

FINAL ENVIRONMENTAL ASSESSMENT

TAR CREEK SECTION 111 PROJECT MINE SHAFT PLUGGING 16 VARIOUS MINE SHAFTS PICHER, OKLAHOMA



US Army Corps
Of Engineers
Tulsa District

JUNE 2005

FINDING OF NO SIGNIFICANT IMPACT

In accordance with the National Environmental Policy Act of 1969, including guidelines in 33 Code of Federal Regulations, Part 230, the Tulsa District has assessed the environmental impacts of plugging abandoned mine shafts within the boundary of the Tar Creek Superfund Site in Ottawa County, Oklahoma. The Corps of Engineers has been given the authority under Section 111, Energy and Water Development Appropriations Act of 2004 (PL 108-137) to implement demonstration projects determined by the Secretary of the Army to be necessary to address lead exposure and other environmental problems related to historical mining activities in Ottawa County, Oklahoma. The Corps of Engineers has identified several hazardous mine shafts to be plugged under this appropriation. This project involves the fill and closure of 16 abandoned vertical mine shaft openings in the Picher, Oklahoma area. This assessment was prepared in accordance with U.S. Army Corps of Engineers Regulations, Part 230, Policy and Procedures for Implementing the National Environmental Policy Act. It has been determined from the enclosed Environmental Assessment that the project will have no significant adverse effects on the natural or human environment. Therefore, an environmental impact statement will not be prepared.

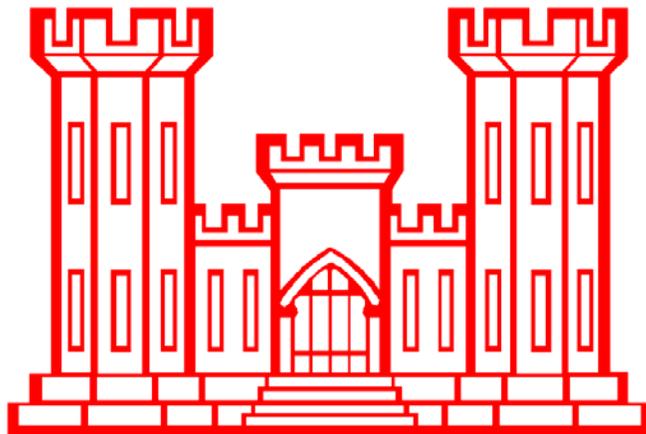
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Date


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Enclosure
Environmental Assessment

FINAL

**Environmental Assessment for
Tar Creek Section 111 Project
Mine Shaft Plugging
16 Various Mine Shafts
Picher, Ottawa County, Oklahoma**



**U.S. Army Corps of Engineers
Southwestern Division
Tulsa District**

June 2005

ENVIRONMENTAL ASSESSMENT ORGANIZATION

This Environmental Assessment (EA) evaluates the effects of filling and closing abandoned hazardous vertical mine shafts in the Tar Creek Superfund Site, Ottawa County, Oklahoma. This EA will facilitate the decision process regarding the proposed action and alternatives.

<i>SECTION 1</i>	<i>AUTHORITY, PURPOSE, AND SCOPE</i> provides the authority for the proposed action, summarizes the project purpose, provides relevant background information, and describes the scope of the EA.
<i>SECTION 2</i>	<i>ALTERNATIVES</i> examines alternatives for implementing the proposed action.
<i>SECTION 3</i>	<i>PROPOSED ACTION</i> describes the recommended action.
<i>SECTION 4</i>	<i>AFFECTED ENVIRONMENT</i> describes the existing environmental and socioeconomic setting.
<i>SECTION 5</i>	<i>ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION</i> identifies the potential environmental and socioeconomic effects of implementing the proposed action and alternatives.
<i>SECTION 6</i>	<i>RESTORATION PLAN</i> summarizes mitigation actions required to enable a Finding of No Significant Impact for the proposed alternative.
<i>SECTION 7</i>	<i>FEDERAL, STATE, AND LOCAL AGENCY COORDINATION</i> provides a listing of individuals and agencies to which a notice of availability of the FONSI will be sent.
<i>SECTION 8</i>	<i>REFERENCES</i> provides bibliographical information for cited sources.
<i>SECTION 9</i>	<i>APPLICABLE ENVIRONMENTAL LAWS AND REGULATIONS</i> provides a listing of environmental protection statutes and other environmental requirements.
<i>SECTION 10</i>	<i>LIST OF PREPARERS</i> identifies persons who prepared the document and their areas of expertise.
<i>APPENDICES</i>	<i>A</i> Coordination <i>B</i> Cultural Resources Coordination <i>C</i> Photos of Mine Shafts <i>D</i> Section 404 Permit

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**FINAL
ENVIRONMENTAL ASSESSMENT
TAR CREEK SECTION 111 PROJECT
MINE SHAFT PLUGGING
16 VARIOUS MINE SHAFTS
PICHER, OKLAHOMA**

SECTION 1.0 AUTHORITY, PURPOSE, AND SCOPE

This project was developed under authority of Section 111 of the Energy and Water Development Appropriations Act of 2004 (Public Law 108-137). The Corps of Engineers has been given authority and funding under this Act to implement demonstration projects determined by the Secretary of the Army to be necessary to address lead exposure and other environmental problems related to historical mining activities in Ottawa County, Oklahoma. In January 2000, Oklahoma Governor Frank Keating appointed a Tar Creek Superfund Task Force panel to examine all facts related to the cleanup of the Superfund site in Ottawa County. Eight subcommittees, including a Mine Shaft Subcommittee, were formed to gather these facts. The Mine Shaft Subcommittee was asked to complete two tasks. Task 1 was to identify and locate mine shafts and other openings associated with the abandoned lead and zinc mines that pose a threat to public health and safety. Task 2 was to propose solutions and potential funding sources for closing the hazardous underground openings. Following the guidelines established by the Tar Creek Superfund Task Force the Corps of Engineers has selected several hazardous mine shafts identified in Oklahoma Geological Survey Circular 88 for closure under this appropriation. The purpose of this assessment is to address a project to fill and plug 16 of those abandoned vertical mine shafts near Picher, Ottawa County, Oklahoma (Figure 1.0).

The National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190) requires all Federal agencies to address the environmental impacts of any major Federal action on the natural and human environment. Guidance for complying with the NEPA is contained in Title 40 of the Code of Federal Regulations (CFR), Parts 1500 through 1508, and in Engineering Regulation (ER) 200-2-2, *Procedures for Implementing NEPA*. This environmental assessment was developed to assure that the proposed project complies with the intent of NEPA.

1.1 Previous EA's Addressing Mine Shaft Closure

Final Environmental Assessment, Tar Creek Section 111 Project, Mine Shaft Plugging, Mine Shafts Numbers 37 and 57, Picher, Oklahoma. U. S. Army Corps of Engineers, Tulsa District. November 2004. (2 Shafts).

<u>Shaft Number</u>	<u>Mine Name</u>	<u>Location</u>
37	Piokee	Section 17, Township 29N, Range 23E
57	Admiralty #3	Section 29, Township 29N, Range 23E

Final Environmental Assessment, Tar Creek Section 111 Project, Plugging of Various Mine Shafts. Prepared for U. S. Army Corps of Engineers by Weston Solutions, Inc., March 2005. (42 Shafts).

<u>Shaft Number</u>	<u>Mine Name</u>	<u>Location</u>
4	Quebec	Section 32, Township 29N, Range 23E
27	Lucky Bill	Section 30, Township 29N, Range 23E
3	Domado	Section 29, Township 29N, Range 23E
72	Douthat	Section 29, Township 29N, Range 23E
11	Baby Jim	Section 29, Township 29N, Range 23E
18	Rialto	Section 29, Township 29N, Range 23E
15	Rialto	Section 29, Township 29N, Range 23E
70	Admiralty No. 4	Section 29, Township 29N, Range 23E

<u>Shaft Number</u>	<u>Mine Name</u>	<u>Location</u>
69	Admiralty No. 4	Section 29, Township 29N, Range 23E
14	Domado	Section 29, Township 29N, Range 23E
49	Kenoyer	Section 20, Township 29N, Range 23E
65	Admiralty No. 4	Section 29, Township 29N, Range 23E
42	Skelton	Section 29, Township 29N, Range 23E
59	Skelton	Section 29, Township 29N, Range 23E
16	Blue Ribbon	Section 14, Township 29N, Range 23E
15	Blue Ribbon	Section 14, Township 29N, Range 23E
20	Graig	Section 33, Township 29N, Range 23E
25	Barbara J	Section 29, Township 29N, Range 23E
37	OKO	Section 20, Township 29N, Range 23E
2	Scott	Section 13, Township 29N, Range 23E
1	Scott	Section 13, Township 29N, Range 23E
9	Julie Shapp	Section 35, Township 29N, Range 23E
5	Harry Whitebird	Section 35, Township 29N, Range 23E
4	Harry Whitebird	Section 35, Township 29N, Range 23E
3	Birthday	Section 28, Township 29N, Range 23E
5	Federal	Section 28, Township 29N, Range 23E
6	Federal	Section 28, Township 29N, Range 23E
11	New Chicago No. 2	Section 28, Township 29N, Range 23E
10	Fort Worth	Section 28, Township 29N, Range 23E
17	MoMule	Section 28, Township 29N, Range 23E
14	New Chicago No. 2	Section 28, Township 29N, Range 23E
14	Eudora Whitebird	Section 21, Township 29N, Range 23E
15	Consolidated No. 3	Section 16, Township 29N, Range 23E
11	Cortez	Section 16, Township 29N, Range 23E
12	Cortez	Section 16, Township 29N, Range 23E
9	Hunt	Section 16, Township 29N, Range 23E
7	Ohimo	Section 17, Township 29N, Range 23E
12	Scammon Hill	Section 36, Township 29N, Range 22E
13	Scammon Hill	Section 36, Township 29N, Range 22E
8	Scammon Hill	Section 36, Township 29N, Range 22E
23	Blue Bonnet	Section 23, Township 29N, Range 23E
22	Blue Bonnet	Section 23, Township 29N, Range 23E

SECTION 2.0 ALTERNATIVES

Alternatives included a No Action plan, which would retain existing conditions and leave the 16 hazardous mine shafts open, and a Proposed Action plan, which proposes to fill and plug each of the open mine shafts.

2.1 No Action Alternative

The Council on Environmental Quality (CEQ) regulations implementing the provisions of the National Environmental Policy Act of 1969 (NEPA) require Federal agencies to consider a "no action" alternative. These regulations define the "no action" alternative as the continuation of existing conditions and their effects on the environment, without implementation of, or in lieu of, a proposed action. This alternative represents the existing condition and serves as the baseline against which to compare the effects of the proposed alternative. The no action alternative would retain the existing condition and would not result in any project-related environmental impacts or loss of habitat. The effects of residual chat, open mine shafts, and subsidence features would remain or worsen at each mine shaft location. Open mine shafts are extremely hazardous and health and safety would continue to be a major concern.

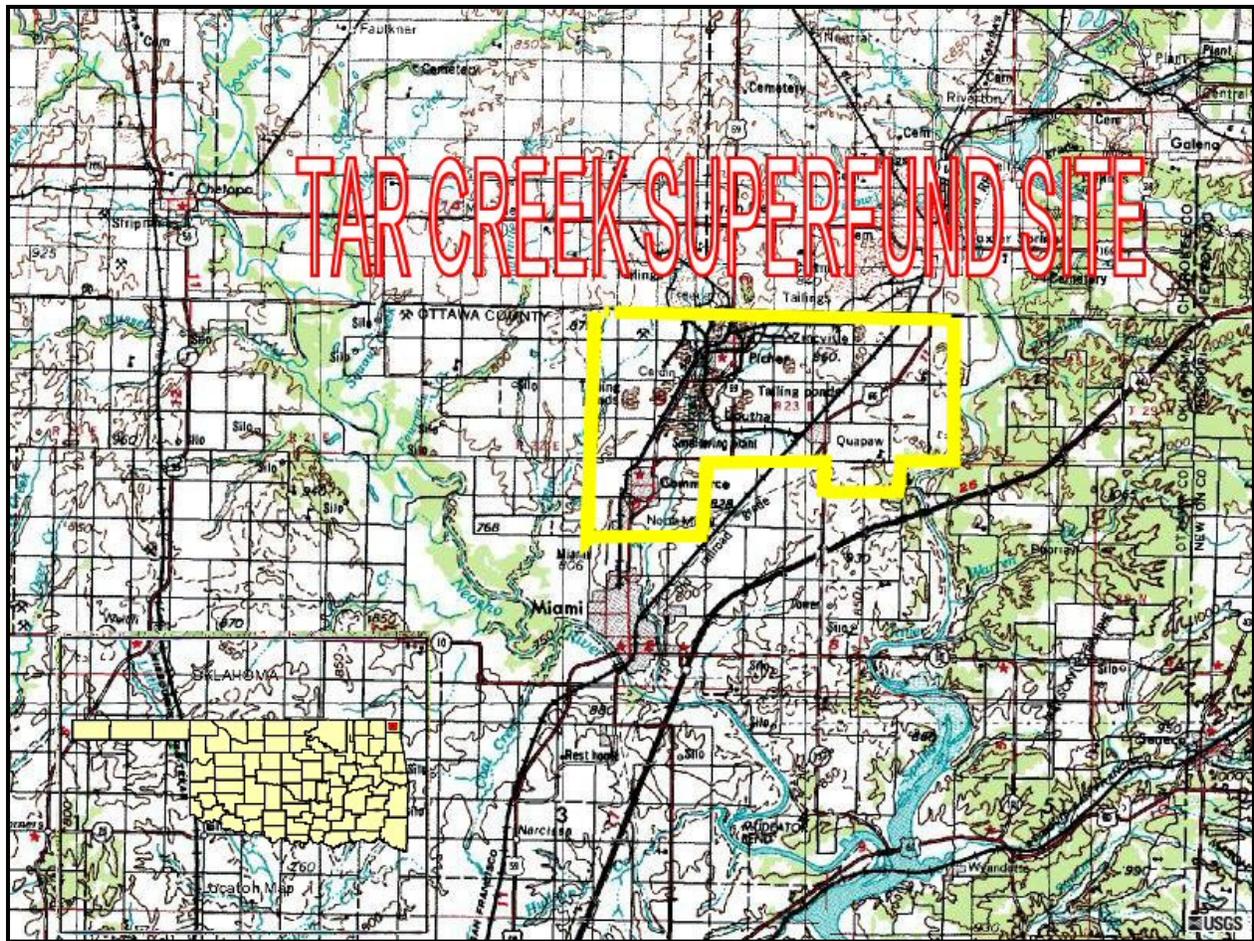


Figure 1.0 Vicinity Map.

2.2 Action Alternative

Only one action is proposed under this project, which is the closure of 16 abandoned mine shafts. The proposed action is addressed in Section 3.0.

SECTION 3.0 PROPOSED ACTION

The proposed action entails the permanent closure of 16 open mine shafts near Picher, Oklahoma (Table 3.0). All 16 mine shafts are in Ottawa County. Six of the mineshafts are on lands administered by the Bureau of Indian Affairs (BIA). Photos of the 16 shafts are in Appendix C.

<u>Shaft Number</u>	<u>BIA</u>	<u>Mine Name</u>	<u>Location</u>
2	Y	Birddog	Section 13, Township 29N, Range 22E
3	N	Campbell (Malsbury)	Section 19, Township 29N, Range 24E
2	Y	James Xavier	Section 23, Township 29N, Range 22E
2	N	Discard	Section 17, Township 29N, Range 24E
3	N	Discard	Section 17, Township 29N, Range 24E
12	N	Discard	Section 17, Township 29N, Range 24E
15	N	Indiana	Section 22, Township 29N, Range 23E
16	N	Indiana	Section 22, Township 29N, Range 23E

19	N	Ottawa	Section 22, Township 29N, Range 23E
22	N	Jo Buffalo	Section 22, Township 29N, Range 23E
41	N	Skelton	Section 28, Township 29N, Range 23E
9	Y	Xavier Mudd	Section 23, Township 29N, Range 22E
1	Y	Laura Jenny Zheka	Section 13, Township 29N, Range 22E
10	Y	Tongaha	Section 19, Township 29N, Range 23E
16	Y	Consolidated No. 2	Section 16, Township 29N, Range 23E
17	N	Rialto	Section 29, Township 29N, Range 23E

Table 3.0 Mine Shafts to be Closed.

3.1 Description of Work

This project consists of clearing each work site, excavating each shaft for placement of fill and concrete plug, backfilling over the plug, and grading, shaping, and reconditioning the site. The mine shafts will be closed and plugged according to all local, State, and Federal regulations. Plugging methods will be based on the *Mine Shaft Subcommittee Final Report to Governor Frank Keating's Tar Creek Superfund Task Force*. Adequate and appropriate safety will be a major consideration during all phases of construction.

Site preparation for each mine shaft will include clearing and grubbing only to the extent necessary to perform excavation, embankment, borrow and other work required. Clearing will include the felling and disposal of trees, brush, and other vegetation within the construction limits. The construction limits for each mine shaft includes only that area required to accomplish the closure of each shaft. Care will be taken near the construction limits so as to not damage existing trees, vegetation, structures or utilities, which are outside the clearing limits.

Prior to commencing operations at each shaft site, a down-hole video camera will be used to record the condition of the shaft. Each mine shaft will be filled, capped, or plugged based on a review of available data and information gathered from the camera videos. Basic information was obtained from mining company boring logs including depth to bedrock, the estimated depth to the bottom of the shaft, and the room height below the shaft. The specific type of closure is provided below under the discussion of each individual mine shaft.

Excavation will be accomplished to provide access for placement of the material, placement of the plug and to locate competent bedrock on which to set the concrete plug and/or to remove wooden cribbing as much as possible. The maximum depth required for excavation will be 20 feet, resulting in an excavation cone of approximately 40 feet. Should competent bedrock be encountered at a depth less than 20 feet, excavation could be to a lesser depth. All plugs will be placed into competent bedrock. This may require that plugs be placed under water since most mines in the Picher field are water filled.

After placement of the plug, the remaining vertical openings will be backfilled with excavated material and on-site bull rock and chat that is located adjacent to the shafts. The upper two feet of the shaft will be filled with the same material as is adjacent to the shaft. The transition between the disturbed areas and the undisturbed areas will be graded to the existing contour with no abrupt slope changes to eliminate the possibility of ponding and erosion.

After completion of the plugging activities at each shaft, a 3 foot x 3 foot concrete pad having a minimum thickness of 4 inches shall be placed over the location of each shaft. A brass cap will be imbedded in the concrete pad to indicate that this is a plugged shaft. The brass cap will have the mine shaft number based on Oklahoma Geological Survey Circular 88 and the date of plugging stamped into it. A brief report will be prepared by the contractor for each shaft plugged that will include a before and after photograph of each shaft location. Each report will outline the plugging method used for that shaft and briefly describe the dimensions and characteristics of the constructed mine shaft plug.

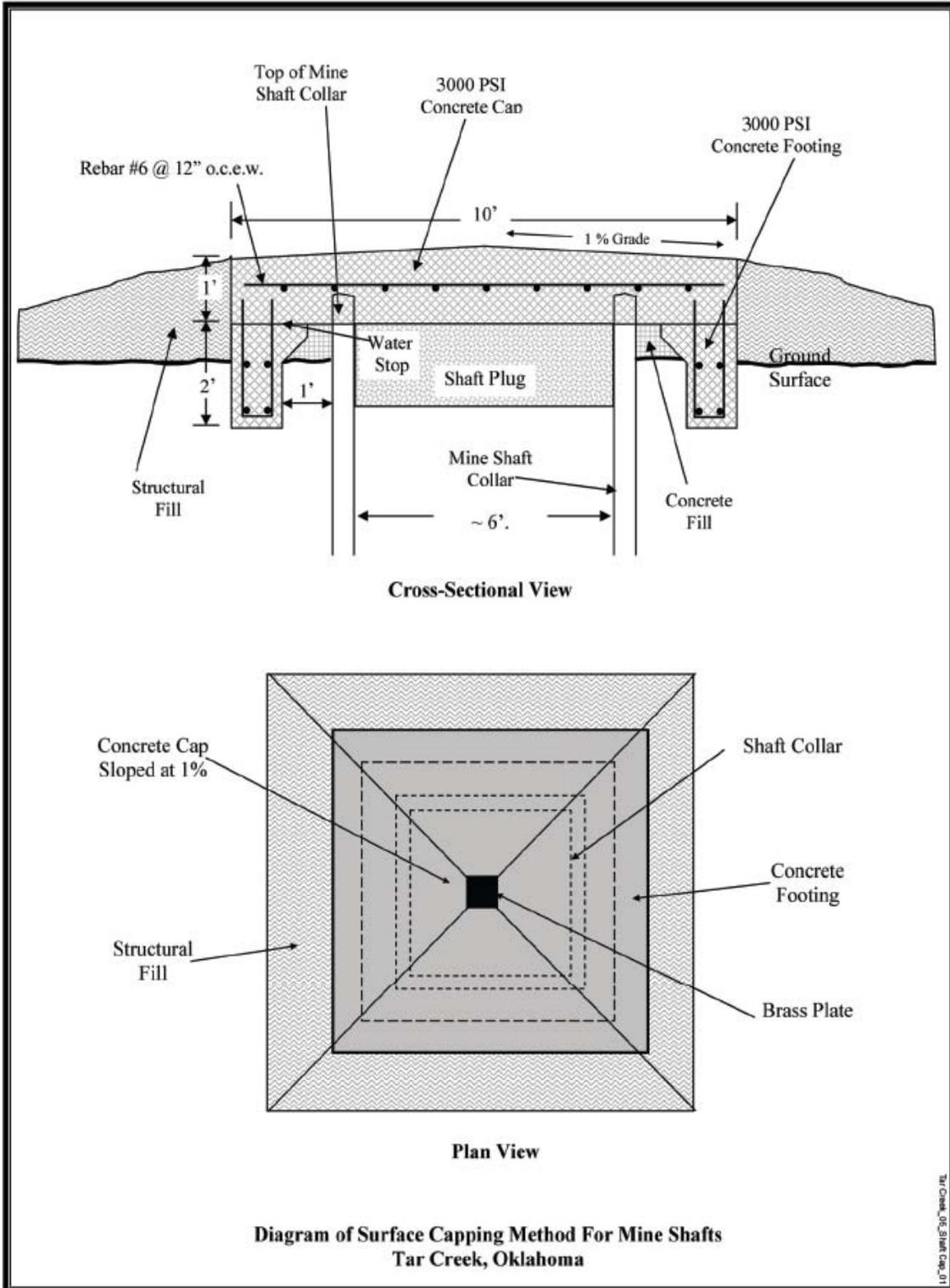


Figure 3.1 Typical Diagram of Surface Capping Method.

Mine Shaft No. 2 – Birddog Lease

This mineshaft is located in section 13, T 29 N, R 22 E. It is located in a wooded area adjacent to a wetland complex and close to cropland planted in soybeans. The top of the shaft is stable with water and leaves visible at about 30 feet below the ground surface. The vegetation in the area near the shaft includes several trees, some herbaceous plants as well as woody vegetation. This shaft is in an area consisting of several acres of good quality wildlife habitat. Plants observed include cottonwood, mulberry, hackberry, elm, cedar, dogwood, Japanese honeysuckle, grape, sumac, buckbrush, poison ivy, moth mullein, ragweed, and henbit. This site is shown in photograph No. 1 in Appendix C.

This shaft has a large opening with cribbing visible 10 feet from the surface. There is no material locally available for fill; it will be imported from other sites. The shaft is on Bureau of Indian Affairs (BIA) property. Access for equipment and personnel to accomplish the shaft plugging will be down a good dirt road. The area around the shaft will be excavated to remove all loose vegetation and debris. The cribbing and material above the competent rock strata will be removed. The excavated material will be stockpiled around the shaft for re-use. The method of plugging will be backfill. Competent bedrock is approximately 140 feet deep, as determined from mining company boring logs. An enormous excavation would be necessary to install a concrete plug or wedge. The room height interpreted from mining company boring logs appears to be 20- to 30-feet; not too deep for backfilling. Once the backfilling is complete, the area will be re-graded for efficient drainage and the monument installed.

Mine Shaft No. 3 – Campbell Lease (Malsbury)

This mineshaft is located in section 19, T 29 N, R 24 E. It is located in a small 'island' of vegetation within an agricultural field. This shaft is on private land. The cropland had been recently plowed during the site visit but wheat appears to be the crop last planted. This shaft has a large opening with collapsed sides at the upper part of the shaft and vertical sides below. Two large bullfrogs and an ornate box turtle were observed resting on a large log that was floating in the shaft. The water and logs were about 20 feet below the ground surface. The vegetation in the area near the shaft includes several trees, some herbaceous plants as well as woody vegetation. Plants observed include one large cottonwood (>30" dbh), hackberry, black cherry, sumac, poison ivy, ragweed, plantain, and pepperweed. This site is shown in photograph No. 2 in Appendix C.

The shaft entrance is an eroded 20 foot diameter opening. The cribbing was not visible above the water at the time of the site visit. The shaft appears as a choked-off pit. An attempt will be made to pump the water to expose the cribbing above the competent rock. Local boring records in the area show competent rock at 30 feet below the surface. The water will be pumped onto the ground and allowed to drain naturally. If the water level is lowered to expose the cribbing and competent rock, the mine shaft plug will be installed in dry conditions. If pumping is not successful in lowering the water, the plug will be installed in wet conditions. In both wet and dry installations the area around the shaft will be excavated and removed to expose the top of the bedrock substrata. If the shaft is blocked off, the excavated material will be stockpiled around the shaft area for re-use. If the shaft is not blocked off the material will be swept down the shaft. Once the area above the competent rock is excavated approximately 4 feet beyond the limits of the shaft, the form for the concrete plug will be fitted onto the ledge. Concrete will be poured into the form, break samples taken for quality control, and the plug left to cure. Upon receipt of passing break samples, the excavation above the plug will be backfilled with non-degradable onsite fill material and the 3 foot by 3 foot by 4 inch minimum thickness concrete pad poured with the embedded brass plate. The plate will be stamped with the mine shaft number according to Oklahoma Geologic Survey Circular 88 and the date of plugging.

Mine Shaft No. 2 – James Xavier Lease

This mineshaft is located in section 23, T 29 N, R 22 E. It is located in an area of trees and shrubs within a prairie complex that appears to be used for hay. This shaft has a large cylindrical opening about 20 feet across that extends downward about the same distance to where the wooden cribbing begins. Water is about 40 feet from the surface. The vegetation in the area near the shaft includes several trees, some herbaceous plants as well as woody vegetation. Plants observed include cottonwood, hackberry, dogwood, poison ivy, wild rose, purpletop, brome, wild carrot, and shooting star. This site is shown in photograph No. 3 in Appendix C.

This shaft is a very large, slick opening with steep sides. The cribbing is visible below the ground surface above the water. The water was not visible at the time of the site visit. There is no material locally available for fill so it will be imported from other sites. The shaft is on BIA property. Access for equipment and personnel will be down a good dirt road. The area around the shaft will be excavated to remove all loose vegetation and debris. The cribbing and material above the competent rock strata will be removed. The excavated material will be stockpiled around the shaft area for re-use. The method of plugging will be backfill. The competent rock is approximately 140 feet deep, as determined from mining company boring logs. An enormous excavation would be necessary to install a concrete plug or wedge on bedrock. The room height interpreted from mining company boring logs appears to be 20- to 30-feet, and not too deep for backfilling. Once the backfilling is complete, the area will be re-graded for efficient drainage and the monument installed

Mine Shaft No. 2 – Discard Lease

This mineshaft is located in section 17, T 29 N, R 24 E. It is located in a wooded area just southwest of a large collapsed sinkhole that is filled with water. This shaft is on private land. Extensive areas of chat and mining debris are to the north of this shaft. South of the shaft is a large wooded area with somewhat open mixed timber and grasses. The top of the shaft is eroded with large amounts of dead woody debris in it. Water and leaves are visible at about 10 feet below the ground surface. The vegetation in the area near the shaft is upland forest mixed with savannah grasses and shrubs. The site provides only average quality wildlife habitat. Plants observed include cottonwood, persimmon, sassafras, box elder, elm, cedar, black cherry, Japanese honeysuckle, sumac, poison ivy, false indigo, and broomsedge. This site is shown in photograph No. 4 in Appendix C.

The shaft is very overgrown and difficult to see. Access for equipment and personnel to accomplish the shaft plugging will be uncomplicated. The cribbing was not visible above the water at the time of the site visit. The high water level indicates that the shaft is possibly blocked off above the bottom. There are large amounts of chat and bull rock in the area that can be used as fill. An attempt will be made to pump out the water to expose the cribbing above the competent rock. The water will be pumped onto the ground and allowed to drain naturally. If the water level is lowered to expose the cribbing and competent rock, the mine shaft plug can be installed in dry conditions. If pumping is not successful in lowering the water the plug will be installed in wet conditions. In both wet and dry installations the area around the shaft will be excavated and removed to expose the top of the competent rock substrata. If the shaft is blocked off, the excavated material will be stockpiled around the shaft for re-use. If the shaft is not blocked off the material will be swept down the shaft. Once the area above the competent rock is excavated approximately 4 feet beyond the limits of the shaft, the form for the concrete plug will be fitted onto the ledge. Concrete will be poured into the form, break samples will be taken for quality control, and the plug left to cure. Upon receipt of passing break samples the excavation above the plug will be backfilled with non-degradable onsite fill material. The 3 foot by 3 foot by 4 inch minimum thickness concrete pad will be poured with the embedded brass plate. The plate will be stamped with the mine shaft number according to Oklahoma Geologic Survey Circular 88 and the date of plugging.

An alternative approach for backfilling this shaft is to use a method also proposed for the Indiana 15 Shaft and the Skelton 41 Shaft. With the alternative approach, an attempt will be made to pump the water level below the level where competent bedrock is encountered. A bladder will then be lowered below the level of competent rock and inflated with polyurethane foam. The foam-filled bladder will set overnight to allow the foam to fully expand and cure. The following day, a 4-foot section of shaft above the bladder will be backfilled with concrete having a minimum strength of 3,000 pounds per square inch (psi). After the concrete cures, the remainder of the shaft to ground level will be backfilled with local non-degradable fill material. The site will then be graded and a concrete pad with brass plate installed as described above. This alternative approach is preferred to the current proposed method of excavating and installing a concrete plug because it will be more cost effective.

Mine Shaft No. 3 – Discard Lease

This mineshaft is located in section 17, T 29 N, R 24 E. It is located in a wooded area just east of a large collapsed sinkhole that is filled with water. This shaft is on private land. This shaft is northeast of the No. 2 Discard shaft adjacent to the east side of the same large collapse. It is closer to the collapse than the No. 2 shaft and vertical water movements within the shaft indicate it is connected with the large collapse. The habitat is the same as Discard No. 2 shaft discussed above. Extensive areas of chat and mining debris are to the northwest of this shaft. South of

the shaft is a large wooded area with somewhat open mixed timber and grasses. This shaft is highly eroded with vortex-shaped sides that extend to bedrock. It is extremely dangerous. Water is visible at about 8 feet below bedrock. The vegetation in the area near the shaft is upland forest mixed with savannah grasses and shrubs. The site provides average quality wildlife habitat. Plants observed include cottonwood, northern red oak, persimmon, sassafras, honey locust, elm, cedar, black cherry, sumac, rose, sedges, butterfly milkweed, switchgrass, and broomsedge. This site is shown in photograph No. 5 in Appendix C.

This is the largest of the Discard sites. The competent rock is exposed at the bottom of the degraded area. The water level is below the competent rock. The opening is approximately 80- to 100-foot wide at the top and slopes severely to the shaft in the center, approximately 40 feet down. Excavation equipment will be brought in to prepare the top of the competent rock for installation of the plug. The slope will be removed and excavated 4 feet past the limits of the exposed bedrock. Once the area above the competent rock is excavated, the form for the concrete plug will be fitted onto the ledge, concrete will be poured into the form, break samples will be taken for quality control, and the plug left to cure. Upon receipt of passing break samples, the excavation above the plug will be backfilled with non-degradable onsite fill material. The 3 foot by 3 foot by 4 inch minimum thickness concrete pad will then be poured with the embedded brass plate. The plate will be stamped with the mine shaft number according to Oklahoma Geologic Survey Circular 88 and the date of plugging.

Mine Shaft No. 12 – Discard Lease

This mineshaft is located in section 17, T 29 N, R 24 E. It is an extremely barren site with extensive chat and mining waste on all sides. This shaft is on private land. It is close to the previous two Discard shafts and is in the large area of chat and mining debris referenced above. This shaft is essentially filled in although there is water about 3 feet below the surface. Vegetation in the area near the shaft is very limited and is of little wildlife value. Plants observed were stunted and very sparse and include willow, black cherry, cedar, yucca, and switchgrass. This site is shown in photograph No. 6 in Appendix C.

Shaft 12 is the smallest and least complicated of the Discard shafts. It is on private property. It appears totally plugged and abandoned. There was approximately 1 foot of water in the top of the shaft at the time of the site visit. No cribbing was visible. The top of the shaft will be excavated to competent material. The debris and excavated material will be stockpiled for use on the other Discard shafts. A concrete cap will be poured, break samples taken for quality control, and the cap left to cure. The cap will include a 3 foot by 3 foot by 4 inch minimum thickness concrete raised pad, poured with an embedded brass plate. The plate will be stamped with the mine shaft number according to Oklahoma Geologic Survey Circular 88 and the date of plugging.

Mine Shaft No. 15 – Indiana Lease

This mineshaft is located in section 22, T 29 N, R 23 E. It is located in a wooded area between agricultural fields. This shaft is on private land. The cropland had been recently plowed prior to the site visit. This shaft has a large opening with eroded sides and woody debris at the bottom. Habitat in the area is upland forest intermixed with farmland and prairie. It provides good quality wildlife habitat. Plants observed include cottonwood, hackberry, box elder, dogwood, wild rose, poison ivy, Virginia creeper, pepper vine, grape, and various forbs and grasses. This site is shown in photograph No. 7 in Appendix C.

The shaft entrance is a very debris-filled 15 foot diameter opening with water within 20 feet of the top of the surrounding ground. It is on private property. The cribbing was not visible above the water at the time of the site visit. The area around the shaft will be excavated to remove all the loose vegetation and debris. The cribbing and material above the competent rock strata will be removed. The excavated material will be stockpiled around the shaft for re-use or swept down the shaft. Once the area above the competent rock is excavated approximately 4 feet beyond the limits of the shaft, the form for the concrete plug will be fitted onto the ledge. Concrete will be poured into the form, break samples will be taken for quality control, and the plug left to cure. Upon receipt of passing break samples, the excavation above the plug will be backfilled with non-degradable onsite fill material and the 3 foot by 3 foot x 4 inch minimum thickness concrete pad poured with the embedded brass plate. The plate will be stamped with the mine shaft number according to Oklahoma Geologic Survey Circular 88 and the date of plugging.

An alternative approach for backfilling this shaft is to use a method also proposed for the Indiana 15 Shaft and the Skelton 41 Shaft. With the alternative approach, an attempt will be made to pump the water level below the level where competent bedrock is encountered. A bladder will then be lowered below the level of competent rock and inflated with polyurethane foam. The foam-filled bladder will set overnight to allow the foam to fully expand and cure. The following day, a 4-foot section of shaft above the bladder will be backfilled with concrete having a minimum strength of 3,000 pounds per square inch (psi). After the concrete cures, the remainder of the shaft to ground level will be backfilled with local non-degradable fill material. The site will then be graded and a concrete pad with brass plate installed as described above. This alternative approach is preferred to the current proposed method of excavating and installing a concrete plug because it will be more cost effective.

Mine Shaft No. 16 – Indiana Lease

This mineshaft is located in section 22, T 29 N, R 23 E. It is located on private land in a prairie area. It appears that the area is being converted into an agricultural field. This shaft is on private land. The immediate area around the mine shaft had been cleared of trees and shrubs with a bulldozer just prior to the site visit and the cropland had been recently plowed. This shaft has a large opening with eroded sides and structural concrete overhanging one side. Wire and mining debris was pushed up during the dozer operations, giving the appearance that the shaft had been fenced for safety. Habitat in the area is prairie intermixed with farmland. Upland woods are nearby. The area provides good quality wildlife habitat. Plants observed in the immediate vicinity of the shaft site include remnants of cottonwood, cedar, elm, sumac, and prairie grasses. This site is shown in photograph No. 8 in Appendix C.

The shaft entrance is a very timber-choked 10 foot diameter opening with water within 20 feet of the top of the surrounding ground. The cribbing was not visible above the water at the time of the site visit. The area around the shaft will be excavated to remove all loose vegetation and debris. An attempt will be made to pump the water level to below the level where competent bedrock is encountered. A bladder will then be lowered below the level of competent rock and inflated with polyurethane foam. The foam filled bladder will set overnight to allow the foam to fully expand and cure. The following day, a 4-foot section of shaft above the bladder will be backfilled with concrete having a minimum strength of 3,000 psi. After the concrete cures, the remainder of the shaft to ground level will be backfilled with local non-degradable fill material. The site will then be graded and a concrete pad with brass plate installed as described above.

Mine Shaft No. 19 – Ottawa Lease

This mineshaft is located in section 22, T 29 N, R 23 E. It is located in a small 'island' of vegetation within an agricultural field. This shaft is on private land. The cropland had been recently plowed during the site visit but wheat appears to be the crop last planted. This shaft has a small, vine-covered opening that is difficult to distinguish from only a short distance. Water was not visible in the shaft. Vegetation in the area near the shaft includes several trees, shrubs, forbs and some grasses. Deer and small mammal tracks were observed. Plants observed include cottonwood, hackberry, elm, dogwood, persimmon, grape, blackberry, horseweed, and sunflower. This site is shown in photograph No. 9 in Appendix C.

The shaft entrance is a 7 foot by 5 foot diameter concrete frame opening. It is on private property. The cribbing was not visible above the water at the time of the site visit. The water was not visible, but is probably below 20 feet. The area around the shaft will be excavated to remove all loose chat and debris. The existing concrete shaft will be repaired for use as a form for pouring a new concrete collar to accept a wedge plug. The plug form will be fitted onto the new collar and concrete poured into the form. The top will be framed in and a concrete lid poured. The prescribed monument will be installed in the concrete lid. The area around the shaft will be graded to allow water to drain away and downstream to the adjacent creek.

Mine Shaft No. 22 – Jo Buffalo Lease

This mineshaft is located in section 22, T 29 N, R 23 E. It is located along a high voltage power line in a prairie setting. This shaft is on private land. It is near the No. 19 Ottawa shaft and adjacent to cropland. The cropland had been recently plowed. This shaft has vertical concrete sides extending down to the water. The water level appeared to be about 20 feet below the surface. Vegetation in the area near the shaft includes mostly shrubs,

forbs and mixed grasses. Deer and small mammal tracks were observed. Plants observed include hackberry, dogwood, willow, sumac, blackberry, Indian grass, and various bluestems including broomsedge. Spike rush was present in some small wet areas in the vicinity. This site is shown in photograph No. 10 in Appendix C.

The shaft entrance is a 7 foot by 5 foot diameter concrete frame opening. It is on private property. The cribbing was not visible above the water at the time of the site visit. The shaft has a competent concrete collar which extends above the surrounding natural grade from 6 inches to 1 foot. The top of the collar is weathered and jagged in places. A 1 foot by 1 foot trench will be dug around the concrete collar and reinforced with rebar as a footing for a wedge plug. Concrete will be poured into the rebar-reinforced trench. The plug form will be fitted onto the new concrete and concrete poured into the form. The top will be framed in and a concrete lid poured. The prescribed monument will be installed in the concrete lid. The area around the shaft will be graded to ensure drainage away from the shaft.

Mine Shaft No. 41 – Skelton Lease

This mineshaft is located in section 28, T 29 N, R 23 E. It is an extremely barren site with extensive chat and mining waste on all sides. This shaft is on private land. It is close to an area that currently is experiencing surface collapse. This shaft was previously capped but not plugged and the top has collapsed and re-opened the shaft. Cribbing is visible and water is about 10 feet below the surface. Vegetation in the area near the shaft is very sparse and is of little wildlife value. Plants observed were stunted and very limited and include cottonwood, elm, box elder, black cherry, sumac, greenbrier, yucca, milkweed, ragweed, and broomsedge. This site is shown in photograph No. 11 in Appendix C.

The Shaft 41 entrance has an almost totally obstructed opening with piles of chat around all four sides. The opening is approximately 6 feet by 6 feet. The cribbing was visible below the ground surface above the water at the time of the site visit. There are large amounts of chat and bull rock in the area which can be used as fill. This shaft is on the outskirts of Picher, off 12th Street. It is on BIA property. Access for equipment and personnel to accomplish the shaft plugging will be uncomplicated.

The area around the shaft will be excavated to remove all the loose chat and debris. A video camera will be lowered into the shaft to record the depth and relative thickness of the competent rock. An attempt will be made to pump the water to below the level where competent bedrock is encountered. A bladder will then be lowered below the level of competent rock and inflated with polyurethane foam. The foam-filled bladder will set overnight to allow the foam to fully expand and cure. The following day, a 4-foot section of shaft above the bladder will be backfilled with concrete having a minimum strength of 3,000 psi. After the concrete cures, the remainder of the shaft to ground level will be backfilled with local non-degradable fill material. The site will then be graded and a concrete pad with brass plate installed as described above.

Mine Shaft No. 9 – Xavier Mudd Lease

This mineshaft is located in section 23, T 29 N, R 22 E. It is located in a wooded area in a prairie-woodland complex. The prairie appears to be used for hay. The Oklahoma Geological Survey Circular 88 lists it on BIA property. This shaft is in very dense vegetation and has a large opening with somewhat eroded sides. Old tires were observed floating on the water in the shaft which was about 20 feet below the surface. Habitat in the area is upland forest intermixed with prairie. An agricultural field in the area is planted in corn. It provides good quality wildlife habitat. Plants observed include cottonwood, hackberry, black cherry, elm, cedar, dogwood, Japanese honeysuckle, poison ivy, blackberry, sumac, henbit, yarrow, spiderwort, and various prairie forbs and grasses. This site is shown in photograph No. 12 in Appendix C.

Shaft 9 on the Xavier Mudd lease has a densely vegetated perimeter. There is no material locally available for fill. Fill will be imported from other sites. Access for equipment and personnel to accomplish the shaft plugging will be down a good dirt road. The area around the shaft will be excavated to remove all loose vegetation and debris. The cribbing and material above the competent rock strata will be removed. The excavated material will be stockpiled around the shaft for re-use. The method of plugging will be backfill. The competent rock is very deep; approximately 140 feet, as determined from mining company boring logs. An enormous excavation would be necessary to install a concrete plug or wedge. The room height interpreted from mining company boring logs

appears to be 20- to 30-feet at the bottom of the shaft which is not too deep for backfilling. Once the backfilling is complete, the area will be re-graded for efficient drainage and the monument installed.

Mine Shaft No. 1 – Laura Jenny Zheka Lease

This mineshaft is located in section 13, T 29 N, R 22 E. It is another of the shafts located in a small 'island' of vegetation within an agricultural field. The cropland is planted in wheat that is nearing maturity. This shaft is eroded at the surface and has a significant amount of dead woody vegetation over the shaft. The opening is filled with dead timber and the water was well below the surface. Vegetation in the area near the shaft includes several trees, shrubs, vines, forbs and some grasses. Virginia Creeper and poison ivy densely populate the site. Other plants observed include cottonwood, hackberry, black locust, mulberry, mint, and brome. This site is shown in photograph No. 13 in Appendix C.

Access to this shaft will be difficult. It is surrounded by wheat fields. A road will be built for ingress and egress of materials and equipment. The shaft is completely obstructed by timber debris. The cribbing was visible at about 30 ft below the ground surface at the time of the site visit. There is local material available for fill. The shaft is on BIA property. The area around the shaft will be excavated to remove all loose vegetation and debris. The cribbing and material above the competent rock strata will be removed. The excavated material will be stockpiled around the shaft for re-use. The method of plugging will be backfill. The competent rock is very deep, approximately 140 feet, as determined from mining company boring logs. An enormous excavation would be necessary to install a concrete plug or wedge. The room height interpreted from mining company boring logs appears to be 20- to 30-feet, not too deep for backfilling. Once the backfilling is complete, the area will be re-graded for efficient drainage and the monument installed.

Mine Shaft No. 10 – Tongaha Lease

This mineshaft is located in section 19, T 29 N, R 23 E. It is another of the shafts located in a small 'island' of vegetation within an agricultural field. The cropland is planted in soybeans. This shaft is a 3 foot diameter concrete cylinder with slight collapse around the edges. It is reportedly the best of its type remaining in the Picher area. The opening is grated. Vegetation in the area near the shaft includes several trees, shrubs, vines, forbs and some grasses. Plants observed include cottonwood, hackberry, black cherry, cedar, mulberry, persimmon, dogwood, blackberry, buckbrush, poison ivy, Virginia creeper, grape, brome, ragweed, and Bermuda grass. This site is shown in photograph No. 14 in Appendix C

Shaft 10 is the site of a bullet shaft, used for the transport of personnel and materials into and out of the mine. The shaft consists of nine sections of concrete pipe, joined end to end vertically. The bottom section rests on the competent rock substrata. The shaft is on BIA property. Access for equipment and personnel is through a soybean field, requiring a road to be built. The plug at Shaft 10 will be set around the concrete pipe sections. The top section will be removed and the area around the shaft excavated down to competent material. A concrete collar will be poured around the shaft and the top of the shaft plugged with concrete. The 3 foot by 3 foot by 4 inch minimum thickness concrete pad with the embedded brass plate will be poured over the top of the shaft concrete. The plate will be stamped with the mine shaft number according to Oklahoma Geologic Survey Circular 88 and the date of plugging.

Mine Shaft No. 16 – Consolidated No. 2 Lease

This mineshaft is located in section 16, T 29 N, R 23 E. It is another shaft located in an extremely barren site with extensive chat and mining waste on all sides. Cribbing is visible and water is about 25 feet below the surface. Vegetation in the area near the shaft is very sparse and is of little wildlife value. Plants observed were mostly catalpa. Vegetation was stunted and very limited and in addition to catalpa included hackberry, cedar, and yucca. The area provide very little wildlife habitat other than space. This site is shown in photograph No. 15 in Appendix C.

Shaft 16 has very competent cribbing down 20- to 25-feet below grade. The opening is approximately 6 feet by 6 feet. There is a weathered concrete collar with trees growing into it. There is chat and bull rock in the area which can be used as fill. It is on BIA property. Access for equipment and personnel to accomplish the shaft

plugging will be uncomplicated and quick. The area around the shaft will be excavated to remove all loose chat and debris. The existing concrete shaft will be repaired for use as a form for pouring a new concrete collar to accept a wedge plug. The plug form will be fitted onto the new collar and concrete poured into the form. The top will be framed in and a concrete lid poured. The prescribed monument will be installed in the concrete lid. The area around the shaft will be graded to allow run-off to drain away and downstream to the adjacent creek.

Mine Shaft No. 17 – Rialto Lease

This mineshaft is located in section 29, T 29 N, R 23 E. It is another shaft located in an extremely barren site with extensive chat and mining waste on all sides. The shaft is located on private land. Large piles of chat are adjacent to this shaft. A steel grate has been placed over the opening. Cribbing is visible and water is about 10 feet below the surface. Vegetation in the area near the shaft is sparse and is stressed. The area does provide some wildlife habitat on the east and south side. Deer tracks were observed around the shaft. Several species of plants were observed in the area including cottonwood, catalpa, willow, elm, persimmon, hackberry, black cherry, cedar, northern red oak, chittamwood, sumac, blackberry, switchgrass, and spikerush. This site is shown in photograph No. 16 in Appendix C.

Shaft 17 on the Rialto lease is behind Teeters Asphalt yard outside Picher. It is surrounded by large piles of chat and smaller piles of bull rock. The landowner will not permit use of the large piles, but may allow the contractor to backfill with the smaller piles. The shaft has a concrete collar which is covered with a grate fabricated of railroad rail, which the landowner wants returned upon closure. The grate will be removed and the concrete will be repaired where necessary. The existing concrete shaft will be used as a form for pouring a new concrete collar to accept a wedge plug. The plug form will be fitted onto the new concrete and concrete poured into the form. The top will be framed in and a concrete lid poured. The prescribed monument will be installed in the concrete lid. The area around the shaft will be graded to allow runoff to drain away and downstream to the adjacent creek

SECTION 4.0 AFFECTED ENVIRONMENT

The 16 mine shafts are a component of the 40 square-mile Tar Creek Superfund Site. The Tar Creek Superfund Site was listed on the EPA National Priorities List in 1983. In 1993 the Tar Creek Superfund Site was moved to the top of the National Priorities List, making it the highest-ranking Superfund site in the nation. The Tar Creek site encompasses the Oklahoma portion of the Tri-State Mining District of northeastern Oklahoma, southeastern Kansas, and southwestern Missouri. It includes communities in Ottawa County outside the mining area that are also contaminated with mining waste. The towns of Picher, Cardin, Commerce, North Miami, and Quapaw are part of the Tar Creek Superfund Site.

The mining and milling of lead and zinc ore left approximately 300 miles of underground tunnels, millions of tons of tailings (generally the tailings with the consistency of gravel are called chat), more than 1,320 mine shafts, and thousands of drill holes in Oklahoma's part of the Tri-State Mining District. The mine tailings are deposited in hundreds of piles and in sediment retention ponds near the residential communities and in undeveloped urban and rural areas. Some piles are as high as 200 feet and contain lead and other heavy metals.

Ottawa County has a temperate, continental climate characteristic of the southern prairie plains where they merge with the southwestern extension of the Ozark Plateau. The elevation in the Picher area is around 800 feet National Geodetic Vertical Datum.

Changes between the seasons are gradual, but the characteristics of the seasons are fairly well defined. The winter season ranges from cold to moderate; there are many sunny days between storms. Snow rarely covers the ground for more than 3 or 4 days at a time. Spring is the season when the weather is most variable and when the largest amount of rainfall of high intensity occurs. Summers are generally hot, but the nights are cool. In the fall there are long periods of pleasant days interspersed with spells of moderate to heavy rains. Tornadoes are infrequent but can occur in the area.

The average annual temperature is 57.3 ° F. Temperatures range on the average from 33° in January to 79.4° in July. The average annual precipitation is 44.6 inches. About 31 percent of the precipitation comes in

spring; 29 percent in summer; 26 percent in fall; and 14 percent in winter. Winds are generally from the south, but in midwinter northerly winds predominate. The average annual snowfall is about 12 inches and covers the ground with at least two inches an average of 13 days per year.

4.1 Social and Economic Conditions

Lead and zinc mining came to northeastern Oklahoma near Peoria, Ottawa County, in 1891. At one time the Tri-State Mining District, which includes the Picher Mining Field, was the leading United States producer of lead and zinc, supplying nearly 27 percent on the nations lead and zinc products. During the peak mining years of 1907 through 1946, almost two million tons of lead and zinc were mined in the area at a value of more than \$202 million. By the time the last mining company closed in 1970, the Picher Mining Field had produced 1.7 million tons of lead and 8.8 million tons of zinc.

But what once brought economic prosperity to the far northeastern corner of Oklahoma soon led to a legacy of human health and environmental calamity. The mining and milling of lead and zinc ore left approximately 300 miles of underground tunnels, 165 million tons of tailings (chat), over 1,320 mine shafts, and thousands of drill holes in the Oklahoma portion of the Tri-State Mining District alone. Tangible natural resource threats were first realized in 1979 when metals-laden mine water began discharging to surface streams in the Tar Creek watershed. The 40 square-mile site was added to the first National Priorities List when Congress created the Superfund program in 1983, and remediation efforts followed primarily to address the mine water discharges.

In an effort to assume a more vital leadership role in attacking the myriad environmental, health, and safety problems associated with the nation's highest-ranking Superfund site, Oklahoma Governor Frank Keating formed the Tar Creek Superfund Task Force on January 26, 2000 which was charged with developing a comprehensive remediation plan for the area.

U.S. Census Bureau data from the 2000 Census indicates that an estimated 1,640 persons live in Picher, Oklahoma, and an estimated 33,194 persons live in Ottawa County, Oklahoma. The racial makeup of the City of Picher is 77.13% Caucasian, 13.78% Native American, 1.4% Hispanic, 0.18% Pacific Islander, 0.12% Asian, and 8.78% from mixed races. The racial makeup of Ottawa County is 74.1% Caucasian, 16.5% Native American, 3.2% Hispanic, 0.6% African American, 0.3% Asian, 0.1% Pacific Islander, 1.5% from other races, and 3.8% from two or more races.

According to the 2000 Census approximately 616 people are in the labor force in Picher and 15,110 people in Ottawa County. Almost half the workforce of Picher is employed in either the manufacturing industry or in the educational, health, and social services industry. An additional 20.9% of the workforce is employed in the retail trade industry and the construction industry. In Ottawa County persons working in the educational, health, and social services make up 23.9% of the workforce. An additional 17.7% of the workforce is employed in the manufacturing industry while arts, entertainment, recreation, accommodation, food services and retail trade make up 20.8%.

The median household income in the 2000 Census was \$19,722 for Picher, and \$27,507 for Ottawa County. The State of Oklahoma median household income for that year was \$33,400. The per capita income for Picher was \$10,938; for Ottawa County was \$14,478; and for the State of Oklahoma was \$17,646.

4.2 Executive Order 12898

Executive Order 12898 requires each Federal agency to make environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

Under NEPA, the identification of a disproportionately high and adverse human health or environmental effect on a low-income population, minority population, or Indian tribe does not preclude a proposed agency action from going forward, nor does it necessarily compel a conclusion that a proposed action is environmentally unsatisfactory. Rather, the identification of such an effect serves to heighten agency attention to alternatives

(including alternative sites), mitigation strategies, monitoring needs, and preferences expressed by the affected community or population.

Low-income populations in an affected area are identified with the annual statistical poverty thresholds from the Bureau of the Census Reports on Income and Poverty. In identifying low-income populations, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect.

Minorities are comprised of individual(s) who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic.

Minority populations are identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. In identifying minority communities, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a geographically dispersed/transient set of individuals (such as migrant workers or Native American), where either type of group experiences common conditions of environmental exposure or effect. The selection of the appropriate unit of geographic analysis may be a governing body's jurisdiction, a neighborhood, census tract, or other similar unit that is to be chosen so as to not artificially dilute or inflate the affected minority population. A minority population also exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above-stated thresholds.

Disproportionately high and adverse human health effects: When determining whether human health effects are disproportionately high and adverse, agencies are to consider the following three factors to the extent practicable: (a) Whether the health effects, which may be measured in risks and rates, are significant or above generally accepted norms. Adverse health effects may include bodily impairment, infirmity, illness, or death; and (b) Whether the risk or rate of hazard exposure by a minority population, low-income population, or Indian tribe to an environmental hazard is significant and appreciably exceeds or is likely to appreciably exceed the risk or rate to the general population or other appropriate comparison group; and (c) Whether health effects occur in a minority population, low-income population, or Indian tribe affected by cumulative or multiple adverse exposures from environmental hazards.

Disproportionately high and adverse environmental effects: When determining whether environmental effects are disproportionately high and adverse, agencies are to consider the following three factors to the extent practicable: (a) Whether there is or will be an impact on the natural or physical environment that significantly and adversely affects a minority population, low-income population, or Indian tribe. Such effects may include ecological, cultural, human health, economic, or social impacts on minority communities, low-income communities, or Indian tribes when those impacts are interrelated to impacts on the natural or physical environment; and (b) Whether environmental effects are significant and are or may be having an adverse impact on minority populations, low income populations, or Indian tribes that appreciably exceeds or is likely to appreciably exceed those on the general population or other appropriate comparison group; and (c) Whether the environmental effects occur or would occur in a minority population, low-income population, or Indian tribe affected by cumulative or multiple adverse exposures from environmental hazards.

4.3 Executive Order 13045

On 21 April 1997, President Clinton issued Executive Order 13045 (EO 13045), Protection of Children From Environmental Health Risks and Safety Risks, which notes that children often suffer disproportionately from environmental health and safety risks, due in part to a child's size and maturing bodily systems. The executive order defines environmental health and safety risks as risks to health or to safety that are attributable to products or substances that the child is likely to come in contact with or ingest (such as the air we breathe, the food we eat, the water we drink or use for recreation, the soil we live on, and the products we use or are exposed to). Executive Order 13045 requires Federal agencies, to the extent permitted by law and mission, to identify and assess environmental health and safety risks that may affect children disproportionately. The Order further requires Federal

agencies to ensure that its policies, programs, activities, and standards address these disproportionate risks. Executive Order 13045 is addressed in this NEPA document to examine the effects this action will have on children.

4.4 Natural Resources

4.4.1 Terrestrial

The eastern part of the Oklahoma portion of the Picher Field is situated on the west edge of the Ozark Plateau Physiographic Province. The Ozark Plateau is a broad, low structural dome lying mainly in southern Missouri and northern Arkansas. However, the main part of the Picher Field is within the Central Lowland Physiographic Province. This province is characterized by a nearly flat, treeless prairie underlain by Pennsylvanian shales.

The rock formations exposed at the surface in the mining field include Mississippian and Pennsylvanian units that are nearly flat, with a low regional northwestward dip of about 20-25 feet per mile. Cambrian and Ordovician formations, primarily dolomite and chert with some sandstone and minor shale, are encountered only in deep drill holes and water wells in this area.

Mississippian rock units, principally the Boone Formation, are the host for most of the ore deposits. The Boone Formation is composed of fossiliferous limestone and thick beds of nodular chert. Significant quantities of mill-waste material were generated by milling of the lead-zinc ores. The discarded mill-waste material chiefly composed of chert fragments 0.75 inches or less in diameter is referred to as chat. An inventory of tailings piles, former tailings piles, and former tailings ponds indicates there are 146 former chat-pile sites and 119 existing chat piles that occupy about 1,200 acres. Approximately 900 acres are overlain by chat piles. There are approximately 75 million tons of chat piled throughout the Tar Creek Superfund Site.

The streams that traverse the mining field, which are only slightly incised below prairie level, flow southward to the Neosho River. Elm Creek, on the western edge of the field, and Tar Creek are the principal streams in the main productive part of the field.

Topographic relief in the area is relatively small. The lowest point, south of Commerce, is about 780 feet National Geodetic Vertical Datum (NGVD). The average elevation is around 830 feet NGVD, and the highest point is about 900 feet NGVD.

Tar Creek is located within the Prairie Parkland Province (Bailey, 1980). Vegetation in this province is characterized by intermingled tallgrass prairie, with groves and strips of deciduous trees. This province covers an extensive area of about 218,200 square miles from Canada to Oklahoma, with alternating prairie and deciduous forests. Trees are commonly found near streams. Tallgrass prairie species are the dominant prairie vegetation. Most are moderately tall and usually grow in bunches. The dominant species include big bluestem, little bluestem, switchgrass, and Indian grass, along with many species of wildflowers and legumes. In many places where grazing and fire are controlled, deciduous forest is encroaching on the prairies. The upland forest in this area is dominated by oak and hickory. On floodplains and moist hillsides it includes eastern cottonwood, black willow, and American elm.

Prior to lead and zinc mining the project area was mainly upland timber and native grassland. Extensive ground coverage of chat left behind from mining operations resulted in the topsoil in the area being in very poor condition. Many of the shafts are surrounded by chat material which is essentially devoid of organic content and will not support vegetation. At other mineshaft sites chat has been mixed with small amounts of topsoil. As a result soils remain of poor quality and vegetation at these shaft sites is very sparse or of poor quality (Appendix C).

4.4.2 Soils

According to the US Department of Agriculture Soil Survey for Ottawa County, Oklahoma, three soil associations are present in the area of the Tar Creek Superfund site. These are the Dennis-Parsons-Bates, Dennis-Taloka, and Osage-Verdigris-Lightning associations. In addition to the three soil associations is the miscellaneous

land type categorized as Mine Pits and Dumps (Mp). This miscellaneous land type is man-made and can occur in any of the three listed soil associations.

Dennis-Parsons-Bates association consists of nearly level to moderately sloping upland soils formed under tall grass prairie in material from sandstone and shale of Pennsylvanian age. Much of the acreage in this association is cultivated. Wheat is the main crop, but corn, sorghum, oats, and soybeans are also grown. Fertility of the soils is fair, but in most places a complete fertilizer is applied to increase yields. Native grasses are of good quality and produce large quantities of forage and hay.

Dennis-Taloka association consists of nearly level to moderately sloping upland soils formed in material from sandstone and shale or in old alluvium. Much of the acreage in this association is also cultivated. Crops are generally the same as those in the previous association and fertilization is used to increase yields. Lime is needed to correct acidity on much of this association. Native grasses produce good yields of forage.

Osage-Verdigris-Lightning association consists of nearly level soils on flood plains. This association is made up of acid, nearly level soils on flood plains of the Neosho River and its tributaries. The soils are formed from alluvium washed from soils of the prairies. Tall prairie grass and scattered hardwood trees make up the native vegetation. Much of the acreage of the Osage and Lightning soils is in tame pasture or native pasture or meadow. Drainage is generally needed if they are cultivated. Verdigris soils are highly fertile and are usually cultivated, but lime is needed to correct acidity.

Mine Pits and Dumps consists of piles of rock and chat from zinc and lead mines. The larger piles cover 40 acres or more, and some are over 200 feet tall and can be seen for miles. In some areas there is only a thin covering of rock and chat. In many places drainage ways are blocked by rock and chat and nearby areas are ponded or made swampy. Seepage from these areas makes nearby soils, which are otherwise well drained, wet in many places. Most areas of this soil type are without vegetation. This miscellaneous land type has little value for agriculture. In some areas it has minor value for wildlife.

4.4.3 Prime Farmland

Soil that is prime or unique farmland as defined in the Farmland Protection Policy Act is classified as prime farmland. According to the U.S. Department of Agriculture, it is soil that is best suited for producing food, feed, forage, fiber, and oilseed crops (7 USC 4202). The footprint of each mineshaft to be closed is small (<0.1 acre) and the majority have a chat base. Most of the mineshafts are situated on soils classified as Mine pits and dumps (Mp) which are not categorized as prime farmland.

4.4.4 Wild and Scenic Rivers

There are no streams within the project area that are classified as wild and scenic pursuant to the Federal Wild and Scenic Rivers Act, Public Law 90-542.

4.4.5 Fish and Wildlife

A small amount of fish habitat occurs in the vicinity primarily in mill ponds and local ponds with a limited amount of habitat in some of the creeks. Species that have been collected from streams, millponds, and local ponds for contaminants analysis include carp, channel catfish, spotted bass, largemouth bass, bluegill sunfish, and smallmouth buffalo. Fish caught in these waters are a common part of the diet of persons in the local area. The consumption of fish containing elevated levels of metals is a concern because chronic exposure to heavy metals can cause health problems. In comparison to fish collected in the National Contaminant Biomonitoring Program, the fish collected in this area had lead concentrations higher than normal. The elevated levels of lead in the fish were correlated positively to the concentration of lead in the sediments of the waters. The consumption of whole-eviscerated or whole-uneviscerated fish from these waters is discouraged. However, the consumption of fillets from fish in this area is safe at rates at least as high as six 8-ounce meals per month according to the Oklahoma Department of Environmental Quality (DEQ).

On July 17, 2003 the Oklahoma DEQ issued a News Release that concluded that skinless fish fillets from all species in the Tar Creek Superfund site are safe to eat. However, DEQ's data indicate that lead and cadmium are present and above safe levels for consumption in bottom feeding species like carp, buffalo, and catfish when fish flesh and bones are combined.

Several species of amphibians, reptiles, and birds occur in the vicinity. However, wildlife diversity and numbers are limited because of the poor habitat conditions around many of the shaft sites.

Mammals most likely to occur in the area include species such as whitetailed deer, fox squirrel, coyote, raccoon, opossum, striped skunk, and cottontail rabbit.

4.5 Wetlands

The footprint of construction around each mine shaft is very small. No wetlands should be negatively impacted by the closure of any shafts addressed in this document. Also, U.S. Army Corps of Engineers policy in accordance with Regulatory Guidance Letter 85-07 for Superfund Projects is that environmental response actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) do not require authorization under Section 404 of the Clean Water Act (Appendix D). The East Kenoyer reclamation project qualifies as a CERCLA response action under this policy. Therefore, the project is not subject to regulation pursuant to Section 404 of the Clean Water Act, and a Department of the Army permit is not required.

Elm Creek runs adjacent along the west side of mine shaft No. 2 on the Birddog lease and provides limited wetland habitat. No wetland habitat along Elm Creek should be impacted by closure of this shaft. None of the other 15 mine shafts listed in this document have wetland habitat in the immediate vicinity of the shaft.

4.6 Threatened and Endangered Species

Federally listed species that could occur in Ottawa County include the endangered gray bat (*Myotis grisescens*), endangered Ozark big-eared bat (*Corynorhinus townsendii*), endangered American burying beetle (*Nicrophorus americanus*), endangered winged mapleleaf mussel (*Quadrula fragosa*), the threatened bald eagle (*Haliaeetus leucocephalus*), threatened Neosho madtom (*Noturus placidus*), threatened Ozark cavefish (*Amblyopsis spelaea*), and threatened piping plover (*Charadrius melodus*).

The gray bat was listed in 1976. It is a medium sized bat with a wingspan of 10 to 11 inches and a total length of 4 to 5 inches. It has grayish brown fur and is the only bat within its range with unicolored dorsal hair. The bat roosts almost exclusively in caves year-round and has very specific requirements. They are generally limited to limestone caves, and have specific temperature requirements.

The Ozark big-eared bat was listed 1973. It is a medium sized bat with large ears. Its snout has prominent lumps and its fur ranges from light to dark brown. It is found in caves, cliffs, and rock ledges associated with oak-hickory forests of the Ozarks. They forage along the edges of upland forests for insects.

The American burying beetle was listed in 1989. It is the largest of the burying beetle species reaching a length of 1 to 1 ½ inches. It is a relatively robust beetle having shiny black elytra with four orange-red spots. It also has a large orange-red spot on the pronotum, which is indicative of the species. The habitat requirement for the American burying beetle is not fully understood and it is considered a habitat generalist.

The winged mapleleaf mussel was listed in 1991. Originally it existed in 13 states in river and stream tributaries to the Mississippi River. Today it is found in one river, the St. Croix River, in Minnesota and Wisconsin. It is found in riffles with clean gravel, sand, or rubble bottoms and in clear, high quality water.

The Neosho madtom was listed in 1991. It has features characteristic of all North American catfish, including scaleless skin and a relatively large head with sensory barbels. Adult Neosho madtoms average less than three inches in length. They have a brownish midline stripe and an overall mottled appearance. The preferred habitat of adult Neosho madtoms is shallow riffles with loose, incompact gravel bottoms. They are occasionally found in areas with sandy bottoms covered with leaf litter.

The Ozark cavefish was listed in 1984. It is a small, (2 to 2 ¼ inches), blind, pinkish-white fish that lives in cave streams and springs within the Springfield Plateau in Arkansas, Missouri, and Oklahoma.

The bald eagle was listed in 1967. Bald eagles prefer large trees or high cliffs along large waterways for perching, foraging, and nesting purposes. It forages for fish, waterfowl, and carrion along lakes and waterways.

The piping plover was listed in 1985. It is a small shorebird about seven inches long with a wingspan of 15 inches. Adults have sand-colored upper parts with white undersides and are easily distinguished by their bright orange legs. This species migrates across the eastern ¾ of Oklahoma during the spring and fall utilizing sandy shorelines on lakes and sandbars along the major river systems for forage and resting areas.

4.7 Cultural Resources

In accordance with Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, consultation was initiated in 2004 with the Oklahoma State Historic Preservation Office (SHPO). The Picher-Cardin mining area is potentially a historic district eligible for listing on the National Register of Historic Places. Numerous historic structures related to the historic mining activities in the area are present within the Picher Field project area. These structures may include, but are not limited to, processing towers, mineshafts, foundations, structure footings, and waste chat piles. Many or all of these historic features or structures may be contributing elements to a potential National Register historic district. Consultation for the general Tar Creek area, specifically relating to the Picher Field, was also initiated with appropriate Native American tribes. These tribes included the Caddo Tribe of Oklahoma, Cherokee Nation of Oklahoma, Delaware Tribe of Indians of Oklahoma, Eastern Shawnee Tribe of Oklahoma, Miami Tribe of Oklahoma, Modoc Tribe of Oklahoma, Osage Nation of Oklahoma, Ottawa Tribe of Oklahoma, Peoria Tribe of Indians of Oklahoma, Quapaw Tribe of Oklahoma, Seneca-Cayuga Tribe of Oklahoma, Wichita and Affiliated Tribes of Oklahoma, and Wyandotte Tribe of Oklahoma.

4.8 Water Quality

Mining began in Ottawa County in the early 1900's and continued until the 1970's. The Boone Formation is the geological formation that was the source of the metal ore. The Boone Formation is also an aquifer. Due to the presence of the aquifer in the ore-producing Boone Formation, the mining companies were forced to pump large volumes of water from the extensive underground mine workings. Pumping continued until the mining ceased, at which time the aquifer and the mines began refilling. As water filled the mines, sulfide minerals within the mines, which had been oxidized by exposure to air, dissolved, creating acid mine water. By 1979, water levels had increased to the point that the acid mine water began discharging at the surface from numerous locations, severely impacting Tar Creek.

In addition, millions of tons of mine tailings and other waste material left over from the mining operations are present in the Picher area. Runoff from these materials is characterized by elevated concentrations of metals; especially iron, zinc, lead, and cadmium; and mineral acidity and sulfate. Thus these mine tailings, ponds, and wetlands contain many toxicants including lead and other heavy metals.

4.9 Air Quality

The U.S. Environmental Protection Agency (EPA) published a Conformity Rule on November 30, 1993, requiring all Federal actions to conform to appropriate State Implementation Plans (SIP's) that were established to improve ambient air quality. At this time, the Conformity Rule only applies to Federal actions in non-attainment areas. A non-attainment area is an area that does not meet one or more of the National Ambient Air Quality Standards for the criteria pollutants designated in the Clean Air Act (CAA).

A conformity determination based on air emission analysis is required for each proposed Federal action within a non-attainment area. Since this geographical region is in attainment and meets the National Air Quality Standards for the criteria pollutants designated in the CAA, a conformity determination is not required.

4.10 Hazardous, Toxic, and Radiological Waste

The Tar Creek Superfund site was added to the National Priorities List in 1983 because of the presence of hazardous and toxic waste material. Extensive lead and zinc mining in the tri-state area resulted in the formation of acid mine water which has affected the groundwater, sediments, and surface water at this site with heavy metals, including arsenic, cadmium, iron, manganese, nickel, lead, and zinc. The hazardous waste on the site is a primary focus of the proposed actions described in this EA.

Ground water is the principal source of water for domestic and industrial users adjacent to and within the Picher Geologic Field. The Roubidoux and Boone Formations are the principal ground water aquifers in this region. All public water supplies and most industrial water supplies in Ottawa County come from wells drilled into the Roubidoux Formation. This aquifer is generally 900-1,000 feet deep in the mining area. ODEQ evaluated public water supply sampling results and determined the quality of water produced from the Roubidoux aquifer met primary drinking water standards. The Boone Formation is the second most important source of ground water in Ottawa County. However, the Boone Formation is closer to the surface than the Roubidoux Formation and is subject to contamination from surface water through fractures, sink holes, drill holes, and mine shafts. Most of the lead and zinc mining was done in the Boone Formation, which is 350-400 feet thick in the Picher Field. A large network of interconnected underground mines and tunnels was created in the Boone Formation during mining operations. Surface water infiltration is a serious drawback to the utilization of Boone ground water as a reliable public water source.

Presently, the major health threat is the lead and cadmium in off-site contaminated chat that was distributed as sand and gravel fill to playgrounds, schoolyards, ball fields, homeowners for yards and driveways, and on roadways. In addition numerous chat piles are scattered throughout the area. Inhalation and ingestion of lead contaminated dust from the chat appears to be the source of a significant number of elevated blood lead levels in children living and playing in the areas near chat.

SECTION 5.0 ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

A summary of environmental impacts is presented in Table 5.0, Impact Assessment Matrix.

5.1 Social and Economic Impacts

5.1.1 Future Without-Project Conditions

Under the without-project conditions, social and economic conditions would follow the current trends. Population growth, racial and ethnic composition, job opportunities, employment, income, and population density would continue the status quo under without-project conditions.

The most significant aspect of the without-project alternative is that environmental, health, and safety hazards would continue to exist at the site and contaminated runoff would continue to enter wetlands in the area.

5.1.2 Future With-Project Conditions

Under the with-project conditions, social and economic conditions would follow or slightly improve over the current trends. Population growth, racial and ethnic composition, and population density would continue the status quo under with-project conditions. Job opportunities, employment, and income would temporarily rise as a result of construction activities. Construction would generate additional jobs and local businesses would realize additional income through providing goods and services to construction personnel.

The mine shafts are within the boundary of the Tar Creek Superfund Site. In an effort to assume a more vital leadership role in attacking the myriad environmental, health, and safety problems associated with the nation's highest-ranking Superfund site, Oklahoma Governor Frank Keating formed the Tar Creek Superfund Task Force in 2000. The Task Force was charged with developing a comprehensive remediation plan for the area.

**Table 5.0
Impact Assessment Matrix**

Name of Parameter	Magnitude of Probable Impact						
	Increasing Beneficial Impact			No Appreciable Effect	Increasing Adverse Impact		
	Significant	Substantial	Minor		Minor	Substantial	Significant
A. Social Effects							
1. Noise Levels				x			
2. Aesthetic Values				x			
3. Recreational Opportunities				x			
4. Transportation				x			
5. Public Health and Safety	x						
6. Community Cohesion (Sense of Unity)		x					
7. Community Growth and Development			x				
8. Business and Home Relocations		x					
9. Existing/Potential Land Use		x					
10. Controversy	x						
B. Economic Effects							
1. Property Values		x					
2. Tax Revenues			x				
3. Public Facilities and Services				x			
4. Regional Growth			x				
5. Employment			x				
6. Business Activity			x				
7. Farmland/Food Supply				x			
8. Flooding Effects				x			
C. Natural Resource Effects							
1. Air Quality				x			
2. Terrestrial Habitat				x			
3. Wetlands				x			
4. Aquatic Habitat				x			
5. Habitat Diversity and Interspersion				x			
6. Biological Productivity				x			
7. Surface Water Quality		x					
8. Water Supply	x						
9. Groundwater	x						
10. Soils				x			
11. Threatened and Endangered Species				x			
D. Cultural Resources Effects							
1. Historic Architectural Values					x		
2. Pre-Historic & Historic Archeological Values						x	

This project qualifies as a CERCLA response action and was designed following the objectives of the Land Remediation and Restoration section of the Oklahoma Plan for Tar Creek developed by the Task Force. It is designed to reduce metal contamination into Tar Creek from the mines, reduce the direct exposure of humans and wildlife to mine waste, improve water quality standards, increase the aesthetic value, and increase the post-mining usefulness of the reclaimed area. The negative health and environmental effects of hazardous open vertical mine shafts would be removed. Also removed would be some residual fine and coarse mine waste, including chat and waste rock, with this material being used to fill the mine shafts. Reclamation would reduce hazardous health and safety conditions including the exposure of lead dust.

5.2 Executive Order 12898

Closure of the mine shafts would have a positive economic and health effect on minorities and low-income populations.

5.3 Executive Order 13045

Closure of the mine shafts would have a positive effect on children's health and safety.

5.4 Natural Resource Impacts

5.4.1 Terrestrial

Prior to lead and zinc mining the Picher area was mainly upland timber and native grassland. Extensive ground coverage of chat left behind from mining operations resulted in the topsoil in the area being in very poor condition. The chat material is essentially devoid of organic content and will not support vegetation. As a result vegetation at most mine shafts is absent or of poor quality.

Reclamation of the site would not result in the loss of any significant habitat or cause any significant adverse effects on the natural environment. The intent of the project is to improve the site and return the habitat to as near as practical to the condition it exhibited prior to the onset of mining activities. However, the return of the habitat to its historic condition is unrealistic and would likely be impossible to achieve. Restoration will return the area to better than current habitat as discussed in Section 6.0.

5.4.2 Prime Farmland

There would be no impact on prime farmland since the footprint of each mine shaft is relatively small. Construction disturbance would be minimal and designed to improve soil conditions around each site.

5.4.3 Aquatic and Wetlands

None of the mine shafts proposed to be closed in this document are located in wetlands. Birddog No. 2 mine shaft is located near Elm Creek but closure would not impact the stream. This project should produce a net positive benefit for aquatic habitat and wetlands because of the reduction in the number of open mine shafts that have been proven to be responsible for contaminants in streams.

5.4.4 Wildlife

Disturbance from noise caused by construction activities would create a minor, short-term impact on wildlife in the immediate construction vicinity. This disturbance would be temporary and would disappear when construction activities cease. The completed project would provide a net positive benefit for wildlife.

5.5 Wetlands and Water Quality Permits

U.S. Army Corps of Engineers policy in accordance with Regulatory Guidance Letter 85-07 for Superfund Projects is that environmental response actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) do not require authorization under Section 404 of the Clean Water Act. This demonstration

project qualifies as a CERCLA response action under this policy. Therefore, the project is not subject to regulation pursuant to Section 404 of the Clean Water Act, and a Department of the Army permit is not required.

5.6 Threatened and Endangered Species

Closure of the mine shafts would have no impact on threatened and endangered species.

5.7 Cultural Resources

In 2004 Tulsa District executed a Memorandum of Agreement (MOA) with the Oklahoma State Historic Preservation Office (SHPO) and Bureau of Indian Affairs, Eastern Oklahoma Region (BIA) for a series of five small pilot projects in the Tar Creek area in order to achieve compliance under Section 106. In February 2005, Tulsa District executed a Programmatic Agreement (PA) with the Advisory Council on Historic Preservation (ACHP), SHPO, Oklahoma Archeological Survey (OAS), Quapaw Tribe of Oklahoma, and a number of other federal agencies, resulting in Section 106 compliance under a set of stipulations. Most significantly, the PA requires the full development of a Heritage Study for the Tar Creek area which addresses the history and importance of lead and zinc mining and the association of identifiable groups such as the Quapaw Tribe.

As outlined in section 3.6, Section 106 coordination with the Advisory Council on Historic Preservation has resulted in a Programmatic Agreement (PA). The PA specifically exempts all environmental remediation activities within a particular "core area" as outlined in the PA. Outside of the "core area", but still within the area of potential effect as identified in the PA, certain activities, including the filling and capping of mine shaft entrances, are categorically excluded from further Section 106 review. Activities not specifically excluded, however, may be required to undergo Section 106 review. Execution of the PA is evidence that Tulsa District has complied with the requirements of Section 106 of the National Historic Preservation Act of 1966 (as amended) (Appendix B).

5.8 Water Quality

Impacts on water quality from this project would be positive since runoff from the mines is characterized by elevated concentrations of metals; especially iron, zinc, lead, and cadmium; and mineral acidity and sulfate. This project would provide a positive effect on surface water quality, which is one of the major objectives of the Oklahoma Plan for Tar Creek. These mine shafts are a fraction of hundreds of potential sources of groundwater contamination in the area. Their closure would be considered a part of the cumulative positive impacts realized by the elimination of mine shafts and other potential sources of groundwater contamination.

5.9 Air Quality

Construction activity would have a minor temporary impact on air quality caused by heavy equipment operation and from fugitive dust (particulate) emissions in and around the project site. Construction contractors will comply with all appropriate Federal air quality regulations to limit the dispersal of particulate matter. A temporary increase in exhaust emissions would be expected during construction.

5.10 Hazardous, Toxic, and Radiological Waste

The closure of open mine shafts would have a positive impact on HTRW. The Tar Creek Superfund site was added to the National Priorities List in 1983 because of the presence of hazardous and toxic waste material. Extensive lead and zinc mining in the tri-state area resulted in the deposition of millions of tons of surface spoils containing heavy metals including arsenic, cadmium, iron, manganese, nickel, lead, and zinc which has affected the surface water at this site. A significant amount of this contamination comes from groundwater surfacing through the open mine shafts. Removal of hazardous waste on the site is a primary focus of the proposed actions described in this EA.

The Boone Formation, where most lead and zinc ore was extracted, is the second most important aquifer for groundwater in the area and is subject to contamination from surface water through fractures, sink holes, drill holes, and open mine shafts. A large network of interconnected underground mines and tunnels was created in the Boone Formation during mining operations. Surface water infiltration is a serious drawback to the utilization of Boone ground water as a reliable public water source.

5.11 Noise

There would be an increase in noise from heavy equipment during construction, but this would be temporary and last only during the construction period.

5.12 Cumulative Impacts

This demonstration project is only one of many in the Superfund site planned to help clean up the environmental problems associated with early lead and zinc mining. This project was designed following the objectives of the Land Remediation and Restoration section of the Oklahoma Plan for Tar Creek. Cumulative positive impacts would occur as a result of the proposed project. Positive impacts would occur to the health and safety of local citizens, particularly children. Cumulative positive impacts would occur by reduction of about 29 acres in the number of surface acres of mine spoils containing heavy metals and by removing another potential source of groundwater contamination.

No cumulative negative impacts would occur as a result of the proposed project. Positive impacts would occur to the health and safety of local citizens, particularly children. Cumulative positive impacts would occur by reduction in the number of hazardous open vertical mine shafts and in the number of potential sources of groundwater contamination.

SECTION 6.0 RESTORATION PLAN

Clearing and grubbing will be accomplished only to the extent necessary to perform excavation, embankment, borrow, or other work required. Clearing and grubbing within the construction limits will be strictly adhered to. Care will be exercised so as not to damage existing trees, vegetation, structures, or utilities that are outside the clearing limits.

Construction materials, debris, and trash will be considered salvage and will be removed from the site and recycled or properly disposed of in a permitted landfill. Degradable debris will be disposed in accordance with local, state, and Federal requirements.

After backfilling the vertical opening above the concrete plug the upper two feet of the shaft will be filled with the same material as is adjacent to the shaft such as topsoil, chat, etc. The area around the excavation will be graded to prevent surface water from flowing and ponding into areas of work. The transition between the disturbed areas and the undisturbed areas will be graded to minimize abrupt slope changes and the possibility of erosion. The former shaft location will not be the low point of the area. Rounded transitions will be provided at top and bottom of banks and at other breaks in grade. Final grade contours will be blended into existing contours such that there is a smooth transition with no ponding of water.

Each mine shaft will have a 3 foot x 3 foot concrete pad having a minimum thickness of 4 inches placed over the location of the former shaft. A brass cap will be imbedded into the concrete pad and stamped to date and identify by reference to Oklahoma Geological Survey Circular 88, each site as a plugged mine shaft.

Specific recommendations for establishment of vegetation are not included in the restoration plan since the primary objective is to remove health and safety hazards and because most of these sites are on private land. The various landowners may have specific uses intended for the areas around the closed mineshafts that would not be compatible with prescribed plantings.

SECTION 7.0 FEDERAL, STATE, AND LOCAL AGENCY COORDINATION

A notice of availability of the Finding of No Significant Impact (FONSI) was provided to the following tribes, agencies, and organizations having responsibilities or interests in the Tar Creek Superfund Site.

Senator Jim Inhofe
Senator Tom Coburn

Representative Dan Boren
State Representative Larry Roberts
State Senator Rick Littlefield
U.S. Environmental Protection Agency
Oklahoma Department of Environmental Quality
Advisory Council on Historic Preservation
Oklahoma State Historic Preservation Office
Oklahoma Archeological Survey
Quapaw Tribe of Oklahoma
Eastern Shawnee Tribe of Oklahoma
Wyandotte Tribe of Oklahoma
Wichita and Affiliated Tribes of Oklahoma
Seneca-Cayuga Tribe of Oklahoma
Peoria Tribe of Indians of Oklahoma
Ottawa Tribe of Oklahoma
Osage Nation of Oklahoma
Modoc Tribe of Oklahoma
Miami Tribe of Oklahoma
Delaware Tribe of Indians of Oklahoma
Caddo Indian Tribe of Oklahoma
Cherokee Nation of Oklahoma
Bureau of Indian Affairs, U.S. Department of the Interior
Oklahoma Geological Survey
Office of Surface Mining, U.S. Department of the Interior
Oklahoma Conservation Commission
USDA Natural Resources Conservation Service
U.S. Fish and Wildlife Service
Oklahoma Department of Wildlife Conservation
Ottawa Reclamation Authority
City of Picher
Ottawa County Commissioner, District #1

SECTION 8.0 REFERENCES

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U.S. Army Corps of Engineers. March 2005. *Final Environmental Assessment for Tar Creek Section 111 Project, Plugging of Various Mine Shafts*. Prepared by Weston Solutions, Inc. Contract No. W912BV-04-D-2005. U.S. Army Corps of Engineers, Tulsa District. Tulsa, Oklahoma.

SECTION 9.0 APPLICABLE ENVIRONMENTAL LAWS AND REGULATIONS

Table 9.0

Relationship of Plans to Environmental Protection Statutes and Other Environmental Requirements

Policies	Compliance of Alternatives
<u>Federal</u>	
Archeological and Historic Preservation Act, 1974, as amended, 16 U.S.C. 469, <u>et seq.</u>	All plans in full compliance
Clean Air Act, as amended, 42 U.S.C. 7609, <u>et seq.</u>	All plans in full compliance
Clean Water Act, 1977, as amended (Federal Water Pollution Control Act, 33 U.S.C. 1251, <u>et seq.</u>	All plans in full compliance
Comprehensive Environmental Response, Compensation and Liability Act, as amended, 42 U.S.C. 103, <u>et seq.</u>	All plans in full compliance
Endangered Species Act, 1973, as amended, 16 U.S.C. 1531, <u>et seq.</u>	All plans in full compliance
Federal Water Project Recreation Act, as amended, 16 U.S.C. 460-1-12, <u>et seq.</u>	N/A
Fish and Wildlife Coordination Act, as amended, 16 U.S.C. 661, <u>et seq.</u>	All plans in full compliance
Land and Water Conservation Fund Act, 1965, as amended, 16 U.S.C. 4601, <u>et seq.</u>	N/A
National Historic Preservation Act, 1966, as amended, 16 U.S.C. 470a, <u>et seq.</u>	All plans in full compliance
National Environmental Policy Act, as amended, 42 U.S.C. 4321, <u>et seq.</u>	All plans in full compliance
Native American Graves Protection and Repatriation Act, 1990, 25 U.S.C. 3001-13, <u>et seq.</u>	All plans in full compliance
Rivers and Harbors Act, 33 U.S.C. 401, <u>et seq.</u>	N/A
Watershed Protection and Flood Prevention Act, 16 U.S.C. 1001, <u>et seq.</u>	N/A
Wild and Scenic Rivers Act, as amended, 16 U.S.C. 1271, <u>et seq.</u>	N/A
Water Resources Planning Act, 1965	N/A
Floodplain Management (E.O. 11988)	All plans in full compliance
Protection of Wetlands (E.O. 11990).....	All plans in full compliance
Environmental Justice (E.O. 12898).....	All plans in full compliance
Farmland Protection Policy Act, 7 U.S.C. 4201, <u>et seq.</u>	All plans in full compliance
Protection of Children From Environmental Health Risks and Safety Risks (E.O. 13045)	All plans in full compliance

Note: Full compliance - Having met all requirements of the statutes, Executive Orders, or other environmental requirements for the current stage of planning.

SECTION 10.0 LIST OF PREPARERS

This EA has been prepared to assess the impacts of the closure of 16 mine shafts near Picher, Ottawa County, Oklahoma, in the Tar Creek Superfund site. The following personnel contributed to the preparation of this document.

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APPENDIX A

COORDINATION

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Bartlesville, OK 74003

Mr. Chad Smith, Principal Chief
Cherokee Nation of Oklahoma
P.O. Box 948
Tahlequah, OK 74465

Ms. LaRue Parker, Chairwoman
Caddo Indian Tribe of Oklahoma
P.O. Box 487
Binger, OK 73009

Ms. Jeanette Hanna
Regional Director
Eastern Oklahoma Regional Office
Bureau of Indian Affairs
P.O. Box 8002
Muskogee, OK 74402-8002

Ms. Kathy Peter
District Chief
U.S. Geological Survey
202 NW 66th
Oklahoma City, OK 73116

Mr. Michael C. Wolfrom
Director
Tulsa Field Office
Office of Surface Mining
5100 East Skelly Drive, Suite 470
Tulsa, OK 74135

Mr. Mike Thralls
Executive Director
Oklahoma Conservation Commission
2800 N. Lincoln Blvd., Suite 160
Oklahoma City, OK 73105

Mr. Darrel Dominick
State Conservationist
USDA Agri-Center Bldg
100 USDA, Suite 206
Stillwater, OK 74074-2655

Mr. Jerry Brabander
Field Supervisor
U.S. Fish & Wildlife Service
222 South Houston, Suite A
Tulsa, OK 74127

Mr. Greg D. Duffy
Director
Oklahoma Dept. of Wildlife Conserv.
P.O. Box 53465
Oklahoma City, OK 73105

Mr. Benny Miller
Executive Director
Ottawa Reclamation Authority
207 East 10th
Picher, OK 74360

Mr. Sam Freeman
Mayor
City of Picher
213 East 3rd
Picher, OK 74360

Mr. Joe Crawford
Ottawa County Commissioner, District 1
103 East 1st
Quapaw, OK 74363

APPENDIX B

CULTURAL RESOURCES COORDINATION



DEPARTMENT OF ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

June 2, 2004

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Leaford Bearskin, Chief
Wyandotte Tribe of Oklahoma
P.O. Box 250
Wyandotte, OK 74370

Dear Chief Bearskin:

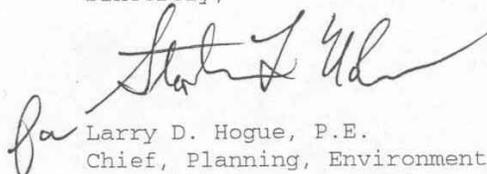
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Any information or comments you may be able to provide will be appreciated. If you have any questions, please contact Ken Shingleton at 918-669-7661.

Sincerely,


Larry D. Hogue, P.E.
Chief, Planning, Environmental
and Regulatory Division



DEPARTMENT OF ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

June 2, 2004

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Gary McAdams, President
Wichita and Affiliated Tribes of Oklahoma
P.O. Box 729
Anadarko, OK 73005

Dear President McAdams:

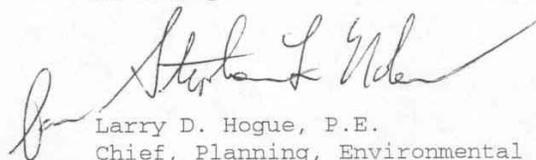
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Chief, Planning, Environmental
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CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

June 2, 2004

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Leroy Howard, Chief
Seneca-Cayuga Tribe of Oklahoma
P.O. Box 1283
Miami, OK 74355

Dear Chief Howard:

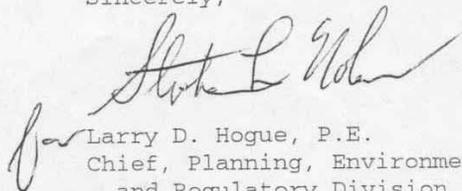
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for Larry D. Hogue, P.E.
Chief, Planning, Environmental
and Regulatory Division



DEPARTMENT OF ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

June 2, 2004

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. John Berrey, Chairman
Quapaw Tribe of Oklahoma
P.O. Box 765
Quapaw, OK 74363

Dear Chairman Berrey:

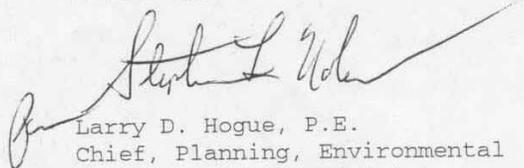
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Chief, Planning, Environmental
and Regulatory Division



DEPARTMENT OF ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

June 2, 2004

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. John Froman, Chief
Peoria Tribe of Indians of Oklahoma
P.O. Box 1527
Miami, OK 74355

Dear Chief Froman:

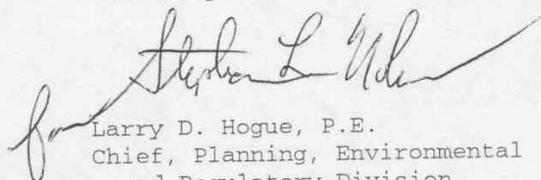
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Chief, Planning, Environmental
and Regulatory Division



DEPARTMENT OF ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

June 2, 2004

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Todd Charles, Chief
Ottawa Tribe of Oklahoma
P.O. Box 110
Miami, OK 74355

Dear Chief Charles:

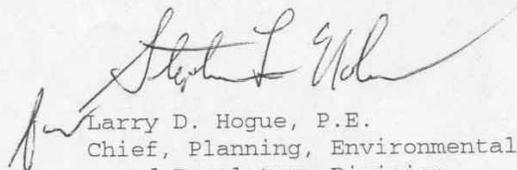
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Larry D. Hogue, P.E.
Chief, Planning, Environmental
and Regulatory Division



DEPARTMENT OF ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

June 2, 2004

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Jim Gray, Principal Chief
Osage Nation of Oklahoma
P.O. Box 779
Pawhuska, OK 74056

Dear Chief Gray:

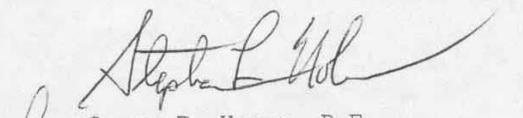
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Chief, Planning, Environmental
and Regulatory Division



DEPARTMENT OF ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

June 2, 2004

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Bill G. Follis, Chief
Modoc Tribe of Oklahoma
515 G SE Street
Miami, OK 74354

Dear Chief Follis:

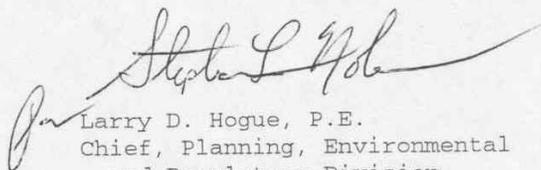
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Chief, Planning, Environmental
and Regulatory Division



DEPARTMENT OF ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

June 2, 2004

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Floyd Leonard, Chief
Miami Tribe of Oklahoma
P.O. Box 1326,
202 S. Eight Tribes Trail
Miami, OK 74355

Dear Chief Leonard:

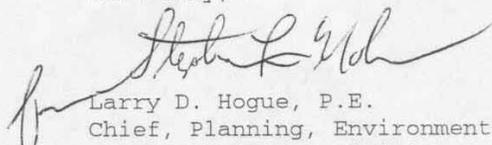
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Larry D. Hogue, P.E.
Chief, Planning, Environmental
and Regulatory Division

June 2005

Corps of Engineers
Tulsa District



DEPARTMENT OF ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

June 2, 2004

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Charles Enyart, Chief
Eastern Shawnee Tribe of Oklahoma
P.O. Box 350
Seneca, MO 64865

Dear Chief Enyart:

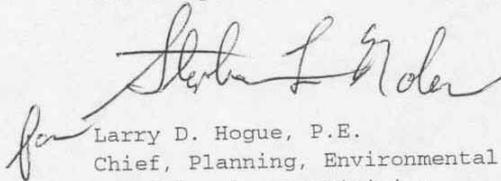
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Chief, Planning, Environmental
and Regulatory Division



DEPARTMENT OF ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

June 2, 2004

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Larry Joe Brooks, Chief
Delaware Tribe of Indians of Oklahoma
220 NW Virginia Ave.
Bartlesville, OK 74003

Dear Chief Brooks:

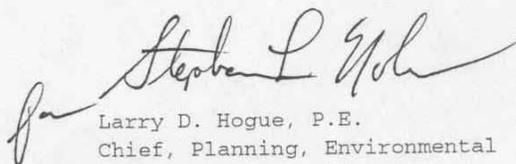
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CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

June 2, 2004

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Chad Smith, Principal Chief
Cherokee Nation of Oklahoma
P.O. Box 948
Tahlequah, OK 74465

Dear Chief Smith:

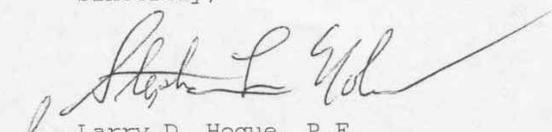
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Chief, Planning, Environmental
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CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

June 2, 2004

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Ms. LaRue Parker, Chairwoman
Caddo Indian Tribe of Oklahoma
P.O. Box 487
Binger, OK 73009

Dear Chairwoman Parker:

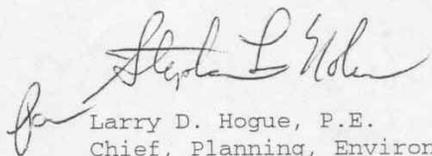
This letter is to initiate consultation as required under Section 106 of the National Historic Preservation Act of 1966 (as amended) for a series of five proposed pilot environmental remediation projects located in the Pitcher-Cardin lead mining area of northeast Oklahoma. These activities have been authorized in Section 111 of the Energy and Water Development Appropriation Act of 2004 (PL 108-137). The purpose of these small scale projects is to evaluate a variety of remediation technologies for potential future implementation. The project areas (see enclosed map) are located in Sections 20, 28, and 29, Township 29 North, Range 23 East; Section 36, Township 29 North, Range 22 East; and Section 7, Township 28 North, Range 22 East, in Ottawa County, Oklahoma.

The proposed pilot remediation projects include the following: (1) construct a diversion channel for passive treatment of stormwater drainage; (2) plug/secure two mine shafts; (3) mitigate unvegetated mining spoils between Boys and Girls Club and Picher-Cardin schools; (4) mitigate unvegetated mining spoils by filling a subsidence pond; and (5) mitigate unvegetated mining spoils between residences and the Kenoyer chat pile by creating a "green buffer zone".

Tulsa District will be conducting cultural resources investigations of these project areas to comply with the requirements of Section 106 of the National Historic Preservation Act of 1966 (as amended). Please review these areas for information that you may be willing to share with us on archaeological or historic sites, sacred sites, or traditional cultural properties that may be significant to you. Information you may be able to provide will assist us in assessing the effects of the proposed project on cultural resources.

Any information or comments you may be able to provide will be appreciated. If you have any questions, please contact Ken Shingleton at 918-669-7661.

Sincerely,


Larry D. Hogue, P.E.
Chief, Planning, Environmental
and Regulatory Division



EASTERN SHAWNEE TRIBE OF OKLAHOMA

P.O. Box 350 · Seneca, MO 64865 · (918) 666-2435 · FAX (918) 666-2186

June 9, 2004

Department of Army
Corps of Engineers, Tulsa District
1645 South 101st East Avenue
Tulsa, Oklahoma 71428-4609

Re: PL 108-137

To Whom It May Concern:

Thank you for notice of the referenced project(s). The Eastern Shawnee Tribe of Oklahoma is currently unaware of any documentation directly linking Indian Religious Sites to the proposed construction. In the event any items falling under the Native American Graves Protection and Repatriation Act (NAGPRA) are discovered during construction, the Eastern Shawnee Tribe request notification and further consultation.

The Eastern Shawnee Tribe has no objection to the proposed construction. However, if any human skeletal remains and/or any objects falling under NAGPRA are uncovered during construction, the construction should stop immediately, and the appropriate persons, including state and tribal NAGPRA representatives contacted.

Sincerely,

Charles Enyart, Chief
Eastern Shawnee Tribe of Oklahoma

Kathleen A. Welch

Kathleen A. Welch
Environmental Assistant



PEORIA TRIBE OF INDIANS OF OKLAHOMA

118 S. Eight Tribes Trail (918) 540-2535 FAX (918) 540-2538
P.O. Box 1527
MIAMI, OKLAHOMA 74355

CHIEF
John P. Froman
SECOND CHIEF
Joe Goforth

November 18, 2004

Department of Army
Corps of Engineers, Tulsa District
1645 South 101st East Avenue
Tulsa, OK 74128-4609

RE: U.S. Army Corps of Engineers, Tulsa Creek Superfund Site, which is located in the vicinity of the towns of Picher and Cardin, northeast Oklahoma. The proposed emergency undertaking consist of plugging and capping eleven mineshaft openings which represent an immediate hazard to human life because of proximity to characteristics of the shafts themselves.

Thank you for notice of the referenced projects. The Peoria Tribe of Indians of Oklahoma is currently unaware of any documentation directly linking Indian Religious Sites to the proposed construction. In the event any items falling under the Native American Graves Protection and Repatriation Act (NAGPRA) are discovered during construction, the Peoria Tribe request notification and further consultation.

The Peoria Tribe has no objection to the proposed construction. However, if any human skeletal remains and/or any objects falling under NAGPRA are uncovered during construction, the construction should stop immediately, and the appropriate persons, including state and tribal NAGPRA representatives contacted.

A handwritten signature in black ink, appearing to read 'J.P.F.', written over a horizontal line.

John P. Froman
Chief

xc: Bud Ellis, Repatriation/NAGPRA Committee Chairman

TREASURER
John Sharp

SECRETARY
Hank Downum

FIRST COUNCILMAN
Claude Landers

SECOND COUNCILMAN
Jenny Rampey

THIRD COUNCILMAN
Jason Dollarhide



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

June 25, 2004

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Dr. Robert Brooks
State Archaeologist
Oklahoma Archeological Survey
111 E. Chesapeake
Norman, OK 73019

Dear Dr. Brooks:

This letter is to initiate consultation as required under Section 106 of the National Historic Preservation Act of 1966 (as amended) for a series of five proposed pilot environmental remediation projects located in the Pitcher-Cardin lead and zinc mining area of northeast Oklahoma. These activities have been authorized in Section 111 of the Energy and Water Development Appropriation Act of 2004 (PL 108-137). The purpose of these small scale projects is to evaluate a variety of remediation technologies for potential future implementation. The project areas (see enclosed maps) are located in Sections 20, 28, and 29, Township 29 North, Range 23 East; Section 36, Township 29 North, Range 22 East; and Section 7, Township 28 North, Range 22 East, in Ottawa County, Oklahoma.

The proposed pilot remediation project includes the following: (1) construct a diversion channel for passive treatment of stormwater drainage; (2) plug/secure two mine shafts; (3) mitigate unvegetated mining spoils between Boys and Girls Club and Picher-Cardin schools; (4) mitigate unvegetated mining spoils by using them to fill a subsidence pond; and (5) mitigate unvegetated mining spoils between residences and the Kenoyer chat pile by creating a "green buffer zone".

In accordance with Section 106, Tulsa District initiated fieldwork to identify historic properties. An initial surface reconnaissance of all five areas was conducted by a Corps of Engineers archaeologist on May 19, 2004. Subsequently, Tulsa District contracted to Lopez Garcia Group (LGG) to perform the majority of the fieldwork and associated historical and archival research. This work was conducted in June 2004, and a draft report of investigations is enclosed for your review. Unfortunately, Study Area 1, as it is identified in the report, remains

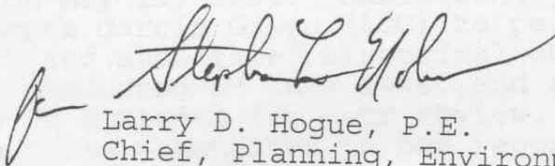
uninvestigated because real estate access could not be granted quickly. This area will be investigated at a later date and included in the final version of the LGG report. Subsequently, it will be properly coordinated with your office at that time.

We have reviewed the draft report produced by Lopez Garcia Group and we agree with the firm's recommendations that none of the recorded archaeological sites (34OT103-107) and all but one of the recorded standing structures (Structures 1, 2, and 4-15) are not individually eligible for listing on the National Register (NRHP). However, we also agree with Lopez Garcia Group that nearly all of these sites and structures (minus Structures 5, 6, 10, and 15) may be contributing elements to a potential National Register historic district, based on their association with the historic Tri-State mining district. In fact, there may be numerous contributing elements to such a district - perhaps eligible on a thematic basis - but this is unconfirmed because there is no complete inventory of historic properties in the area. In addition to a potential NRHP-eligible historic district, we concur with LGG that one standing structure, Structure 3, is individually eligible for listing on the NRHP under Criterion C.

Based on these investigations, we believe there will be "no adverse effect" for historic properties within these project areas in the vicinity of the Picher-Cardin area. To support this position, Tulsa District has ensured that all engineering plans and specifications call for all historic standing structures and historic structural features to be left unmodified and in place. Exceptions to this include mine shaft openings and chat piles, which are central to project remediation goals and represent health hazards.

We greatly appreciate your willingness to expedite these pilot projects and understand that a full cultural resources study of the Picher-Cardin area will be necessary and essential for the progression of the Corps of Engineers' environmental remediation program. We request your review of the enclosed report and your comment on our finding of "no adverse effect." If you have any questions, please contact Mr. Ken Shingleton at 918-669-7661.

Sincerely,



Larry D. Hogue, P.E.
Chief, Planning, Environmental
and Regulatory Division

Enclosures



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

June 25, 2004

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Dr. Bob Blackburn
State Historic Preservation Officer
Oklahoma Historical Society
2704 Villa Prom, Shepherd Mall
Oklahoma City, OK 73107

Dear Dr. Blackburn:

This letter is to initiate consultation as required under Section 106 of the National Historic Preservation Act of 1966 (as amended) for a series of five proposed pilot environmental remediation projects located in the Pitcher-Cardin lead and zinc mining area of northeast Oklahoma. These activities have been authorized in Section 111 of the Energy and Water Development Appropriation Act of 2004 (PL 108-137). The purpose of these small scale projects is to evaluate a variety of remediation technologies for potential future implementation. The project areas (see enclosed maps) are located in Sections 20, 28, and 29, Township 29 North, Range 23 East; Section 36, Township 29 North, Range 22 East; and Section 7, Township 28 North, Range 22 East, in Ottawa County, Oklahoma.

The proposed pilot remediation project includes the following: (1) construct a diversion channel for passive treatment of stormwater drainage; (2) plug/secure two mine shafts; (3) mitigate unvegetated mining spoils between Boys and Girls Club and Picher-Cardin schools; (4) mitigate unvegetated mining spoils by using them to fill a subsidence pond; and (5) mitigate unvegetated mining spoils between residences and the Kenoyer chat pile by creating a "green buffer zone".

In accordance with Section 106, Tulsa District initiated fieldwork to identify historic properties. An initial surface reconnaissance of all five areas was conducted by a Corps of Engineers archaeologist on May 19, 2004. Subsequently, Tulsa District contracted to Lopez Garcia Group (LGG) to perform the majority of the fieldwork and associated historical and archival research. This work was conducted in June 2004, and a draft report of investigations is enclosed for your review. Unfortunately, Study Area 1, as it is identified in the report, remains uninvestigated because real estate access could not be granted quickly. This area will be investigated at a later date

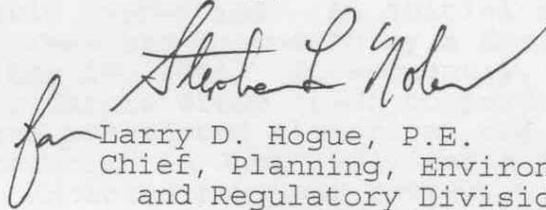
and included in the final version of the LGG report. Subsequently, it will be properly coordinated with your office at that time.

We have reviewed the draft report produced by Lopez Garcia Group and we agree with the firm's recommendations that none of the recorded archaeological sites (34OT103-107) and all but one of the recorded standing structures (Structures 1, 2, and 4-15) are not individually eligible for listing on the National Register (NRHP). However, we also agree with Lopez Garcia Group that nearly all of these sites and structures (minus Structures 5, 6, 10, and 15) may be contributing elements to a potential National Register historic district, based on their association with the historic Tri-State mining district. In fact, there may be numerous contributing elements to such a district - perhaps eligible on a thematic basis - but this is unconfirmed because there is no complete inventory of historic properties in the area. In addition to a potential NRHP-eligible historic district, we concur with LGG that one standing structure, Structure 3, is individually eligible for listing on the NRHP under Criterion C.

Based on these investigations, we believe there will be "no adverse effect" for historic properties within these project areas in the vicinity of the Picher-Cardin area. To support this position, Tulsa District has ensured that all engineering plans and specifications call for all historic standing structures and historic structural features to be left unmodified and in place. Exceptions to this include mine shaft openings and chat piles, which are central to project remediation goals and represent health hazards.

We greatly appreciate your willingness to expedite these pilot projects and understand that a full cultural resources study of the Picher-Cardin area will be necessary and essential for the progression of the Corps of Engineers' environmental remediation program. We request your review of the enclosed report and your comment on our finding of "no adverse effect." If you have any questions, please contact Mr. Ken Shingleton at 918-669-7661.

Sincerely,


for Larry D. Hogue, P.E.
Chief, Planning, Environmental
and Regulatory Division

Enclosures



Oklahoma Archeological Survey

THE UNIVERSITY OF OKLAHOMA

July 2, 2004

Larry D. Hogue
Chief, Planning, Environmental,
and Regulatory Division
Department of the Army
Corps of Engineers Tulsa District
1645 South 101st East Avenue
Tulsa, OK 74128-4609

Re: Hazard mitigation – Tar Creek Superfund project. Legal Description:
NW ¼ SW ¼ SW ¼ Section 28, N ½ NE ¼ Section 20 T29N R23E;
E ½ Section 36 T29N R22E; SE ¼ NW ¼ NE ¼ SW ¼ Section 20
T29N R23E, Ottawa County, Oklahoma.

Dear Mr. Hogue:

I have received a report documenting the results of a cultural resource inventory undertaken as a pilot study for the assessment of potential effects in mediation of the Tar Creek Superfund project. It is recognized that this is a pilot study and does not constitute the final action and results of the project. It is also acknowledged that Study Area was inaccessible at the time of the field survey and will be investigated at a later date.

Field investigations for the Tar Creek Superfund project were undertaken by personnel of the LopezGarcia Group from June 7-10, 2004. The examination of some 57 acres representing the pilot study of potential effect resulted in the documentation of five previously recorded archaeological sites (34OT103-107) and 15 structures of architectural character. All these represent historic cultural resources. **Being historic sites and structures, I defer opinion on this study – potential eligibility to the National Register and potential effects to the Historic Preservation Office.**

This review has been conducted in cooperation with the State Historic Preservation Office, Oklahoma Historical Society.

Sincerely,



Robert L. Brooks
State Archaeologist

Cc: SHPO
LopezGarcia Group
Peoria Tribe
Osage Tribe
Quapaw Tribe



Oklahoma Historical Society

Founded May 27, 1893

State Historic Preservation Office • 2704 Villa Prom • Shepherd Mall • Oklahoma City, OK 73107-2441
Telephone 405/521-6249 • Fax 405/947-2918

July 22, 2004

Mr. Larry Hogue
Chief of Operations, CESWT-OD
Tulsa District Corps of Engineers
1645 South 101 East Avenue
Tulsa, OK 74128-4609

RE: File #1972-04; Tar Creek Superfund, Five Pilot COE Sites,
Ottawa County

Dear Mr. Hogue:

We have reviewed the submitted Lopez Garcia archeological survey report titled "Cultural Resources Investigations at Six Study Areas Within the Tar Creek Superfund Site". Based on the information presented in this report we cannot agree with your "no adverse effect" determination.

Chat piles and mine shaft openings cannot be excluded from the historic landscape when discussing mine properties or sites. We acknowledge that these particular features represent health hazards and need to be addressed; however, they need to be adequately documented and evaluated along with the other mine features. Modification of these elements has to be viewed as an adverse effect to potential eligible National Register of Historic Places properties.

We have discussed the situation with Ken Shingleton of your staff and are in agreement that this issue can be satisfactorily resolved through development of a Memorandum of Agreement.

Thank you for the opportunity to review this project. If you have any questions, please call Charles Wallis, Historical Archeologist, at 405/521-6381. Please reference the above underlined file number when responding. Thank you.

Sincerely,

Melvena Heisch
Deputy State Historic
Preservation Officer

MH:bh



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

August 6, 2004

Planning, Environmental and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Don L. Klima, Director
Office of Planning and Review
Advisory Council on Historic Preservation
12136 West Bayaud Ave., Suite 330
Lakewood, CO 80228

Dear Mr. Klima:

This letter is to notify you of a determination of adverse effect to historic properties, as required under Section 106 of the National Historic Preservation Act of 1966 (as amended) and 36 CFR Part 800. The undertakings include a series of five small pilot projects located in the vicinity of the towns of Picher and Cardin, northeast Oklahoma, otherwise known as a part of the Tri-State Mining District or the Tar Creek Superfund Site. The U.S. Army Corps of Engineers has been authorized to initiate certain small-scale environmental remediation measures in Section 111 of the Energy and Water Development Appropriation Act of 2004 (PL 108-137). The purpose of these small scale projects is to evaluate a variety of remediation technologies for potential future implementation. The project areas (see enclosed map) are located in Sections 20, 28, and 29, Township 29 North, Range 23 East; Section 36, Township 29 North, Range 22 East; and Section 7, Township 28 North, Range 22 East, in Ottawa County, Oklahoma.

The five proposed pilot remediation projects include the following: (1) construct a diversion channel to assist in passive treatment of stormwater drainage; (2) plug/secure two mine shafts; (3) mitigate unvegetated mining spoils between Boys and Girls Club and Picher-Cardin schools; (4) mitigate unvegetated mining spoils by using them to fill a subsidence pond; and (5) mitigate unvegetated mining spoils between residences and the Kenoyer chat pile by creating a "green buffer zone".

In accordance with Section 106, the U.S. Army Corps of Engineers, Tulsa District initiated fieldwork in June 2004 to identify historic properties. An initial surface reconnaissance of all five areas was conducted by a Corps of Engineers archaeologist on May 19, 2004. Subsequently, Tulsa District contracted LopezGarcia Group (LGG) to perform the majority of the fieldwork and associated historical and archival research. A draft report of these investigations is enclosed for your review. Unfortunately, Study Area 1, as it is identified in the report, remains uninvestigated because real estate access could

not be granted quickly. This area will be investigated at a later date and included in the final version of the LGG report. Subsequently, it will be properly coordinated with the Oklahoma State Historic Preservation Office (SHPO) and your office at that time.

Also enclosed are copies of our formal coordination (to date) with the Oklahoma SHPO, Oklahoma Archeological Survey, and a number of Native American tribes. Consultation with the SHPO has resulting in a departure from our original collective position of "no adverse effect" as stated in our June 25, 2004 letter to Dr. Bob Blackburn.

Based on this consultation, we believe that there is a strong potential for the Picher-Cardin area - and perhaps even a much larger area extending into Kansas and Missouri - to be determined a National Register historic district based on the theme of historic lead and zinc mining. Such a historic district has not yet been defined, and therefore it is difficult to fully determine a suite of associated contributing elements. However, we feel confident that most of the historic archaeological features described in the enclosed report define contributing elements to such a historic district. We also believe that the full development of a historic context of the area and an accounting of contributing elements is the most appropriate next step in the assessment of the effects of federally funded activities on these resources.

Because most of these sites and associated features are presumed to be contributing elements - at this time - to a potential historic district, our review of proposed project activities leads us to believe that we will have an adverse effect on two particular classes of historic features. These include mine shafts and mine waste (chat) piles, which are integral to the remediation project and which represent hazards to human health. In these cases, the Corps of Engineers will be plugging mine shafts and removing or otherwise modifying chat piles, which will adversely affect the integrity of these features. All other historic archaeological features and standing structures described in the enclosed report will be avoided. We thus do not believe these potential contributing elements will be adversely affected by Corps activities.

In order to resolve adverse effects, we have reached a tentative verbal agreement with the SHPO that existing documentation on file (enclosed report) is sufficient to offset the loss of the chat piles and mine shafts located within the five proposed project areas. A Memorandum of Agreement (MOA) to this effect will be drafted and executed to facilitate full compliance with the Section 106 process for these pilot projects.

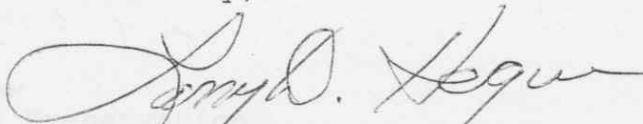
We request that you advise us of the Advisory Council's expected role in the Section 106 consultation process for this

-3-

August 6, 2004

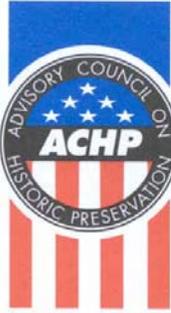
federal undertaking. Any guidance or assistance you may provide will be greatly appreciated. If you have any questions, please contact Mr. Ken Shingleton at 918-669-7661.

Sincerely,



Larry D. Hogue, P.E.
Chief, Planning, Environmental
and Regulatory Division

Enclosures



Preserving America's Heritage

August 25, 2004

Larry D. Hogue
Chief, Planning, Environmental,
And Regulatory Division
Corps of Engineers, Tulsa District
1645 South 101st East Avenue
Tulsa, OK 74128-4609

REF: *Tar Creek Superfund Site, Pilot Projects.*

Dear Mr. Hogue:

We received your notification and supporting documentation regarding the adverse effects of the referenced project on a property or properties eligible for inclusion in the National Register of Historic Places. Based upon the information you provided, we do not believe that our participation in consultation to resolve adverse effects is needed. However, should circumstances change, please notify us so we can re-evaluate if our participation is required. Pursuant to 36 CFR 800.6(b)(iv), you will need to file the Memorandum of Agreement, and related documentation at the conclusion of the consultation process. The filing of this Agreement with the ACHP is necessary to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with your notification of adverse effect. If you have any questions, please contact Margie Nowick at 969-5110 or via eMail at mnowick@achp.gov.

Sincerely,

Nancy Kochan
Office Administrator/Technician
Western Office of Federal
Agency Programs

ADVISORY COUNCIL ON HISTORIC PRESERVATION

12136 West Bayaud Avenue, Suite 330 • Lakewood, Colorado 80228
Phone: 303-969-5110 • Fax: 303-969-5115 • achp@achp.gov • www.achp.gov

June 2005

*Corps of Engineers
Tulsa District*



United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
Eastern Oklahoma Regional Office
P.O. Box 8002
Muskogee, OK 74402-8002



IN REPLY REFER TO:

Environmental, Safety
and Cultural Resources

AUG 3 1 2004

Mr. Ken Shingleton
U.S. Army Corps of Engineers, Tulsa District
1645 South 101st East Avenue
Tulsa, Oklahoma 74128-4609

Dear Mr. Shingleton:

Thank you for the opportunity to review the Memorandum of Agreement (MOA) between the U.S. Army Corps of Engineers, Tulsa District, and the Oklahoma State Historic Preservation Officer regarding five small-scale pilot environmental remediation projects in the vicinity of the Picher-Cardin lead and zinc mining area, Ottawa County, Oklahoma. The Bureau of Indian Affairs, Eastern Oklahoma Regional Office, offers the following comments:

The MOA recognizes that implementing the proposed projects will cause the loss of historic features and directs in Stipulation II that all other historical structures and structural remains be avoided. It is suggested that a list of the features identified in each site and the impacts of the proposed projects to these features be attached to assist in understanding the effects of the proposed undertaking. Additionally the state site forms should be updated after project completion.

Please clarify whether Stipulation II refers to sites 34OT103 and 34OT107 or sites 34OT103 through 34OT107.

If there are any questions, please contact Mr. Bob Coleman, Acting Division Chief, Division of Environmental, Safety and Cultural Resources, Eastern Oklahoma Regional Office, at (918) 781-4643.

Respectfully,

Regional Director

MEMORANDUM OF AGREEMENT

BETWEEN THE U.S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT

AND THE

OKLAHOMA STATE HISTORIC PRESERVATION OFFICER

REGARDING FIVE SMALL-SCALE PILOT ENVIRONMENTAL REMEDIATION
PROJECTS IN THE VICINITY OF THE PICHER-CARDIN LEAD AND ZINC
MINING AREA, OTTAWA COUNTY, OKLAHOMA

WHEREAS the U.S. Army Corps of Engineers, Tulsa District (USACE) plans to carry out five small-scale pilot environmental remediation projects in the vicinity of the Picher-Cardin Lead and Zinc Mining Area, Ottawa County, Oklahoma, otherwise known as part of the Tri-State Mining District or the Tar Creek Superfund Site, pursuant to the Energy and Water Development Appropriation Act of 2004 (P.L. 108-137); and

WHEREAS the undertaking consists of the following five small-scale pilot remediation projects: (1) construction of a diversion channel for passive treatment of stormwater drainage; (2) installation of plugs to secure two mine shaft openings; (3) mitigation of unvegetated mining spoils between Boys and Girls Club and Picher-Cardin schools; (4) mitigation of unvegetated mining spoils by using them to fill a subsidence pond; and (5) mitigation of unvegetated mining spoils between residences and the Kenoyer chat pile by creating a "green buffer zone"; and

WHEREAS, USACE has defined the undertaking's area of potential effect (APE) as selected portions of land (see map, Attachment A) located in Sections 20, 28, and 29, Township 29 North, Range 23 East; Section 36, Township 29 North, Range 22 East; and Section 7, Township 28 North, Range 22 East, in Ottawa County, Oklahoma; and

WHEREAS, USACE and the Oklahoma State Historic Preservation Officer (SHPO) agree that information available in standard published sources establish the significance of the lead and zinc mining industry in northeast Oklahoma and that site visits to the area by USACE and SHPO representatives confirm the presence of numerous historic resources; and

WHEREAS, USACE and the SHPO agree that a formal study to identify and evaluate archeological and historic resources in the lead and zinc mining area is needed to confirm precise boundaries of one or more districts potentially eligible for the National Register of Historic Places but that the time allotted for implementation of the five pilot projects makes such a cultural resources investigation infeasible at this time, and

WHEREAS, USACE has determined that the undertaking may have an adverse effect on historic mine waste (chat) piles and the entrances to mine shafts which may be contributing elements to an as yet undefined historic district that may be eligible for listing in the National Register of Historic Places, and has consulted with the Oklahoma Historic Preservation Officer (SHPO) pursuant to 36 C.F.R. Part 800, of the regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. § 470f); and

WHEREAS, USACE has consulted with the U.S. Department of the Interior, Bureau of Indian Affairs (BIA), Eastern Oklahoma Region, regarding the effects of the undertaking on historic properties located on federal trust lands managed by the BIA (two of the five project areas), and has invited the agency to sign this MOA as an invited signatory; and

WHEREAS, in accordance with 36 C.F.R. § 800.6(a)(1), USACE has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination with specified documentation and the ACHP has chosen not to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii); and

NOW, THEREFORE, USACE and the SHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

STIPULATIONS

USACE shall ensure that the following measures are carried out.

I. USACE shall utilize existing information on file for mine shaft openings and mine spoilage (chat) piles within the APE as sufficient documentation to offset the loss of these historic features. The USACE provided this documentation to the SHPO on June 25, 2004, and it is incorporated in the report "*Cultural Resources Investigations at Six Study Areas within the Tar Creek Superfund Site*" (including background material, the SHPO's "Historic Preservation Resource Identification Forms," and photographs). The SHPO accepts this documentation on file in its office as adequate mitigation of the adverse effects of the pilot projects.

II. USACE shall avoid all other historical structures and structural remains located within and/or near the APE, defined in existing documentation as sites 34OT103 through 34OT107 and standing structures 1 through 15.

III. DURATION

This MOA will be null and void if its terms are not carried out within five (5) years from the date of its execution. Prior to such time, USACE may consult with the other

signatories to reconsider the terms of the MOA and amend it in accordance with Stipulation V below.

IV. DISPUTE RESOLUTION

Should any signatory or concurring party to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, USACE shall consult with such party to resolve the objection. If USACE determines that such objection cannot be resolved, USACE will:

A. Forward all documentation relevant to the dispute, including the USACE's proposed resolution, to the ACHP. The ACHP shall provide USACE with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, USACE shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. USACE will then proceed according to its final decision.

B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, USACE may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, USACE shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.

C. USACE's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

V. AMENDMENTS

This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

VI. TERMINATION

If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation V, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

Once the MOA is terminated, and prior to work continuing on the undertaking, USACE must either (a) execute an MOA pursuant to 36 CFR § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. USACE

shall notify the signatories as to the course of action it will pursue.

Execution of this MOA by the USACE and SHPO and implementation of its terms evidence that USACE has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

SIGNATORIES:

U.S. Army Corps of Engineers, Tulsa District



7 SEP 04 Date

Miroslav P. Kurka

Colonel, U.S. Army District Engineer

Oklahoma State Historic Preservation Officer


9-13-04 Date

Dr. Bob Blackburn

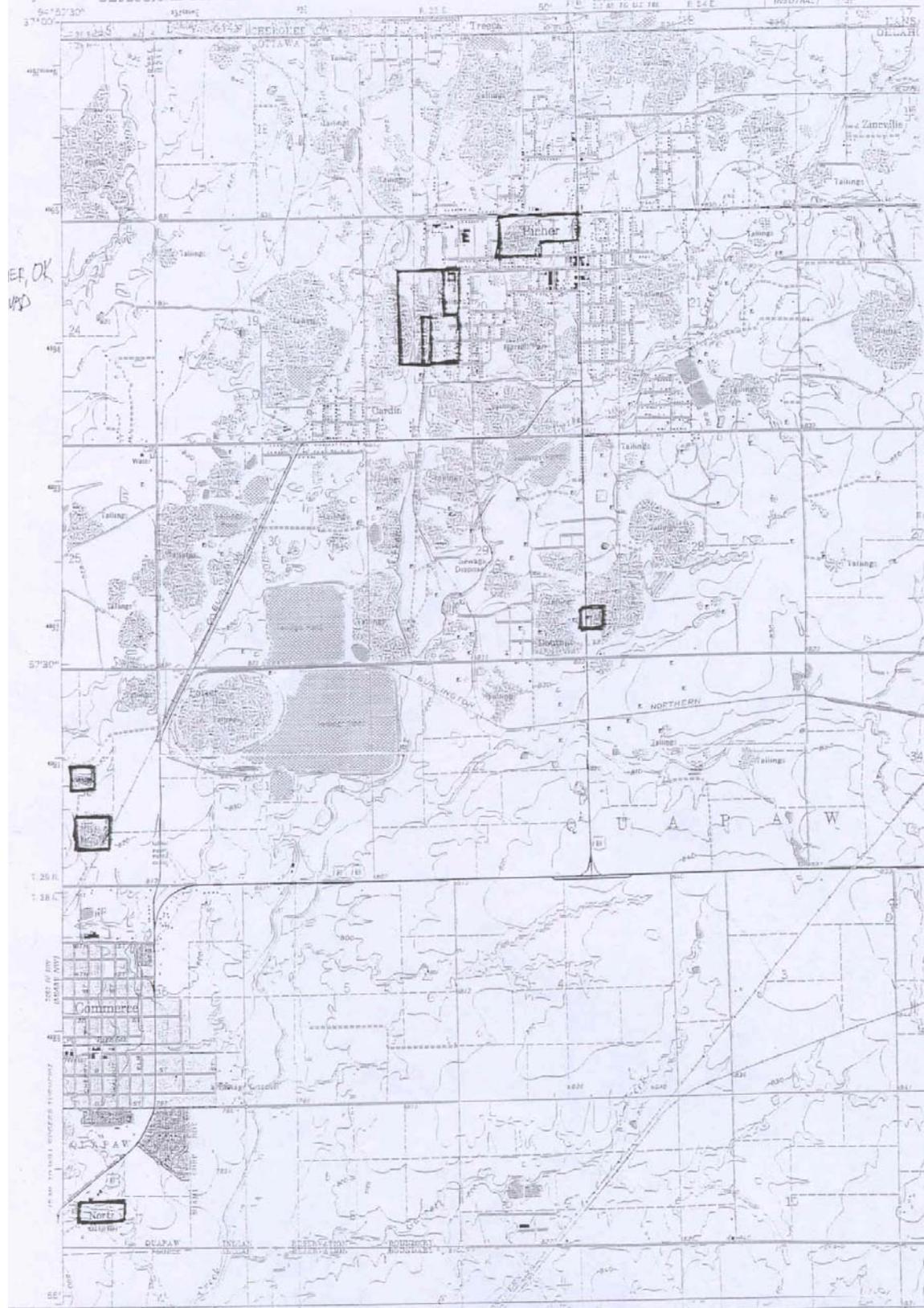
INVITED SIGNATORY:

U.S. Department of the Interior, Bureau of Indian Affairs, Eastern Oklahoma Region

Date

Ms. Jeanette Hanna, Regional Director

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY





Oklahoma Historical Society

Founded May 27, 1893

State Historic Preservation Office • 2704 Villa Prom • Shepherd Mall • Oklahoma City, OK 73107-2441

Telephone 405/521-6249 • Fax 405/947-2918

October 28, 2004

Col. Miroslav T. Kurka
Tulsa District Corps of Engineers
1645 South 101st East Avenue
Tulsa, OK 74128

RE: Oklahoma State Historic Preservation Office Withdrawal from Consultation under Section 106 of the National Historic Preservation Act for the Tar Creek Superfund Projects

Dear Col. Kurka:

Please accept this correspondence as notification that the Oklahoma State Historic Preservation Office has officially withdrawn from consultation under Section 106 of the National Historic Preservation Act for all federal undertakings associated with the Tar Creek Superfund clean-up effort. The Tulsa District Corps of Engineers and all other agencies involved in these federal undertakings should now consult directly with the Advisory Council on Historic Preservation at their Western Office of Project Review, 12136 West Bayaud Avenue, #330, Lakewood, CO 80228. The contact person with the Council is Margie Nowick at 303/969-5110 or mnowick@achp.gov.

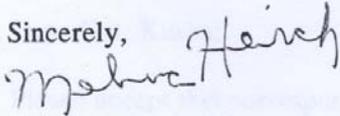
As you are aware, we participate in the Section 106 review process in accordance with the Advisory Council on Historic Preservation's regulations (36 CFR Part 800). Due to the short timeframe for execution of numerous (at least forty) Tar Creek clean-up projects just brought to our attention and the lack of adequate information about historic properties that may be affected by these undertakings, we cannot provide reasonable conclusions about the significance of historic resources nor responsible recommendations about appropriate mitigation measures for those resources that are eligible for the National Register of Historic Places and that may be adversely affected by these projects. Since May, we have endeavored to assist the Corps of Engineers and other agencies to expedite several pilot projects for Tar Creek. We made this effort in consultation with the Advisory Council on Historic Preservation and with the understanding that an appropriate study (see 36 CFR Part 800.4) of the project area would be undertaken before additional projects would be reviewed.

Col. Kurka
October 28, 2004,
Page 2

It is now our understanding that there is no timetable for the study of historic resources, but that many construction projects must be carried out almost immediately. In light of this situation and the numerous agencies involved, we have concluded that we can no longer have any meaningful input into these projects.

We want to express our appreciation for the diligent efforts of Ken Shingleton of your staff over the last several months to work on the Section 106 issues surrounding the Tar Creek projects. If you or members of your staff may have questions, please do not hesitate to contact me directly at 405/522-4484 or mheisch@ok-history.mus.ok.us.

Sincerely,



Melvena Heisch
Deputy State Historic
Preservation Officer

MH:pm

cc: Mary Jane Calvey (Oklahoma DEQ)
Jeanette Hanna (Regional Director Muskogee BIA)
Miles Tolbert (Oklahoma's Secretary of Environment)

✓bcc: Ken Shingleton



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

OCT 29 2004

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Don L. Klima, Director
Office of Planning and Review
Advisory Council on Historic Preservation
12136 West Bayaud Ave., Suite 330
Lakewood, CO 80228-2115

Dear Mr. Klima:

This letter is to notify you that the U.S. Army Corps of Engineers, Tulsa District is proposing emergency undertakings within the Tar Creek Superfund Site, which is located in the vicinity of the towns of Picher and Cardin, northeast Oklahoma. The proposed emergency undertakings consist of plugging and capping eleven mineshaft openings which represent an immediate hazard to human life because of proximity to other human activities, or because of physical characteristics of the shafts themselves. These mineshafts represent a small subset of well over 1,000 shafts estimated to be present in the area and have specifically been identified by the local communities as immediate hazards to human life. The proposed mineshafts (see enclosed map) are located in Sections 16, 17, 20, 29, 30, and 33, Township 29 North, Range 23 East, in Ottawa County, Oklahoma.

In accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended), Tulsa District consulted with the Oklahoma State Historic Preservation Office (SHPO) and initiated fieldwork in June 2004 to identify historic properties within several small areas where pilot projects were planned. Draft reports of "Cultural Resources Investigations at Six Study Areas within the Tar Creek Superfund Site" were subsequently provided to the SHPO and to your office. In accordance with SHPO guidance, Tulsa District drafted a Memorandum of Agreement (MOA) with the SHPO and the Bureau of Indian Affairs, Eastern Oklahoma Region (BIA) accepting existing documentation on file (the previously mentioned report) as sufficient to offset the loss of potential historic properties within these project areas. To date, Tulsa District and the SHPO have signed the MOA (copy enclosed), but the BIA has still not done so.

Based on this consultation and fieldwork, we believe there is a strong potential for the Picher-Cardin area to be determined a National Register historic district based on the theme of historic lead and zinc mining. Such a historic district has not yet been fully defined, and therefore it is difficult to fully determine a suite of associated contributing elements. However, many historic archaeological features within the area

and perhaps other associated standing structures may define contributing elements to such a historic district. We also believe that the full development of a historic context of the area and an accounting of contributing elements is necessary and appropriate, and Tulsa District is currently in the process of acquiring funds to undertake these efforts (see enclosed draft Scope of Work.)

Because most of these sites and associated features are presumed to be contributing elements, at this time, to a potential historic district, our review of proposed project activities leads us to believe that we may have an adverse effect on two particular classes of historic features. These include mine shafts and mine waste (chat) piles, which are integral to the remediation project and which represent immediate hazards to human health. In these cases, the Corps of Engineers will be plugging mine shafts and in some instances utilizing chat as fill, therefore adversely affecting the integrity of these features. All other historic archaeological features and standing structures described will be avoided.

Prior to plugging and capping each mine shaft, Tulsa District will ensure that these features, including surrounding chat piles, are photographed and described. Discussions of each mine, including specific historical details, will be included in the thematic study of the Picher-Cardin area. Concurrently, Tulsa District is seeking authorization to spend appropriate project funds on this thematic study. Lastly, Tulsa District is drafting a Programmatic Agreement to address the treatment of particular historic features in the Picher-Cardin area, specifically mines and chat piles.

In accordance with Section 800.12 of 36 CFR Part 800, Protection of Historic Properties, Tulsa District requests your comment on these proposed actions, which we are planning to begin in the third week of November 2004. Additionally, any guidance or assistance you may provide will be greatly appreciated. If you have any questions, please contact Mr. Ken Shingleton at 918-669-7661.

Sincerely,



Miroslav P. Kurka
Colonel, U.S. Army
District Engineer

Enclosures



Preserving America's Heritage

November 5, 2004

Colonel Miroslav Kurka
District Engineer
Tulsa District, Army Corps of Engineers
1645 South 101st East Avenue
Tulsa, OK 74128-4609

REF: Tar Creek Superfund Project, abandoned mines 7, 9, 11, 12, 15, 20, 27, 37, 49, 57 in sections 16, 17, 20, 29, 30, and 33, Township 29 North, Range 23 East, Ottawa County, Oklahoma

Dear Colonel Kurka:

On November 1, 2004, we received your letter notifying us that the Tulsa District proposes the emergency plugging and capping of the referenced eleven abandoned mineshafts because they are immediate hazards to human life. As the Corps has determined that these are emergency undertakings, our comments were requested pursuant to 36 CFR 800.12. We have no objection to the Corps implementing these emergency actions as proposed. We do note that 36 CFR 800.12(b) requires the Corps to notify Indian tribes that may attach religious and cultural significance to historic properties that may be affected by emergency undertakings and to afford them seven days to comment on the emergency undertakings.

We are pleased that the Corps is developing a Programmatic Agreement (PA) to address the treatment of abandoned mines and chat piles in the Picher-Cardin area and achieve compliance with section 106 of the National Historic Preservation Act (16 U.S.C. 470f). We fully endorse such an agreement and will work with you in its development. We believe that a PA for cleanup activities within the entire Tar Creek Superfund site would greatly expedite and facilitate this critical public health and environmental project and result in more common sense, consistent, and cost-effective historic preservation efforts. Having a PA is especially critical in the face of complications posed by the Oklahoma State Historic Preservation Officer's (SHPO) recent withdrawal from consultations with all Federal agencies regarding section 106 compliance for the entire Tar Creek Project.

We are aware that the U.S. Environmental Protection Agency, U.S. Department of Housing and Urban Development, and the Bureau of Indian Affairs also have undertakings related to the Tar Creek Project and are working in partnership with the Oklahoma Department of Environmental Quality, Quapaw Tribe, and the University of Oklahoma. We encourage the Corps to seek the involvement of these other Federal agencies and partners in developing this PA so that it will be a truly multi-agency effort and expedite section 106 compliance for the entire Tar Creek Project. As always, we are ready to assist the Corps and other involved parties in this effort.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

If you have questions or wish to discuss this further, please do not hesitate to contact Margie Nowick at 303/969-5110 or via email at mnowick@achp.gov.

Sincerely,


for Don L. Klima
Director
Office of Federal Agency Programs

The following letter was sent to the various tribes listed in Appendix A.



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

November 9, 2004

Planning, Environmental, and Regulatory Division
Environmental Analysis and Compliance Branch

Mr. Larry Joe Brooks, Chief
Delaware Tribe of Indians of Oklahoma
220 NW Virginia Ave.
Bartlesville, OK 74003

Dear Chief Brooks:

In accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended), this letter is to notify you that the U.S. Army Corps of Engineers, Tulsa District is proposing emergency undertakings within the Tar Creek Superfund Site, which is located in the vicinity of the towns of Picher and Cardin, northeast Oklahoma. The proposed emergency undertakings consist of plugging and capping eleven mineshaft openings which represent an immediate hazard to human life because of proximity to other human activities, or because of certain physical characteristics of the shafts themselves. The proposed mineshafts (see enclosed map) are located in Sections 16, 17, 20, 29, 30, and 33, Township 29 North, Range 23 East, in Ottawa County, Oklahoma.

In June 2004 Tulsa District initiated fieldwork to identify historic properties within several small areas where pilot projects were planned. Based on this work, we believe that there is a strong potential for the Picher-Cardin area to be determined a National Register historic district based on the theme of historic lead and zinc mining. Such a historic district has not yet been fully defined, and therefore it is difficult to fully determine a suite of associated contributing elements. However, many historic archaeological features within the area and perhaps other associated standing structures may define contributing elements to such a historic district. We also believe that the full development of a historic context of the area and an accounting of contributing elements is necessary and appropriate, and Tulsa District is currently in the process of acquiring funds to undertake these efforts.

In accordance with Section 800.12(b) of 36 CFR Part 800, Protection of Historic Properties, Tulsa District requests your comment on these proposed actions, which we are planning to begin in the third week of November 2004. Please review these areas for information that you may be willing to share with us on any potential religious and cultural significance of these historic properties.

Engineers
sa District

-2-

Information you may be able to provide will assist us in assessing the effects of these emergency undertakings. If you have any questions, please contact Mr. Ken Shingleton at 918-669-7661.

Sincerely,

Louis E. Vogele, Jr.

ps G. David Steele, P.E.
Chief, Planning, Environmental,
and Regulatory Division

Enclosure

APPENDIX C

PHOTOS OF MINE SHAFTS



Photo 1. Shaft Number 2, Birddog Lease; sec 13, T. 29 N., R. 22 E. May 19, 2005.



Photo 2. Shaft Number 3, Campbell Lease; sec 19, T. 29 N., R. 24 E. May 12, 2005.



Photo 3. Shaft Number 2, James Xavier Lease; sec 23, T. 29 N., R. 22 E. May 19, 2005.



Photo 4. Shaft Number 2, Discard Lease; sec 17, T. 29 N., R. 24 E. May 12, 2005.



Photo 5. Shaft Number 3, Discard Lease; sec 17, T. 29 N., R. 24 E. May 12, 2005.



Photo 6. Shaft Number 12, Discard Lease; sec 17, T. 29 N., R. 24 E. May 12, 2005.

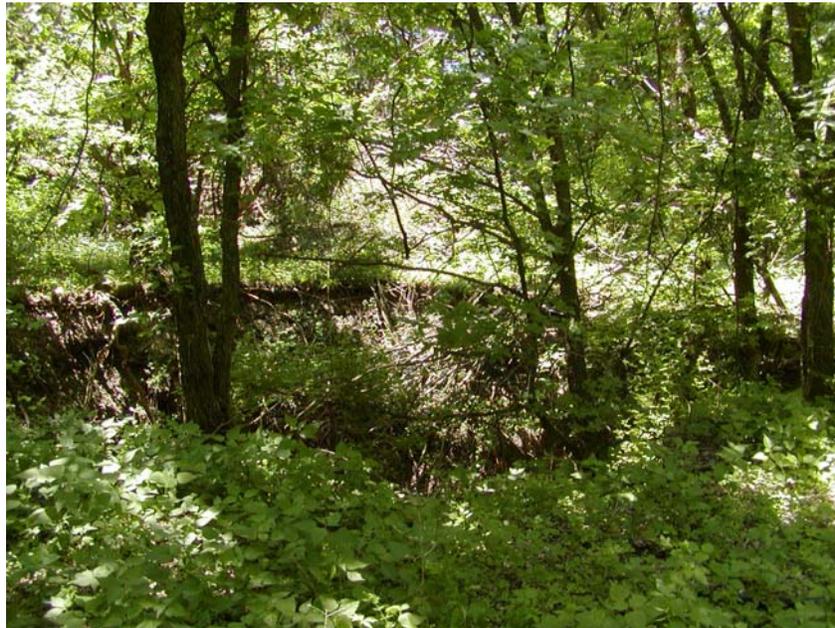


Photo 7. Shaft Number 15, Indiana Lease; sec 22, T. 29 N., R. 23 E. May 19, 2005.



Photo 8. Shaft Number 16, Indiana Lease; sec 22, T. 29 N., R. 23 E. May 19, 2005.



Photo 9. Shaft Number 19, Ottawa Lease; sec 22, T. 29 N., R. 23 E. May 12, 2005.



Photo 10. Shaft Number 22, Jo Buffalo Lease; sec 22, T. 29 N., R. 23 E. May 12, 2005.



Photo 11. Shaft Number 41, Skelton Lease; sec 28, T. 29 N., R. 23 E. May 19, 2005.



Photo 12. Shaft Number 9, Xavier Mudd Lease; sec 23, T. 29 N., R. 22 E. May 19, 2005.



Photo 13. Shaft Number 1, Laura Jenny Zheka Lease; sec 13, T. 29 N., R. 22 E. May 19, 2005.



Photo 14. Shaft Number 10, Tongaha Lease; sec 19, T. 29 N., R. 23 E. May 19, 2005.



Photo 15. Shaft Number 16, Consolidated No. 2 Lease; sec 16, T. 29 N., R. 23 E. May 19, 2005.

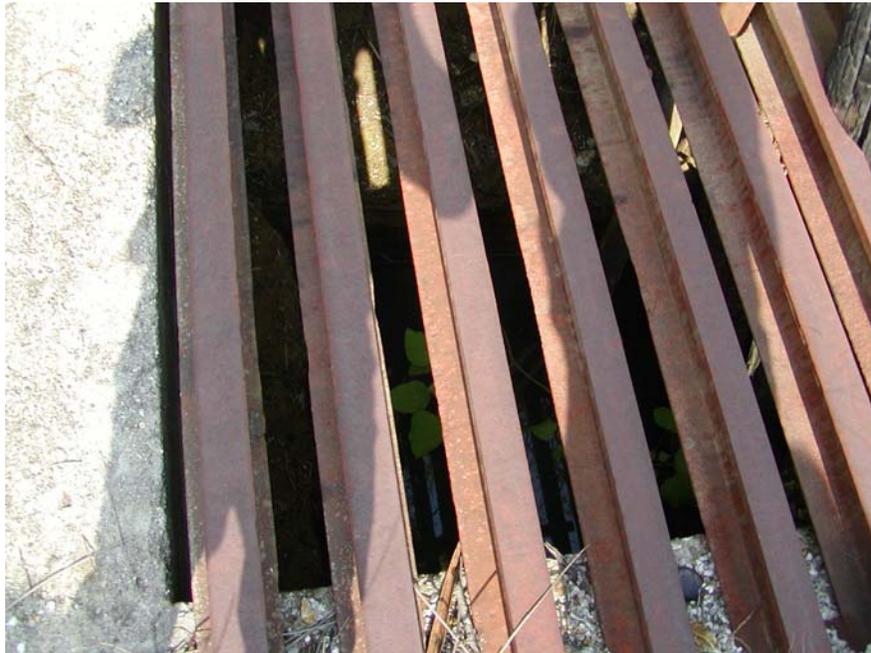


Photo 16. Shaft Number 17, Rialto Lease; sec 29, T. 29 N., R. 23 E. May 12, 2005.

APPENDIX D

SECTION 404 PERMIT

Regulatory Guidance Letter 85-07

SUBJECT: Superfund Projects

DATE: 05 July 1985

EXPIRES: 31 December 1987

1. Recently, the Chief Counsel, Mr. Lester Edelman, responded to a letter from Mr. William N. Hedeman, Jr., Director, Office of Emergency and Remedial Response, Environmental Protection Agency (EPA) Which dealt with the need for Department of Army authorizations for the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) actions. This letter summarizes Mr. Edelman's opinion and provides operating guidance for field interaction with the EPA.
2. The EPA's basic position is that Congress did not intend for CERCLA response actions to be subject to other environmental laws. Rather, as a matter of sound practice, CERCLA response actions generally should meet the standards established by those laws. Consequently, it is the EPA's position that neither it nor the states, in pursuing response actions at the location of the release or threatened release under the authority of CERCLA, are required to obtain permits under [Section 404 of the Clean Water Act](#) or [Section 10 of the Rivers and Harbors Act](#) for those actions.
3. Mr. Edelman stated in part that he has some reservations about the position that the EPA has taken. Nevertheless, he recognizes that the EPA has the primary authority for the interpretation and application of CERCLA, and therefore would defer to the EPA's reading of its own statutory authorities, at least for the time being.
4. In light of this legal opinion, FOAs should not require applications for the EPA or state response actions at the location of the release or threatened release pursued under the authority of CERCLA. Any permit applications in process should be terminated.
5. Both the EPA and OCE believe that the FOAs' expertise in assessing the public interest factors for dredging and filling operations can contribute to the overall quality of the CERCLA response action. The Director of Civil Works will be establishing a group from his staff to work with the EPA staff to develop a framework for integrating the Corps Section 10, Section 404 and, if appropriate, Section 103 concerns into the EPA's substantive Superfund reviews.
6. Until specific guidance is provided from OCE, FOAs should provide technical support to the EPA regions and/or the states on matters within their field of expertise.

FOR THE CHIEF OF ENGINEERS:

C.E. EDGAR III
Brigadier General, USA
Acting Director of Civil Works
