptoms include anemia, pallor, a “lead line” on the gums, and decreased handgrip strength. Alcohol use and physical exertion may exacerbate these symptoms. The radial nerve is affected most severely causing weakness in the hands and wrists. Central nervous system effects include severe headaches, convulsions, coma, delirium and possibly death. The kidneys can also be damaged after long periods of exposure to lead, with loss of kidney function and progressive azotemia.

Reproductive effects in women include decreased fertility, increased rates of miscarriage and stillbirth, decreased birth weight, premature rupture of the membrane, and/or pre-term delivery. Reproductive effects in men include erectile dysfunction, decreased sperm count,

abnormal sperm shape and size, and reduced semen volume. Lead exposure is associated with increases in blood pressure and left ventricular hypertrophy. A significant amount of lead that enters the body is stored in bone for many years and can be considered an irreversible health effect.

Children are more vulnerable to lead poisoning than adults. For children, lead can damage the central nervous system, kidneys, and reproductive system. At higher levels, it can cause comas, convulsions, and death. Even low levels of lead are harmful and are associated with decreased intelligence, impaired neurobehavioral development, decreased stature and growth, and impaired hearing acuity.

**300.415(b)(2)(iv) – High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.**

Lead is present in surface soils across the site at concentrations that exceed EPA risk-based values for residential soils. Lead-contaminated soils may migrate via airborne dusts, surface runoff, percolation into groundwater, construction activity, and/or tracked into residences by foot.

**300.415(b)(2)(v) – Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.**

As previously stated, contaminant presence in surface soils across the site present significant opportunity for migration via weather (e.g., wind, precipitation runoff).

**300.415(b)(2)(vii) – The availability of other appropriate federal or state response mechanisms to respond to the release.**

The EPA has explored other mechanisms to respond to this release of hazardous substances at the site and none have been identified.

#### **IV. ENDANGERMENT DETERMINATION**

The EPA and the PRP have documented concentrations of lead in surface soils at residential properties, including some where sensitive populations exist, that exceed health-based values. The concentrations and location of lead contamination at the site may present a complete exposure pathway. Lead is a hazardous substance as defined in Section 101(14) of CERCLA and is designated a hazardous substance in 40 C.F.R. § 302.4. The actual release of hazardous substances at and from the site may present an imminent and substantial endangerment to public health, or welfare, or the environment.

#### **V. EXEMPTION FROM STATUTORY LIMITS**

Pursuant to CERCLA § 104(c)(1), a removal action is limited to twelve months and \$2 million. A fund-lead removal action may be exempt from these limitations in two circumstances. First, a removal may fall under the “emergency” exemption when: (i) continued response actions are immediately required to prevent, limit, or mitigate an emergency, (ii) there is an immediate risk to public health or welfare or the environment, and (iii) such assistance will not otherwise be

provided on a timely basis. Second, a removal may fall under the “consistency” exemption when continued response action is otherwise appropriate and consistent with remedial action taken. This Section documents the justification for the use of an emergency exemption for completion of the described time-critical removal action.

There is an immediate risk to public health and/or welfare or the environment. This action is necessary to avoid a foreseeable threat to human health and the environment as well as prevent further migration of contaminants. This response action includes excavating contaminated soils in yards and other high-risk properties, thereby reducing the immediate potential for human exposure to lead. During 2020, the EPA reviewed available site data from previous actions and conducted further property assessment to determine the number of outstanding properties that may qualify for removal action. The data evaluation and assessment work identified 26 residential properties that meet the time-critical removal action criteria. One of the qualifying residential properties includes a child between 12 and 72 months with an elevated blood-lead level (EBL). There are an additional seven residential properties where a child between 12 and 72 months permanently resides. Although removal and replacement of soils can occur quickly, restoration activities at similar residential lead sites have taken longer than 12 months to complete. Based upon historic removal activities conducted at the site, and cost accounting at other lead smelting and mine waste sites, the total cost is expected to exceed \$2 million and work may extend beyond 12 months.

Continued response actions are immediately required to prevent, limit, or mitigate an emergency. If funding is not provided, these threats will not be addressed, and residents will continue to be exposed to high lead concentrations that could lead to adverse health effects.

Timely assistance will not otherwise be provided by other governments or the PRP. Neither the state of Missouri, the county, nor local governments have the response authority and/or resources to implement the described actions. Additional removal actions are in development as part of an enforcement action with the PRP but will not be available on a timely basis. The high lead levels found in residential soils at the site require an immediate response to address the health risks posed to the residents of Viburnum.

This action will be consistent with any future removal actions and will continue until the immediate threat to human health and the environment at the site has been addressed. The above conditions satisfy the criteria for an emergency exemption from the 12-month and \$2 million statutory limits on removal actions and should be granted in order to immediately provide response actions.

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

### **A. Proposed Actions**

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

##### **SOIL/WASTE EXCAVATION, REMOVAL, AND REPLACEMENT**

The proposed action involves excavation, treatment, and disposal of lead-contaminated soil, backfilling the excavated area to original grade with clean topsoil,

and restoring a grass lawn at residential properties, as defined by *Superfund Lead-Contaminated Residential Sites Handbook*. Residential properties eligible for this removal action include those with surface soil lead concentrations  $\geq$  1,200 ppm or surface soil lead concentrations between 400 and 1,200 ppm and a sensitive population (as defined by EPA Guidance) currently present at the property. The removal action will not address any properties with surface soil lead contamination  $\geq$  400 ppm identified only within the “drip-zone”. In order to avoid unnecessary mobilization and demobilization and intrusiveness to residents, the EPA will excavate all soils exceeding 400 ppm lead at properties eligible for this time-critical removal action. There will be a hierarchy followed for properties which will allow for the highest risk locations to remain a priority throughout operations.

The EPA will excavate all soil exceeding 400 ppm (i.e., above the removal management level) lead at qualifying residential properties. A pre-excavation plan will be agreed upon by the resident and the EPA at each property as to what area(s) will be excavated. Excavation will be completed in six-inch lifts and will continue until the lead concentration measured at the exposed surface is less than 400 ppm in the initial 12 inches from the original surface, or less than 1,200 ppm lead at depths greater than 12 inches. The excavation will terminate at less than 12 inches if a residual soil concentration less than 400 ppm lead is measured. If 1,200 ppm lead cannot be achieved at 24 inches, a decision will be made to continue excavation or to implement a post removal site control.

Soils in garden areas will be excavated until reaching a residual lead concentration less than 400 ppm in the initial 24 inches from the original surface, or less than 1,200 ppm at depths greater than 24 inches. If soils at a depth of 24 inches exceed 1,200 ppm lead, a decision will be made to continue excavation or to implement a post removal site control.

After confirmation sampling has verified that cleanup goals have been achieved, excavated areas will be backfilled with non-contaminated clean soil to original grade and revegetated. Clean soil must contain lead concentrations below 240 ppm and all other hazardous substances, pollutants, or contaminants at concentrations below residential soil screening levels representing an excess lifetime cancer risk of  $1E-6$  and a hazard quotient of 1, which can be found at: <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>. Clean gravel will be used to replace areas (e.g., driveways, gravel areas, etc.) where contaminated gravel was excavated and will be graded and compacted to their approximate pre-excavation condition. Final site restoration will include the placement of sod (for up to  $\frac{1}{4}$  acre of the property) or hydro-seed over the clean soil.

#### SOIL TREATMENT AND DISPOSAL

Excavated soils will first be transported to the staging area at the Viburnum Soil Repository, or another disposal location, where excavated soils will be sampled and analyzed using the Toxicity Characteristic Leaching Procedure (TCLP) according to the requirements of SW-846-Chapter 9 (representative sampling for waste piles), to

gain a representative characterization of all excavated soils acceptable for disposal. Any excavated soils that exhibit a lead concentration equal to or greater than 5 milligrams per liter (mg/L) will be deemed a characteristic hazardous waste (D008) per Table 1 at 40 C.F.R. § 261.24. Excavated soils deemed to be a characteristic hazardous waste will be treated at the staging area to comply with the Land Disposal Restrictions (LDR) at 40 C.F.R. Part 268. In accordance with 40 C.F.R. § 268.49(c)(1)(C), soil will be treated until it achieves 10 times the Universal Treatment Standard for lead. This value (7.5 mg/L) will be achieved prior to land disposal in one of the designated tailings pile locations at the Viburnum Soil Repository or other disposal location.

If excavated soils will be taken to an off-site disposal location, the EPA will ensure compliance with applicable provisions of the Off-Site Rule.

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

No remedial action is anticipated; however, the fund-lead actions proposed in this Action Memorandum should not impede any future remedial plans or other responses.

## **3. Description of alternative technologies**

On-site treatment using in-situ stabilization technologies are not feasible for this site due to the nature of the contamination. Excavation, ex-situ treatment (if required), and disposal of wastes is the most protective of human health, cost-effective, and viable removal alternative.

## **4. Applicable or Relevant and Appropriate Requirements (ARARs)**

Section 300.415(j) of the National Contingency Plan (NCP), provides that fund-financed removal actions under Section 104 and removal actions pursuant to CERCLA Section 106 shall, to the extent practicable considering the exigencies of the situation, attain applicable or relevant and appropriate requirements (ARARs) under federal environmental or state environmental facility siting laws. The following ARARs have been identified for this action:

### **Federal**

- Resource Conservation and Recovery Act, 42 U.S.C. § 6901, et seq., including:
  - 40 C.F.R. Part 258, et seq., Subtitle D
  - 40 C.F.R. Part 260, et seq., Subtitle C
  - 40 C.F.R. Part 261, et seq., Identification and Listing of Hazardous Waste
  - 40 C.F.R. Part 262, et seq., Standards Applicable to Generators of Hazardous Waste
  - 40 C.F.R. Part 263, et seq., Standards Applicable to Transporters of Hazardous Waste
  - 40 C.F.R. Part 268, et seq., Land Disposal Restrictions
  - 42 U.S.C. § 6941 et seq., State or Regional Solid Waste Plans

- Clean Air Act, 42 U.S.C. § 7401 et seq., including 40 C.F.R. Part 50, the National Ambient Air Quality Standards
- Clean Water Act, 33 U.S.C. § 26, including 40 C.F.R. § 122.49, the National Pollution Discharge Elimination System
- Endangered Species Act, 16 U.S.C. § 1531 et seq.
- National Historic Preservation Act, 16 U.S.C. § 470 et seq.

**State**

A letter requesting that the state identify ARARs for this site was sent on March 3, 2021. When received, these ARARs will be evaluated per EPA guidance on consideration of ARARs during removal actions. To qualify as ARARs, these requirements must be: (1) promulgated; (2) identified by the state within the time period specified in the letter; and (3) more stringent than federal requirements.

**5. Project Schedule**

Response activities are anticipated to begin following the authorization provided by this Action Memorandum.

**B. Estimated Costs**

The estimated costs associated with this removal action are as follows:

Extramural Costs:

Removal Costs	\$2,617,000
Contingency (20% of removal costs)	<u>523,400</u>
Removal Ceiling	\$3,140,400

EPA direct and indirect costs, although cost recoverable, do not count toward the total removal project ceiling for this removal action. Refer to the enforcement section for a breakout of these costs.

**VII. OUTSTANDING POLICY ISSUES**

None

**VIII. ENFORCEMENT**

See the Confidential Enforcement Addendum for this site. For NCP consistency purposes, it is not a part of this Action Memorandum. The total EPA costs for this removal action, based on full cost-accounting practices are estimated to be \$4,712,182. A cost break-down is provided below.

Direct Extramural Costs	\$3,140,400
Direct Intramural Costs	150,000
EPA Indirect (43.21% of all costs)	<u>1,421,782</u>
Total Project Costs	\$4,712,182

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 total costs from this estimate will affect the United States' right to cost recovery. The indirect rate is currently 43.21%. The indirect charged to the proposed ceiling increase reflects the current indirect rate.

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

The actions proposed herein for the site should be taken immediately. Should these actions be delayed, the potential threats to human health and the environment will continue and increase.

**X. RECOMMENDATION**

This decision document represents the selected removal action for the site. This removal action was developed in accordance with CERCLA, as amended; and is not inconsistent with the NCP. This decision is based on the Administrative Record for the site.

Conditions at the site meet the NCP criteria for a removal action, as set forth in 40 C.F.R. § 300.415(b), and I recommend your approval of the proposed removal action with an emergency exemption from the 12-month and \$2 million statutory limit on removal actions. The removal project ceiling, if approved, will be \$3,140,400. This amount comes from the Regional Removal Advice of Allowance.

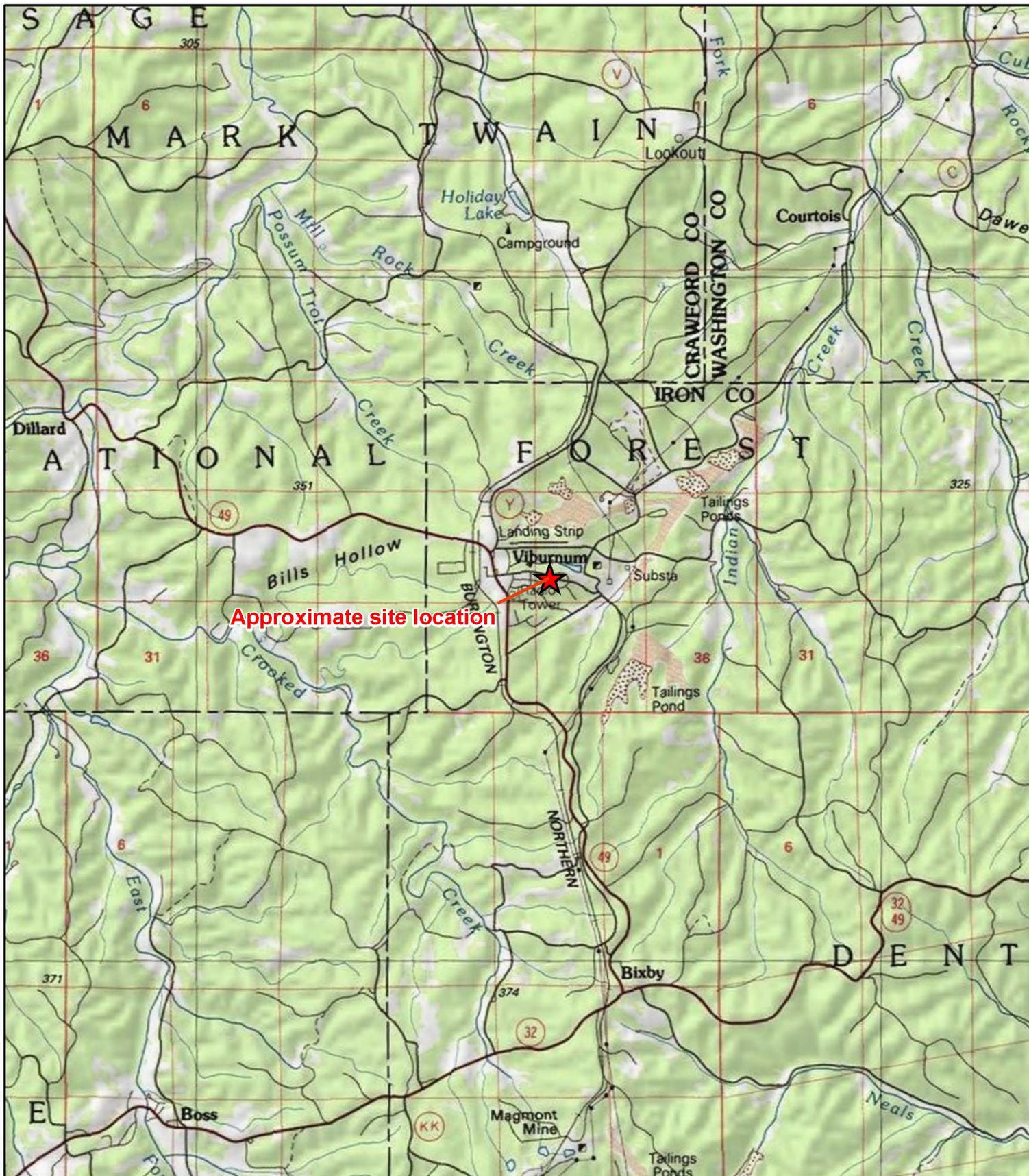
Approved:

\_\_\_\_\_  
Mary P. Peterson, Director  
Superfund and Emergency Management Division

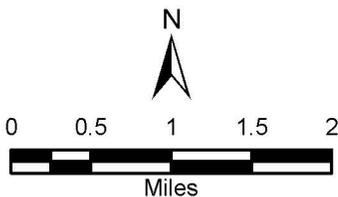
\_\_\_\_\_  
Date

Attachments:  
Attachment A – Figures

ATTACHMENT A – FIGURES



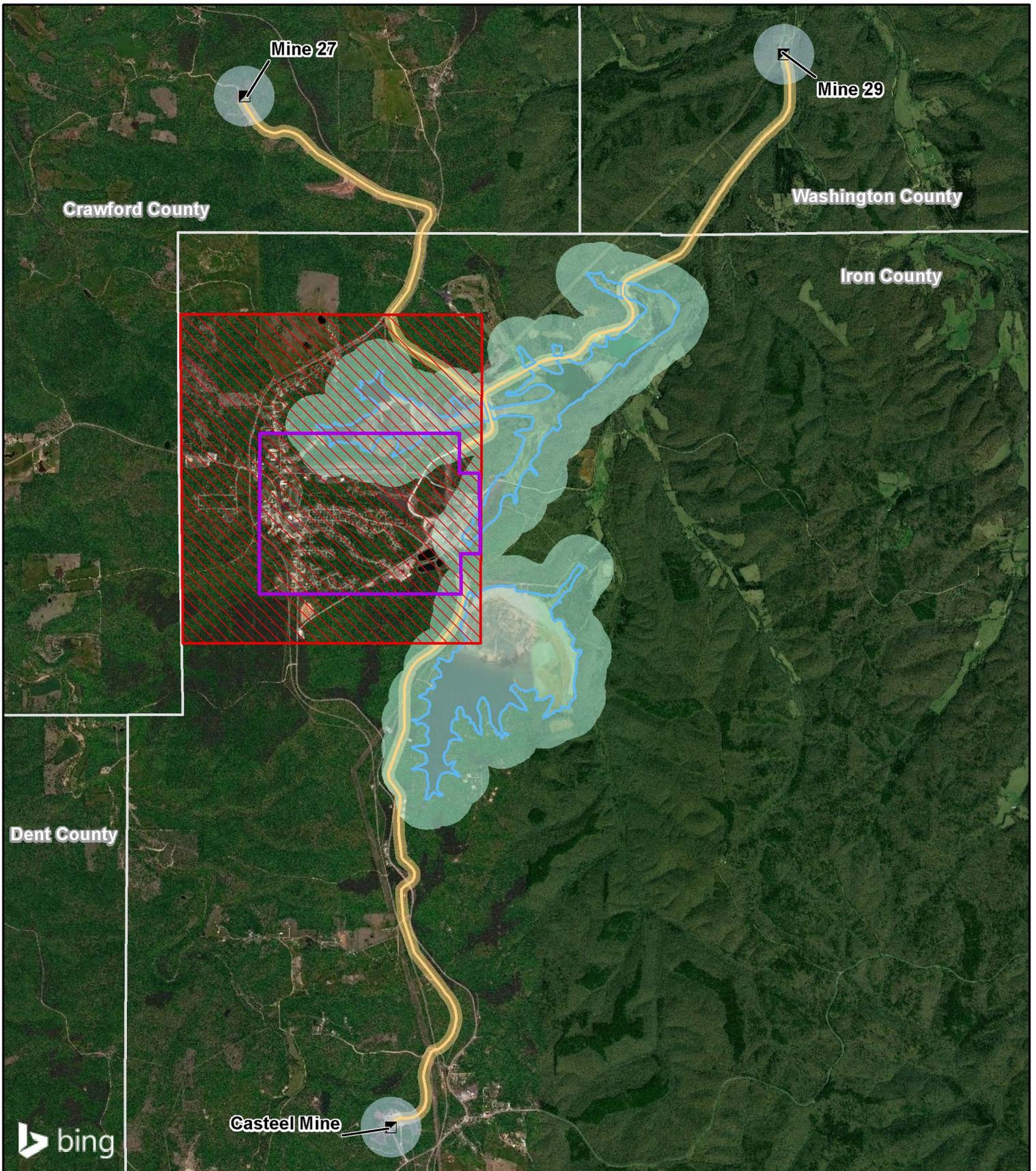
Approximate site location



St. Joe Minerals Corp - Viburnum Site  
Viburnum, Missouri

**Figure 1**  
Site Location Map





**Legend**

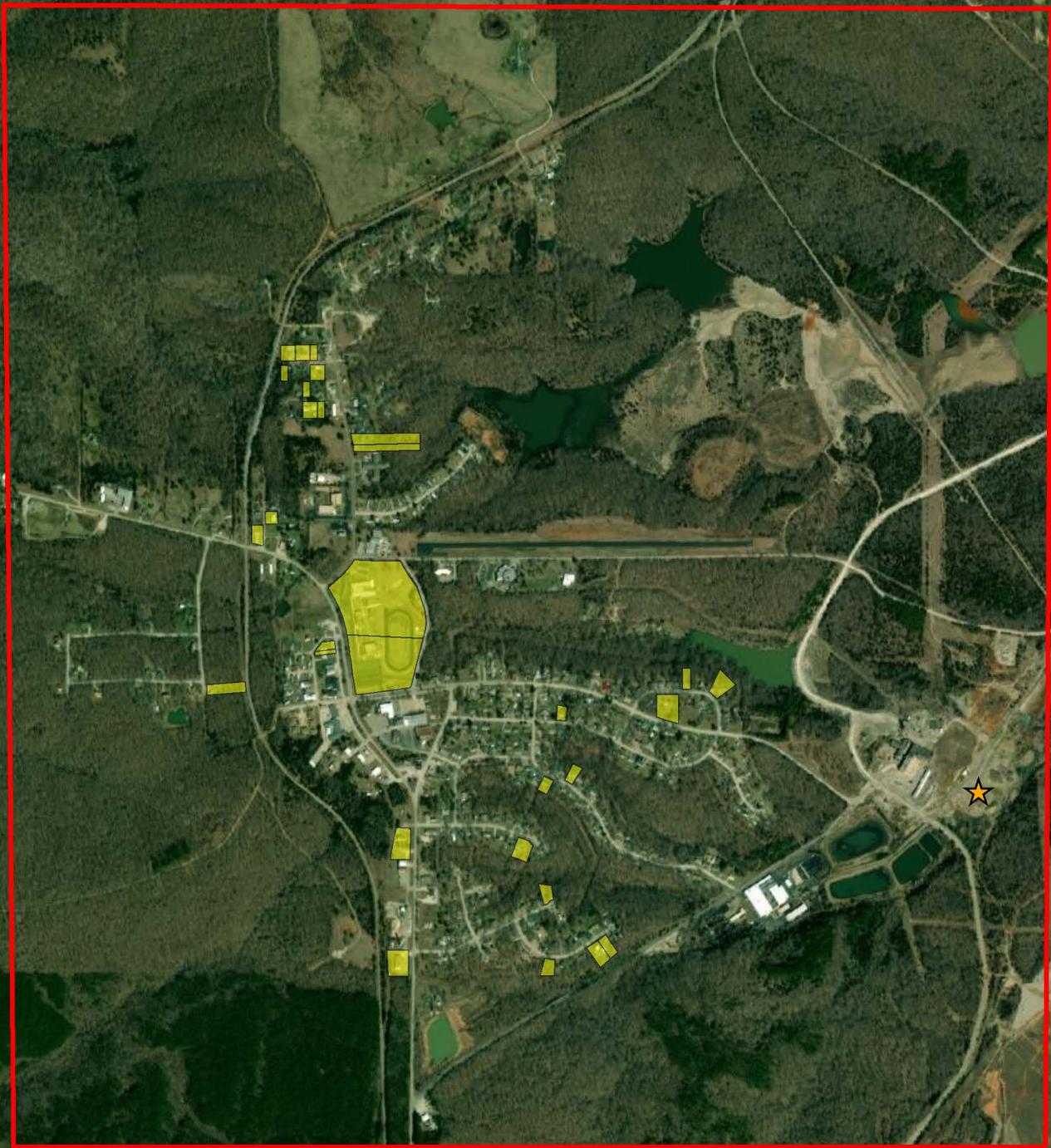
-  Mine shaft location
-  Haul road
-  County boundary
-  Proposed residential sampling area
-  Tailings pile
-  Viburnum City Limit
-  200-foot haul road buffer
-  1000-foot shaft buffer
-  1000-foot tailings buffer



St. Joe Minerals Corp - Viburnum Site  
Viburnum, Missouri

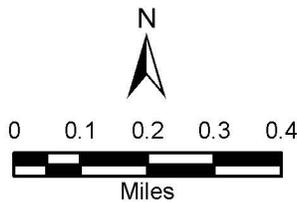
**Figure 2**  
Site Layout Map





**Legend**

-  Doe Run soil staging area
-  Proposed residential sampling area
-  Time-critical property



St. Joe Minerals Corp - Viburnum Site  
Viburnum, Missouri

**Figure 3**  
Time-critical Property Location Map

