

APPENDIX G

TVA prepared Final EA and FONSI for Trico Steel
TVA Prepared Mallard-Fox Creek Area EIS Supplement

File No. 53937-00
Nucor Steel Decatur, LLC

February 25 1997

Ruben O. Hernandez, NRB 1A-N

PROPOSED FOX CREEK DIKE MITIGATION PROJECT, WHEELER RESERVOIR,
MORGAN AND LAWRENCE COUNTIES, ALABAMA - ADOPTION OF THE
ENVIRONMENTAL ASSESSMENT (EA) PREPARED BY THE U.S. ARMY CORPS
OF ENGINEERS (USACE), AND FINDING OF NO SIGNIFICANT IMPACT
(FONSI)

Trico Steel Company, L.L.C., is currently constructing a steel recycling mill along the south shore of Wheeler Reservoir in Morgan County, Alabama. The mill is adjacent to the Mallard-Fox Creek Industrial Park, which was previously evaluated for industrial suitability in a 1980 Environmental Impact Statement. On June 12, 1995, TVA completed an EA and FONSI on proposed actions which would allow Trico to construct and operate a steel recycling mill. The actions previously approved in the 1995 FONSI were a barge terminal and stream crossing by a railroad spur, a transfer of 188 acres of TVA property to provide access to the barge terminal, release of deed restrictions on private land that was previously owned by TVA, provision of direct electric service to the proposed mill, and provision of economic incentives to the proposed mill. In the previous review, it was found that the proposed mill would impact less than two acres of the 49 acres of wetlands on Trico property, and that this wetland impact was minor and insignificant.

Once construction of the mill began, it became evident that additional development of the area surrounding the Trico mill was likely, primarily by industries built to provide services to the steel recycling facility. Trico purchased 685 acres of private land and 188 acres of TVA land in 1995. During 1995 and 1996, Norfolk Southern Corporation has purchased much of the Mallard-Fox Creek Industrial Park and lands to the west of the Trico properties. Together, Trico and Norfolk Southern own approximately 1500 acres which they plan to make available to industries that wish to locate near Trico. These land needs, although not certain, may result in the fill of 21 of the 47 total acres of wetlands on the Trico tracts in the future. Because of this potential to impact wetlands, Trico submitted an application to fill six wetland areas to the U.S. Army Corps of Engineers on June 25, 1996. In the same application, it was noted that Norfolk Southern proposed to fill six wetlands totaling 5.2 acres under Nationwide Permit 26.

As compensation for the fill of up to 26 acres of wetlands, Trico and Norfolk Southern have worked with the Alabama Department of Conservation and Natural Resources, Division of Game & Fish (ALGF), and TVA to develop a comprehensive mitigation approach for the entire development. The cooperating parties agreed to evaluate the construction of a dike on TVA property across a portion of the Fox Creek embayment of

Wheeler Reservoir. This TVA property is now managed as Mallard/Fox Creek Wildlife Management Area under agreement with the state of Alabama. On September 19, 1996, the Alabama Division of Game & Fish submitted a Section 26a application providing detailed information on the proposed dike. The dike would raise water level in the embayment by two feet above normal summer pool and eight feet above normal winter pool. The resulting 213-acre impoundment would create 29 acres of new wetlands and enhance 192 acres of existing wetlands. Section 26a approval of this dike, Section 26a approval of wetland fills on tributaries to Wheeler Reservoir, and the grant of a long-term easement to ALGF constitute the proposed actions of TVA.

On July 30, 1996, the U. S. Army Corps of Engineers (USACE), TVA, and the State of Alabama issued Joint Public Notice 96-82 on the proposed wetland fills and mitigation dike. A number of comments were received on the notice and project. On November 4, 1996 the USACE issued its Environmental Assessment (EA) on the project, a Finding of No Significant Impact, and the compliance determination required under the section 404(b)(1) guidelines. In these documents the USACE responded to all comments received.

Under Section 401 of the Clean Water Act, the certification that the project would not violate applicable water quality standards is required from the State of Alabama. The state issued its certification on October 25, 1996.

The Environmental Assessment prepared by the USACE evaluated the environmental consequences of no action as well as the proposed filling of 21 acres of wetlands for industrial development and the proposed construction of a dike across an embayment of Wheeler Reservoir. The EA addressed impacts on wetlands, floodplains, cultural resources, recreation, water quality, fish and wildlife values, and endangered species. These impacts were found to be minor and insignificant.

The EA stated that TVA would ensure compliance with its No Net Loss Guideline. This guideline has now been replaced by a "Flood Storage Loss Guideline." TVA has evaluated the project under this guideline. In order to minimize adverse floodplain impacts, the dike would be constructed at a point where overall project costs would be reduced, project benefits would be maximized and the loss of flood control storage would be lessened. The applicant has shown that there are substantial economic, environmental and natural resource benefits associated with the project. Therefore, the construction of the Fox Creek Dike Mitigation Project would comply with TVA's Flood Storage Loss Guideline.

TVA has also reviewed the project for compliance with Floodplain Executive Order 11988. Trico evaluated several alternatives for the construction of wetland mitigation areas, in cooperation with TVA, USACE, and ALGF. The agencies determined that the construction of a dike along a narrow point of an embayment of Fox Creek would provide

the required wetland mitigation as well as providing substantial wildlife and recreational benefits. Therefore, there would be no practicable alternative to fulfill the project requirements.

TVA has reviewed the USACE EA and FONSI. With the additional discussion above, TVA has determined that the scope, alternatives considered, and content of the EA are adequate as an assessment of the environmental impacts of TVA's actions. The USACE EA is attached and incorporated by reference.

TVA concludes that implementation of the proposed action would not be a major federal action significantly affecting the environment. Accordingly, preparation of an environmental impact statement is not required. The Office of the General Counsel concurs in this determination.

Copies of this notice of adoption and FONSI will be provided to Alabama State agencies for their information, and will be retained in TVA's National Environmental Policy Act document room.

Original Signed By

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trico steel mitigation dike fonsi.doc

June 12, 1995

Those listed

FINDING OF NO SIGNIFICANT IMPACT (FONSI) - FINAL ENVIRONMENTAL
ASSESSMENT (EA) - PROPOSED TRICO STEEL COMPANY, L.L.C. STEEL RECYCLING
MILL, MORGAN COUNTY, ALABAMA

Trico Steel Company, a joint venture of LTV Corporation, Sumitomo Metal Industries, and British Steel, has requested that TVA take the following actions:

- Approve a barge terminal and stream crossing by a railroad spur under Section 26a of the TVA Act;
- Transfer 188 acres of TVA property to provide access to the barge terminal;
- Release deed restrictions on private land that was previously owned by TVA;
- Provide direct electrical service to the proposed mill; and
- Provide economic incentives to supplement those provided by the State of Alabama.

These actions would allow Trico to construct and operate a steel recycling mill on 110 acres of private property in Morgan County Alabama.

The suitability of the general area for industrial use was previously assessed in an Environmental Impact Statement (EIS) entitled Proposed Development and Use of Mallard-Fox Creek Area in North Alabama, May 1980. This EIS examined the potential effects of converting TVA's 1,950-acre Mallard-Fox Creek area from wildlife management area to industrial development. TVA made 450 acres of the Mallard-Fox Creek area available for industrial development and left the remaining 1,500 acres as undeveloped. The industrial land became part of the Mallard-Fox Creek Industrial Park and is adjacent to the site of the proposed mill.

Those listed
Page 2
June 12, 1995

The Environmental Assessment prepared for the above proposed actions evaluates the potential environmental impacts of three alternatives. Under Alternative A, No Action, TVA would deny all of Trico's requests. As a result, it is unlikely that the company would construct its recycling mill at this site. Under Alternative B, approval without conditions, TVA would grant 26a approval without additional conditions beyond those required by existing federal, state, or local regulations. Required conditions include those necessary to prevent flood damage below the 560-foot elevation. TVA would sell the land, release deed restrictions, extend direct-serve customer status, and provide supplemental economic incentives. Under Alternative C, Approval with conditions, TVA would add two conditions to its 26a approval that would avoid or mitigate adverse environmental impacts. These conditions are:

development of a day-night noise level to enable long-term monitoring of the impacts of noise on nearby residences; and dredging after the spring spawning period ends (June 1) to minimize turbidity and sedimentation impacts during the fish spawning season.

TVA's preferred alternative is Alternative C Approval With Conditions

As described in the EA, adoption of Alternative C would result in no impacts or no significant impacts to cultural, archaeological, and historic resources, air quality, water quality, solid waste generation, transportation, noise, aesthetics, socioeconomics, prime farmland, wetlands, floodplains, recreation, aquatic biology, terrestrial ecology, endangered and threatened species, navigation, energy, or property values. These minimal impacts are due to the industrial nature of the area and mitigations which are already built into the proposal. One important mitigation for the loss of 17 acres of wildlife management area lands would be transfer of 224 acres nearby to the Alabama Department of Conservation and Natural Resources for inclusion in the Mallard-Fox Creek Wildlife Management Area.

Public and agency comments on the proposed Trico steel mill were solicited by TVA and the U.S. Army Corps of Engineers through Public Notice 95-32, issued March 31, 1995. A public hearing was held in Decatur, Alabama, on May 4, 1995. In addition, TVA initiated Intergovernmental Review with Alabama state agencies. TVA considered all comments received in preparation of the Final EA.

Those listed
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June 12, 1995

Based on the analyses in the EA, we agree that the actions requested of TVA by Trico Steel Company do not individually or cumulatively constitute major Federal actions significantly affecting the quality of the human environment. Accordingly, an environmental impact statement is not required. The Office of the General Counsel concurs in this determination.

Land Management is requested to send 30 copies of the Final EA to the agency NEPA files. In addition, the EA should be provided to those individuals and agencies who submitted comments.


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4714J

**FINAL
ENVIRONMENTAL ASSESSMENT**

**PROPOSED TRICO STEEL COMPANY, L.L.C.
STEEL RECYCLING MILL
Morgan County, Alabama**

June 1995

**This assessment was prepared by
The Tennessee Valley Authority
Norris, Tennessee 37828**

**Preliminary environmental studies
for the proposed Trico mill site were supplied by
TriLine Associates, Inc.
506 Valleybrook Road
McMurray, Pennsylvania 15317**

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CHAPTER 1
PURPOSE OF AND NEED FOR ACTION

1.0 Introduction

Trico Steel Company, L.L.C., (Limited Liability Corporation) plans to construct and operate a state-of-the-art steel recycling mill along the south shore of the Wheeler Reservoir at Tennessee River Mile (TRM) 297.5L (i.e., left bank, facing downstream) in Morgan County, Alabama, approximately 4.0 miles west of Decatur. A vicinity map is provided as Figure 1. Trico Steel Company, L.L.C., is a new company formed as a joint venture consisting of Cleveland, Ohio-based LTV Corporation, Japan's Sumitomo Metal Industries, and British Steel plc.

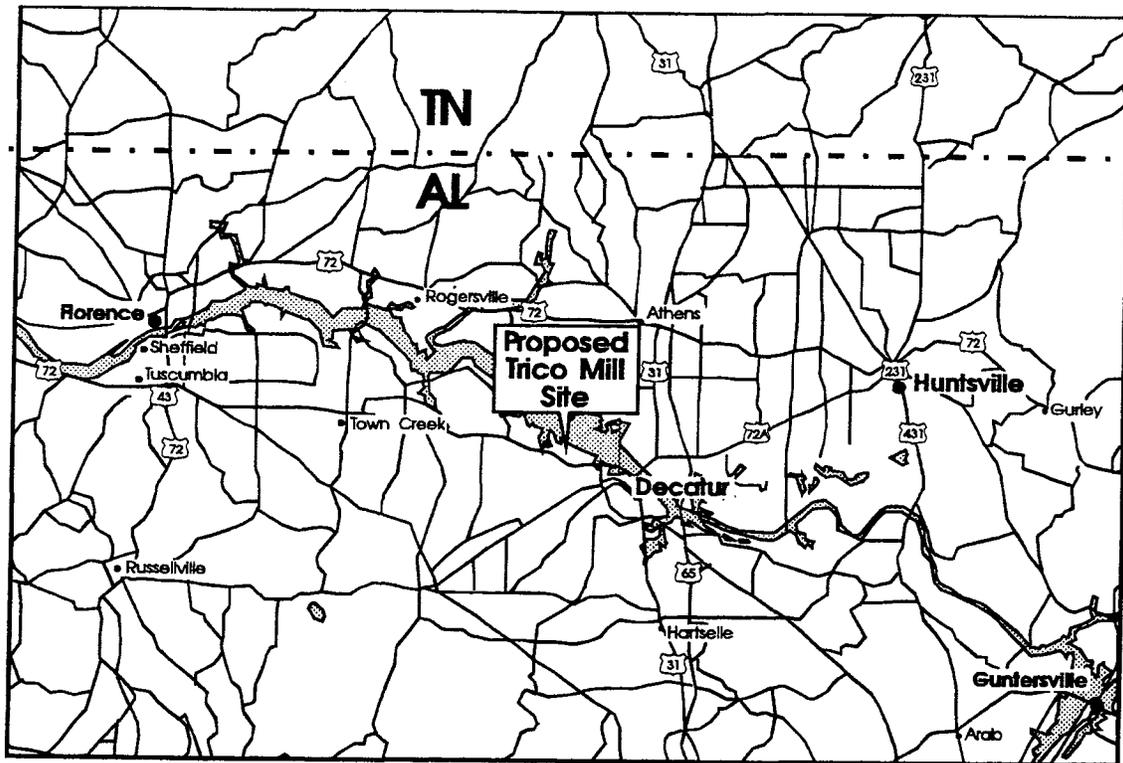


Figure 1. Vicinity Map of the Proposed Trico Steel Recycling Mill Near Decatur, Alabama.

Trico conducted an extensive site selection process before identifying the Morgan County site. Over 50 sites in Alabama, Indiana, Kentucky, Louisiana, Mississippi, and Tennessee were considered. A description of the site selection process is provided as Appendix A.

Trico proposes to begin construction by mid-1995 and to begin operation by late 1996. The expected capital cost of the facility is approximately \$450 million. The mill would operate approximately 333 days per year, 24 hours per day, and would employ approximately 320 people. The mill would be constructed on approximately 110 acres located on the privately owned 583-acre Sewell Property. A four-lane access road would be constructed from US Highway 20 to serve the site.

The mill would produce steel sheet and strip products with a production capacity of 2.2 million tons a year. The steel would be used for construction, pipe and tubing, transportation, and service center industries. Most of the steel scrap and other raw materials that are the feedstock for the mill's steel products would be barged or railed to the site. Most of the finished product would be railed or trucked to market.

The production process would begin with melting steel scrap and other raw materials. Approximately 50 percent of these materials would be recycled material. Processing steps include refining, casting, reheating, rolling, and finishing. The equipment used would likely include two 170-ton electric arc furnaces, two ladle metallurgy furnaces, two continuous casters, two reheat furnaces, a coarse rolling mill, and a strip finishing mill. Most of the by-product and waste material produced at the mill, including steel slag and scale, would be reused and recycled.

Trico has requested the Tennessee Valley Authority (TVA) to convey approximately 188 acres in connection with the project. A barge terminal requiring TVA approval under Section 26a of the TVA Act would be constructed on the current TVA property. The nearby public docks would not be able to handle Trico's expected incoming barge traffic. An existing railroad would be extended, and an existing access road would be upgraded on the TVA property to connect the barge terminal and mill site. The port facility and impacts to wetlands require the approval of the U.S. Army Corps of Engineers (USACE).

1.1 Other Pertinent Environmental Reviews or Documentation

TVA released a Final Environmental Impact Statement (EIS) entitled *Proposed Development and Use of Mallard-Fox Creek Area in North Alabama* on May 23, 1980. This EIS examined the potential effects of converting TVA's 1,950-acre Mallard-Fox Creek area from wildlife to industrial development. TVA made approximately 450 acres of the Mallard-Fox Creek area available for industrial development and left the remaining 1,500 acres for long-term wildlife management and other recreational uses. The industrial land became part of the Mallard-Fox Creek Industrial Park and is managed by the Decatur-Morgan County Port Authority.

A Supplement to this EIS was prepared by USACE and was published March 11, 1988. Supplement 1 to the EIS addressed potential effects of dredging a 9,000-foot-long navigational channel that runs parallel to the river frontage of a 450-acre industrial development property.

1.2 The Decision

The decisions that TVA must make are whether to convey approximately 188 acres of TVA property, approve Trico's proposed barge terminal and rail line, supply electric power to the proposed facility, provide supplemental economic assistance to Trico, and release deed restrictions on the adjacent private property which limit industrial development. Section 26a of the TVA Act requires TVA approval of the construction and operation of obstructions to navigation, such as the proposed barge terminal, along the Tennessee River and its tributaries. The decision to be made by USACE is whether to issue permits under Section 10 of the Rivers and Harbors Act of 1899 and under Section 404 of the Clean Water Act. These USACE approvals are necessary for construction (including dredging) and operation of the proposed barge facility and for impacts to wetlands associated with constructing the mill and the rail line to the proposed barge terminal.

1.3 The Scoping Process and Public Involvement

A visit to the site of the proposed steel recycling mill and barge terminal was conducted on March 1, 1995. That same day an internal scoping meeting was held in Decatur, Alabama. Attending these two meetings were representatives from USACE, TVA, The Galbreath Company, TriLine Associates, Inc., Porter White & Company, Inc., and Lockwood Greene Engineers (consulting firms representing Trico).

A joint USACE - TVA public notice (No. 95-32) about the proposed project was issued on March 31, 1995. Letters responding to the Public Notice are reproduced in Appendix B. This Notice also served as a Notice of Public Hearing. A public hearing was held at 7 p.m. at the Oak Park Middle School in Decatur, Alabama, on May 4, 1995, and copies of the draft environmental assessment were distributed at that meeting for public review and comment. Written comments received at the meeting and during the subsequent comment period are reproduced, along with appropriate responses, in Appendix D. Intergovernmental review was initiated by TVA in accordance with Executive Order 12372. Names of persons and agencies contacted are provided in Chapter 6.

1.4 Necessary Federal and State Permits and Licenses

The following federal permits or licenses must be obtained if the proposed action is to proceed:

- USACE Permit under Section 10 of the Rivers and Harbors Act of 1899
- USACE Permit under Section 404 of the Clean Water Act
- TVA approval under Section 26a of the TVA Act
- Alabama Section 401 Water Quality Certification
- Alabama Department of Environmental Management (ADEM) Prevention of Significant Deterioration (PSD) and Air Quality Construction and Operation Permit
- ADEM National Pollution Discharge Elimination System (NPDES) Construction Storm Water Permit

Other state or local permits or requirements may apply.

**CHAPTER 2
ALTERNATIVES, INCLUDING THE PROPOSED ACTION**

2.0 Introduction

This chapter identifies the alternatives to implementing the proposed action, including the No Action Alternative. A brief summary of the environmental consequences associated with each alternative and a comparison of the alternatives are also included in this chapter.

2.1 Proposed Action

The following are components of the proposed federal action. For TVA, the proposed action includes the following activities.

- Approval under Section 26a of the TVA Act of a barge terminal and railroad spur to serve the proposed Trico steel recycling mill and the crossing of a small stream on the site with a rail line. Approval would be subject to the following conditions:
 1. Any future facilities or equipment subject to flood damage are to be located above or floodproofed to the 560-foot elevation.
 2. All future facilities below the 560-foot elevation would require advance approval in writing from TVA.
 3. TVA would retain the right to temporarily and intermittently flood properties below the 560-foot contour.
- Transfer of approximately 188 acres of TVA property. Most of this property is currently under easement to the Decatur-Morgan County Port Authority for industrial use. Approximately 17 acres of the requested property is classified as multipurpose reservoir land and is under license agreement to the Alabama Department of Conservation and Natural Resources (ADCNR) for wildlife management.
- Provision of direct electrical service to the proposed Trico steel recycling mill.
- Release of deed restrictions on adjacent private property that restrict industrial development.
- Participation in the economic incentives to Trico to supplement those provided by the State of Alabama.

Potential environmental effects of these two latter actions would be encompassed by those assessed for the other proposed actions.

The proposed federal action on the part of USACE is the issuance of permits under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act.

The proposed action by Trico is the construction and operation of a steel recycling mill and associated facilities (i.e., a barge terminal, rail line, and access roads). Road and rail line construction under Trico's proposal would affect 1.98 acres of wetlands. Trico's proposal does not involve raw water intake from or discharge of process water directly into the Tennessee River.

Donation of an approximately 224-acre parcel located adjacent to the Mallard-Fox Creek Wildlife Management Area (WMA) has been requested by the ADCNR, Game and Fish Division. This 224-acre parcel will be contributed in the interest of maintaining the natural integrity of this area.

2.2 Alternatives

A range of feasible alternatives to the proposed federal action was developed and is presented below. These alternatives include the No Action Alternative (i.e., TVA and USACE denial of requests by Trico) and two action alternatives. These alternatives along with appropriate mitigative measures are described below.

2.2.1 Alternative A -- No Action

The No Action Alternative would involve denial of all Trico's requests. In such an event, Trico would not construct its recycling mill at the site. Rather, Trico would likely proceed at one of the other sites it evaluated.

2.2.2 Alternative B -- Approval Without Conditions

Under Alternative B, TVA would grant a Section 26a approval without additional conditions beyond those required by existing state, federal, or local regulations. TVA would convey the 188 acres of land, release the private-property deed restrictions, and would extend direct-serve customer status to Trico. TVA could provide economic incentives to Trico. USACE would issue Section 10 and Section 404 permits.

2.2.3 Alternative C -- Approval With Conditions

Alternative C calls for Section 26a approval by TVA and issuance of Section 10 and Section 404 permits by USACE with conditions to provide additional environmental safeguards. TVA would transfer the 188 acres, release the private-property deed restrictions, and would provide direct-serve customer status to Trico. TVA could provide economic incentives to Trico.

The conditions would include:

- Development of an annual average day-night noise measurement to enable long-term noise monitoring;

- Limiting dredging to after the spring spawning period ends (June 1) and use of practicable measures to minimize turbidity and sedimentation impacts during the fish spawning season.

2.3 Comparison of Alternatives

Adoption of Alternative A would result in virtually no change in the current situation. The proposed barge terminal, rail line, and steel recycling mill would not be built. TVA would not convey 188 acres of property. Therefore, adoption of Alternative A would result in no additional effects to those resources identified in this assessment. However, the potential socioeconomic benefits associated with the Trico proposal would be foregone.

Under Alternative B or C, TVA would agree to convey approximately 188 acres, and Trico would likely proceed with construction of the proposed barge terminal, rail line, and steel recycling mill. TVA would extend direct-serve customer status to Trico under these two action alternatives and would take the other identified actions.

Under either action alternative, the land use on the study site would change from predominantly agricultural to industrial. Neighboring residents and the Decatur area would experience various socioeconomic effects commonly associated with the establishment of new industry. Demands placed on community infrastructure with respect to transportation, solid waste disposal capacity, and energy can be reasonably met. Threatened and endangered species would not be affected by either action alternative. Effects to cultural, archaeological, and historic resources would be negligible. Impacts to aesthetic quality and recreation opportunities would be negligible under either action alternative. Existing federal, state, and perhaps local, regulations would prevent unacceptable effects on air and water quality, wetlands, and floodplains.

There could be additional positive effects of the operation of a steel recycling mill. There would likely be some economic stimulation resulting from the creation of new markets for ferrous metals. The proposed mill would remove large amounts of scrap metals from the waste stream. These advantages would not be realized, at least locally, under Alternative A.

Environmental safeguards would be afforded by Alternative C to provide additional protection of spawning fish at the dredge site and as a way to perform long-term noise monitoring.

Section 404(b)(1) evaluation

The purpose of Section 404(b)(1) of the Clean Water Act is to restore and maintain the chemical, physical, and biological integrity of waters of the United States through the control of discharges of dredged or fill material. Controls are established through restrictions placed on the discharges in guidelines published in 40 CFR 230.

Section 230.10 of the Clean Water Act requires that the discharge meet certain restrictions in order to be authorized. The project is to be evaluated and comply with the

following restrictions: (a) there would be no other practicable alternatives to the proposal that would have less adverse impacts on the aquatic environment (b) the discharge would not adversely impact water quality, violate state water quality standards, toxic effluent standards, or jeopardize the continued existence of a threatened or endangered species as identified under the Endangered Species Act, (c) the discharge would not cause or contribute to the significant degradation of waters of the United States, or (d) the project would be designed in such a manner as to minimize to the extent possible the adverse impacts on the aquatic environment.

An evaluation of the fill material was conducted in accordance with part 230.61. The portions of the proposed work to be evaluated under the Clean Water Act include fill associated with the construction of the proposed terminal mooring cells and fill resulting from construction of the steel mill. The impacts of the proposed barge terminal construction are addressed in Chapter 4 and are primarily related to a reduction in biological productivity resulting from the physical displacement of existing aquatic habitat and minor turbidity impacts. The impacts of the proposed wetland fill are also addressed in Section 4.10 of this EA and are primarily related to the minor but long-term impacts upon the subject wetland. There appear to be no other practicable alternatives to the proposal other than the action alternatives (i.e., Alternatives B and C). The donation of the 224-acre parcel located adjacent to the Mallard-Fox Creek WMA would mitigate the adverse impacts to the extent possible. Since there would be no other practicable alternatives to the proposal, adverse impacts would be minimized to the extent possible, and no other restrictions would be violated, the proposed work would comply with the restrictions in Section 230.10. In addition, there is no indication that the fill material to be used for the project would be contaminated above background levels. Therefore, the fill material is designated as a Category 5 fill and, in accordance with Part 230.63(a), no testing of chemical-biological interactive effects is required.

Based on the probable impacts addressed above, compliance with the restrictions, and all other information concerning the fill material to be used, the proposed work with mitigation appears to comply with the guidelines and the intent of Section 404(b)(1) of the Clean Water Act.

2.4 The Preferred Alternative

TVA's preferred alternative is Alternative C. Under this alternative, additional environmental safeguards are achieved, while allowing the proposed project with its associated socioeconomic benefits to proceed. USACE regulations prevent it from being for or against an applicant's proposal during permit or approval evaluations.

CHAPTER 3 AFFECTED ENVIRONMENT

3.0 Introduction

This chapter describes the environmental resources of the area that could be affected by the proposed action (including the No Action Alternative) and provides a baseline for the comparisons in Chapter 4, Environmental Consequences. The potentially affected area includes the 188-acre TVA property proposed for conveyance, the 583-acre assemblage of private tracts known as the Sewell Property, and lands adjacent to these properties. The term "study site" used throughout the document includes the TVA and Sewell properties. Various environmental resources on the study site are shown on the Environmental Features Map (Figure 2).

3.1 Cultural, Archaeological, and Historical Resources

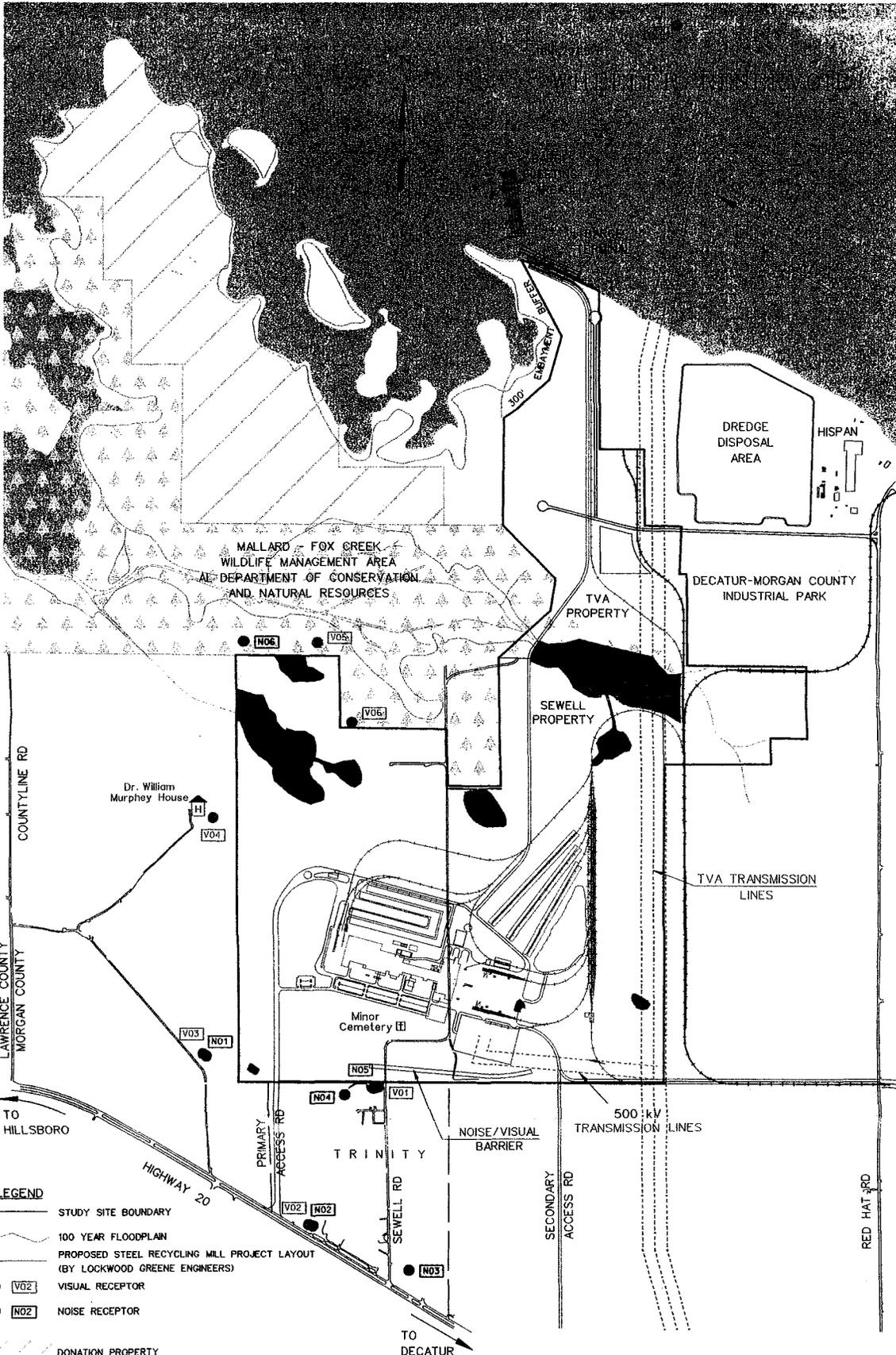
No sites currently listed on the National Register of Historic Places (NRHP) are located on or in the immediate vicinity of study site. A cultural resource assessment conducted by the University of Alabama, Division of Archaeology in January 1995 found that there are no historic or archaeological resources on the study site that are potentially eligible for nomination on the NRHP. Three cultural resource assessments conducted by the University of Alabama between 1979 and 1983 revealed that there are no significant sites on the portion of the study site within the Mallard-Fox Creek Industrial Park.

The Minor Cemetery is located near the southern boundary of the study site. The University of Alabama study determined that the cemetery is not eligible for inclusion in the NRHP. Another small cemetery is located off the study area, adjacent to the USACE dredge disposal area.

The Dr. William Murphey House, built about 1825, is located west of the study site on the adjacent Glenn property. The house was listed on the Alabama Register of Landmarks and Heritage by the Alabama Historical Commission in 1985. The house is not listed on the NRHP. Cooper et al. (1993) states that "The Murphey house typifies the smaller domiciles of the Virginia and Carolina-born planters who settled the rich cotton lands of the Tennessee River Valley beginning about 1818." The house was used previously by the landowners for hay storage; however, it is now abandoned because it is structurally unstable. An existing line of trees partially blocks the view of the mill site from the house.

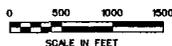
3.2 Air Quality

Ambient air quality in Morgan County is generally good. Morgan County does not exceed any of the six criteria air pollutants: sulfur dioxide (SO₂), particulate matter (PM₁₀), carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), and lead (Pb). Criteria pollutants are those for which the U.S. Environmental Protection Agency (EPA) has set National Ambient



LEGEND

- STUDY SITE BOUNDARY
- 100 YEAR FLOODPLAIN
- PROPOSED STEEL RECYCLING MILL PROJECT LAYOUT (BY LOCKWOOD GREENE ENGINEERS)
- V02 VISUAL RECEPTOR
- N02 NOISE RECEPTOR
- DONATION PROPERTY
- WETLANDS



TVA PROPERTY - 188 acres
 SEWELL PROPERTY - 583 acres
 STUDY SITE TOTAL - 771 acres

TRILINE ASSOCIATES, INC.
 506 VALLEYBROOK ROAD, McMURRAY, PA 15317
 (412) 641-5600

**ENVIRONMENTAL ASSESSMENT
 ENVIRONMENTAL FEATURES MAP**

TRICO STEEL CO. L.L.C.
 STEEL RECYCLING MILL PROJECT
 JUNE, 1995

Air Quality Standards (NAAQS) to protect public health and welfare. The current NAAQS are shown in Table 1.

Table 1. National Ambient Air Quality Standards.

Pollutant and Time Period	Standards (Micrograms per cubic meter)	
	Primary	Secondary
PM ₁₀ particulates		
Annual	50	50
24-hour	150	150
Sulfur dioxide (SO ₂)		
Annual	80	
24-hour	365	
3-hour		1,300
Nitrogen dioxide (NO ₂)		
Annual	100	100
Carbon monoxide (CO)		
8-hour	10,000	10,000
1-hour	40,000	40,000
Ozone (O ₃)		
1-hour	235	235
Lead (Pb)		
3-month	1.5	

TVA maintains a monitoring site near the study site. Hourly data for the period April 1, 1993, through March 31, 1994, were obtained for pollutants including SO₂, NO₂, O₃, and nitrogen oxide (NO). Measurements for the one-year period revealed values well below the NAAQS.

Morgan County is located within 50 kilometers of a PSD Class I area, the Sipsey Wilderness. Industrial expansion in counties near PSD Class I areas may be required to determine the impacts of any air emissions on visibility and ambient air quality in those areas.

3.3 Water Quality

The site drains north directly into Wheeler Reservoir and northwest to the Fox Creek embayment of Wheeler Reservoir. The reservoir was impounded in 1936 with completion of Wheeler Dam at TRM 274.9. It extends upstream to Guntersville Dam at TRM 349.0.

The reservoir has 1,063 miles of shoreline and a drainage area of 29,590 square miles. Average annual discharge from the dam is 49,500 cubic feet per second.

Water quality in Wheeler Reservoir is generally good. The Tennessee River in the project vicinity (TRM 297.2) is classified by the ADEM as suitable for swimming, whole body water-contact sports, fish, and wildlife. Reservoir water uses include navigation, power generation, flood control, vector (i.e., mosquito) management, recreation, and industrial and public water supply. There are five municipal, nine industrial, and five irrigation water supply intakes on the reservoir. All the municipal intakes (including Decatur and Huntsville) are upstream of the proposed site. Four industrial and two irrigation intakes are downstream from the site.

Concentrations of lead and copper sometimes exceed Alabama's water quality criteria for protection of aquatic life. Concentrations in fish, however, are comparable to other TVA reservoirs and are not a concern to either public health or aquatic life. Sediment and fish near Triana, about 25 miles upstream of the site, are contaminated with DDT from Indian Creek near Triana.

Summer dissolved oxygen concentrations in lower levels of the reservoir are decreased by the decay of naturally occurring organic matter and oxygen-demanding wastes from municipalities and industries. Concentrations as low as 1 milligram/liter (mg/L) are possible. At times during the summer and fall, diffusion from the atmosphere and algal production of oxygen are insufficient to prevent the decline of surface concentrations to near 5 mg/L, i.e., the Alabama water quality criterion. The dissolved oxygen concentration of discharges from Wheeler Dam (which is a mix of surface and bottom waters) is usually less than 5 mg/L for four or five weeks each summer.

Bacteriological sampling of recreation areas in 1986, 1990, and 1994 indicates compliance with the Alabama criterion. Occasional high values (greater than 1000 per 100 mL), especially following rainfall, show the effect of nonpoint sources of pollution, such as livestock waste or failing septic tanks.

Total nitrogen concentrations in the reservoir are typically in the range of 0.5 to 0.6 mg/L. Phosphorus concentrations are typically 0.03 to 0.04 mg/L. All radioactivity levels measured in water, fish, and clams are consistent with naturally occurring background levels or are too low to be of consequence.

Groundwater in the project vicinity occurs in limestone of the Mississippian Age. Large springs are fairly common. The principal water-bearing formations are the Tuscumbia limestone overlying the Fort Payne chert. Water occurs in bedrock in openings along fractures and bedding planes and in pore spaces in the overburden. The Fort Payne chert and the overlying Tuscumbia limestone are effectively a single aquifer, as no confining bed separates the two formations. Groundwater quality is generally good.

Groundwater recharge comes from local precipitation and occurs over the entire site. In a year of normal rainfall, the greatest recharge occurs from January through March, and the least from September to November. Infiltration moves to the water table and then laterally toward Wheeler Reservoir.

3.4 Solid Waste Disposal Capacity

The Decatur and Morgan County Sanitary Landfill is located south of Highway 20 adjacent to the west boundary of Morgan County. It is located approximately 3,000 feet southwest of the study site. It consists of approximately 400 acres and has a disposal capacity to accept waste generated within Morgan County for the next 15 to 20 years. The landfill is permitted by the ADEM. The facility has a two-foot compacted clay liner and a groundwater monitoring well system.

The 135-acre Decatur and Morgan County Fly Ash Landfill is located immediately south of the Decatur and Morgan County Sanitary Landfill. The landfill is permitted by ADEM and has a disposal capacity of 30 years at current disposal rates.

3.5 Existing Land-Based Transportation Network

Highway access to the Trico mill would be via I-65 and US 72 Alternate (Alt.). US 72 Alt. is known locally as the Joe Wheeler Highway or Alabama Highway 20. Highway 20 is a four-lane arterial that traverses the northwest corner of Alabama in an east-west direction between Decatur and Florence. Highway 20 has two lanes in each direction divided by an earth median.

Other major highways in the area are highways 24 and 67, US 31, I-565, and I-65. Locations of these highways are shown in Figure 1. Highway 67 is known as Belt Line Road on the west side of Decatur, where it serves as a bypass around the downtown.

Several of these highways are experiencing serious congestion (levels of service E and F) at peak travel periods (morning and evening rush hours) due to heavy automobile and truck traffic (Decatur Metropolitan Planning Organization, 1995). Traffic is expected to rise considerably in the future. Particular problem areas are Highway 20 between Belt Line and US 31; Belt Line and the rest of Highway 67 from Highway 24 around to I-65; and the Highway 31 bridge over the Tennessee River. At off-peak hours, traffic congestion is generally not a problem.

A new two-lane bridge over the Tennessee River is under construction. The new bridge will greatly improve traffic flow. Several road projects being considered would improve the level of service to acceptable levels. These projects include frontage roads along Belt Line Road and a new outer beltline west and south of Decatur.

A new interstate-level highway between Memphis and Atlanta is being considered, and the study corridor runs through the Decatur area. If built (probably at least 15 years in the future), this highway would reduce future traffic levels on some of the present highways.

The Amoco Lead Rail Line serves companies north of Highway 20, including Amoco, 3M, Daiken, and American Maize Products. The rail line is operated by the Norfolk-Southern Corporation and originates at the new Decatur Railyard. The new yard is located just east of Beltline Road and connects with a yard located at the junction of the north-south CSX line and the east-west Norfolk-Southern line. The rail line crosses Beltline Road at a signalized crossing. It intersects Highway 20, Finley Island Road, State Docks Road, and

Red Hat Road at unsignalized crossings. Current daily rail traffic is one movement in and one movement out from the Decatur Railyard. This movement is typically operated with two locomotives and 75-to-100 railcars moving in each direction. The train typically crosses Highway 20 between 6 p.m. and 7 p.m. going in, and returns over the crossing between 2 a.m. and 3 a.m.

These crossings take about ten minutes each. The early crossing usually causes moderate backups of vehicles, but the late crossing has virtually no effect. Plans are being developed to change the crossing of Highway 20 and Belt Line Road to grade-separated crossings. No construction date has been established.

3.6 Ambient Noise Levels

Ambient sound levels were measured for the study site and at sensitive noise receptors surrounding the site (see Figure 2, page 9). Measurements were taken using the A-weighted decibel scale (dBA) because this scale most accurately corresponds to the human hearing response. Noise levels of common noise sources are provided in Table 2.

Table 2. Common Noise Sources and Levels (from Cowen, 1944).

Noise Level (dBA)	Noise Source
20	Rustling leaves
30	Soft whisper
40	Bird calls
50-54	Summer nighttime insects
60	Conversation
69-70	Medium-size waterfall at 10 feet
80	Vacuum cleaner
90	Crowd at ice hockey game
100	Jackhammer at 3 feet
110	Thunder, sonic boom
120	(Threshold of pain)

The best measurement for community ambient noise is a yearly average day-night sound level (L_{dn}). An L_{dn} measurement was taken in April 1995 on the study site at a point approximately 290 feet north of receptor N05. Night sound was measured from 10 p.m. to 7 a.m. The average night sound level (L_n) was 48 dBA, while the peak sound level (L_{pk}) measured 70.2 dBA and occurred at 6:45 a.m. Average day sound level (L_d) was measured from 7 a.m. to 10 p.m. and averaged 59 dBA. The peak sound level measured 79.7 at 2:24 p.m. The L_{dn} was measured to be 59 dBA.

Currently, the Federal Highway Administration uses the hourly equivalent sound level indicator, $Leq(h)$, to assess noise impacts associated with vehicle use on highways. Equivalent sound level is a steady state sound pressure level which, in a specific time interval, contains the same acoustic energy as the time varying sound level during the same period.

Ten-minute sound level measurements were taken in April 1995 at noise sensitive receptors N01 through N06 from 4 p.m. to 6 p.m., which is the peak traffic period on Highway 20. Highway 20 traffic is a dominant noise source in the area. The results of these measurements are shown in Table 3 below.

Table 3. Existing Noise Levels in the Vicinity of the Proposed Trico Mill.

Receptor	Land Use	Existing Noise Level (1995) (dBA)
N01	Residence	53
N02	Residence	67
N03	Health Center	60
N04	Residence	48
N05	Residence	49
N06	Wildlife Management Area	49

A sound level measurement was also taken in April 1995 at a residential area known as Blacks Landing, located across the reservoir from the proposed barge terminal site. This measurement was taken from 8:30 a.m. to 8:40 a.m. The measured noise level was 44 dBA.

3.7 Visual and Aesthetic Setting

The southern portion of the study site and surrounding area generally consists of level-to-gently-rolling terrain. The dominant land use in the area is agriculture. Cotton fields dominate the landscape. Forested patches of wetlands and upland slopes are scattered throughout the area. Property boundaries are typically lined with trees.

The northern portion of the study site and surrounding area generally consists of level-to-very-gently-rolling terrain bounded on the north by Wheeler Reservoir. This portion of the study site is part of the Mallard-Fox Creek Industrial Park and is located at the end of an industrial corridor stretching along the waterfront from Decatur. Industrial docks and plants such as Monsanto and Amoco dominate the waterfront between Decatur and the study site. The Mallard-Fox Creek WMA is located northwest of the study site. It is dominated by open water embayments and forested wetlands. Summer weekends and weekday evenings are peak recreation times. The northern end of the study site is most frequently seen by tow and recreation boaters on the reservoir. Recreationists include fishermen, skiers, and pleasure boaters. The northern portion of the study site can also be viewed from across the reservoir, including the Round Island Creek Public Use Area and the Blacks Landing residential area.

The southern portion of the study site is most frequently seen by the Trinity residents that live along Sewell Road between Highway 20 and the study site. Most of the study site is screened from Highway 20 by vegetation and topography. The study site can also be viewed by recreationists at the WMA.

3.8 Socioeconomic Setting

The labor market area for the Trico project would consist of Morgan County as well as the other north Alabama counties of Colbert, Cullman, Lauderdale, Lawrence, Limestone, Madison, and Marshall. This is determined from commuting patterns as the area from which the employees would most likely come. According to the Census of Population, these counties had a population of 694,375 in 1990, up 11 percent from 1980. The population is currently projected by the Bureau of Economic Analysis to increase to 715,000, about 3 percent above the 1990 population, by the year 2000.

Also important are the size of the civilian labor force and the unemployment rate. According to a recent study (TVA, 1995), Employment Security Agency data show that the 1994 annual average labor force in the labor market area was 370,360, with 348,710 employed and 21,650 unemployed. Average annual unemployment rate was 5.8 percent, slightly lower than the state average of 6.0 percent and the national average of 6.1 percent. The latest available data, for February 1995, show a current labor force of 371,940, with 350,040 employed and 21,900 unemployed. The current unemployment rate was 5.9 percent, slightly higher than the state rate of 5.8 percent and the national rate of 5.4 percent.

Within the labor market area, the Census of Population shows that the major categories of employment in 1990 were service (27.0 percent), manufacturing (26.6 percent), retail trade (15.8 percent), and construction (8.2 percent). The percentages of service and retail trade employment were somewhat lower in the labor market area than in the state and the nation. The percentage of manufacturing employment was considerably higher in the labor market area, and the percentage of construction employment was somewhat higher in the labor market area.

Per capita income in the labor market area was \$16,792 in 1992, according to the Bureau of Economic Analysis, REIS System. This was slightly higher than Alabama's \$16,522, but considerably lower than the nation's \$20,105. However, measured in constant 1987 dollars, the labor market area's per capita income rose 31.0 percent between 1979 and 1992, considerably higher than the state's rise of 23.1 percent and much higher than the national rise of 16.4 percent. Total personal income in the labor market area was almost \$13 billion in 1992.

3.9 Land Use Patterns

The study site consists of the privately owned 583-acre Sewell Property and the 188-acre TVA property. Land uses and land covers of the study site and the surrounding area determined from interpretation of aerial photography are provided as Figure 3. Current land uses and land covers on the Sewell Property include agriculture, upland forest, forested and other wetlands, residential, and transportation (i.e., Sewell Road). The Sewell Property lies in Morgan County and is not zoned. The property is primarily cleared and actively used for agriculture. The property has historically been used for agriculture. Most of the fields are planted in cotton, with several sloped fields used for hay. There are two residences--a frame house and a mobile home--located west of Sewell Road near the



WHEELER RESERVOIR LAND USE / LAND COVER RESOURCE DATA

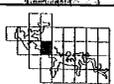
JONES CROSSROADS
QUADRANGLE

LANDUSE / LAND COVER

- Urban - Residential
- Urban - Commercial/Industrial
- Agriculture - Row Crop
- Agriculture - Pasture
- Agriculture - Other
- Shrub and Brush
- Forest
- Barren
- Wetlands and Aquatic Beds as Interpreted from Aerial Photography

PROPOSED TRICO PROJECT

- Proposed Site and Sale Property



- ### Cultural Feature
- Primary Road
 - Secondary Road
 - Other Road
 - Railroad
 - County Line
 - City Boundary
 - Sailing Line
 - Pipe Line
 - Power Line
 - Tract Boundary
 - Stream
 - Water



Prepared By:
Tennessee Valley Authority
Maps and Surveys Department
Reservoir Lands Planning



Figure 3

north property line. Several outbuildings and an abandoned house are located nearby. Current land use and land cover acreages for the Sewell Property are provided in Table 4.

Table 4. Current Land Uses, Land Covers, and Acreages on the Sewell Property.

Current Land Use/Land Cover	Acres
Agriculture	519
Forested and other wetlands	35
Upland forest	26
Transportation	2
Residential	1
Total Acreage	583

Current TVA property land uses and land covers primarily include transportation/utilities, upland forest, forested wetlands, and range land. Acreages in each of these land uses are provided in Table 5. Most of the transportation/utilities, upland forest, and range land are included within the Mallard-Fox Creek Industrial Park, which is within the Decatur municipal boundaries. These lands are zoned M2 General Industry by the city. The industrial park infrastructure was installed on the property in the late 1980s; however, no industrial development has taken place on this portion of the industrial park to date. The forested wetlands and some of the upland forest are included in the Mallard-Fox Creek WMA.

Table 5. Current Land Use Patterns on the TVA Property.

Current Land Use/Land Cover	Acres
Range Land	73
Transportation/utilities	53
Forested wetland	34
Upland forest	28
Total Acreage	188

Historically, the uses of the lands surrounding the study site have been primarily agriculture and recreation (i.e., the Mallard-Fox WMA). The current land uses of the lands surrounding the study site primarily include residential areas, agriculture, recreation, and industry.

A residential area is located south of the study site. Approximately 15 single-family homes are located along Sewell Road between Highway 20 and the study site. This area is part of the town of Trinity and is zoned AG-1 Agriculture by the town. The current use of the land west of the study site is agriculture. The Mallard-Fox Creek WMA is located along the study site's northwestern boundary. The WMA is used by the public for hunting and other recreation.

The Mallard-Fox Creek Industrial Park was established in the late 1980s and is located along the eastern boundary of the study site. This area is zoned M2-General Industry by the City of Decatur. This land was formerly farmland, and the interim use of a portion of

this land remains cotton farming. The industrial park is managed by the Decatur-Morgan County Port Authority. The Port Authority has made infrastructure improvements to its property, including construction of a rail spur that runs parallel to the study site's eastern boundary.

3.10 Wetlands

Wetlands occurring on the Sewell Property are scattered and most typify wetlands found in intensively farmed areas in the Tennessee Valley portion of north Alabama. As a result of this land use, many wetlands were converted to agriculture. Although these altered wetlands still show indicators of hydric soils and wetland hydrology, long-term farming has degraded their functional value. In extremely wet years these areas support the growth of some wetland vegetation, including rushes, sedges, and grasses.

There are also non-farmed wetlands on the Sewell Property. Using the system developed by Cowardin et al. (1979), they are classified as palustrine, emergent, scrub-shrub, and forested wetlands. These wetlands are further described as persistent and broad-leaved deciduous, with temporary and seasonal water regimes. Dominant emergent vegetation includes soft rush, woolgrass, barnyard grass, and other common wet site grasses and sedges. Dominant scrub-shrub vegetation includes black willow, sweetgum, green ash, and red maple. Dominant forested wetland vegetation includes water oak, willow oak, sweetgum, sugarberry, and red maple. Most of these wetlands are located below the 560-foot contour elevation near existing drainages in the northwest and northeast portions of the property.

In total, approximately 50 acres of forested, farmed, emergent, and scrub-shrub wetlands occur on the Sewell Property. The forested wetlands onsite primarily provide sediment and toxicant retention, nutrient uptake, and groundwater recharge and discharge functions. Due to the disturbed and disjunct nature of the nonforested wetlands and their low vegetative diversity, wetland functions and values are low. Delineated wetlands on the Sewell Property are shown on Figure 2, page 9.

Approximately 15 acres of wetlands are located on the 17-acre area within the Mallard-Fox Creek WMA requested by Trico. The forested wetlands located in the northeast corner of the Sewell Property are a part of this system. Just over 3 acres are classified as temporary and seasonally flooded, broad-leaved deciduous, scrub-shrub wetland. This wetland is located beneath the 500-kV transmission line right-of-way (ROW) that bisects the eastern portion of this parcel. The wetland is being maintained in this successional stage through routine ROW maintenance, i.e., mowing. Dominant scrub-shrub vegetation is sweetgum, red maple, and green ash. Wetlands (including aquatic weed beds) on the study site and surrounding area interpreted from aerial photography are shown on Figure 3.

The remaining 12 acres of this WMA tract are temporary and seasonally flooded, broad-leaved deciduous, forested wetland. Most of this wetland type is located between the ROW and Sewell Road, which bisects the western end of the parcel. Two perennial drainages flow into this area and provide the hydrologic source for the wetland. Dominant vegetation is sweetgum, red maple, willow oak, water oak, green ash, and sugarberry.

The herbaceous-shrub stratum consists of deciduous holly, supple-jack, elderberry, trumpet creeper, saw greenbrier, and saplings of the dominant canopy trees.

This forested wetland serves numerous functions, including groundwater recharge and discharge, detention/removal/transformation of nutrients and contaminants, and maintenance of ecosystem integrity. These functions provide maintenance of base water flow for aquatic species, maintenance of water quality, maintenance of plant and animal populations (i.e., local biodiversity), and recreational opportunities such as small game hunting and birdwatching.

3.11 Floodplains

The Tennessee River 100-year floodplain is the area lying below elevation 557.3. Morgan County, Alabama, has adopted the 100-year flood as the basis for its floodplain regulations, and any development must be consistent with these regulations. There is no adopted floodway at this location. The limits of the 100-year floodplain are shown on Figure 2, page 9. The 500-year (or critical action) floodplain lies below elevation 558.0.

3.12 Recreation Resources

The Mallard-Fox Creek WMA is adjacent to the northern border of the Sewell Property portion of the study site. The WMA provides recreational opportunities including fishing, wildlife observation, and hunting.

The TVA Round Island Creek recreation area is located 1.7 miles north of the proposed barge terminal site on the opposite shore of Wheeler Reservoir. This area provides boating access, camping, swimming, and picnicking opportunities. The TVA Mallard Creek recreation area is located approximately 2.7 miles downstream of the site on the Mallard Creek embayment. This area offers boating access, swimming, and camping opportunities. Also located in this embayment, south of the recreation area, is Mallard Creek Fish Camp. This is the closest commercial boat dock to the project site and provides marine fuel service, mooring slips, and grocery supplies.

There are two private recreation areas located near the study site. The Amoco corporate recreation area is located on the left bank of Wheeler Reservoir, about 1.5 miles east of the proposed barge terminal. Also on the left bank, about 2.8 miles east of the site, is the 3M corporate recreation area. Both recreation areas provide picnicking and informal recreation opportunities for employees, families, and guests of the individual companies.

Because Huntsville and Decatur are nearby, there is much water-based recreation in the area, including fishing, skiing, and pleasure boating. These activities are expected to increase as more lakefront residential development occurs.

3.13 Aquatic Resources

The proposed dredge site for the barge terminal is located at TRM 297.5L. Previous studies (TVA, 1982) done prior to construction of the barge channel indicated that the substrate in this area consists of clay and silt that sometimes covers coarser material in the channel. Previous analyses of water and sediment samples taken adjacent to the dredge site indicate that there would be no adverse effects to aquatic life from organic or metals contaminants (TVA, 1980:10).

Native mussel resources adjacent to the proposed barge terminal site were surveyed in 1982, prior to construction of the existing barge channel. TVA divers collected mussels along 11 transects between TRM 297.2 and TRM 298.9. Nearly all of the area examined (approximately 4,750 square meters) consisted of clay or silt substrate. Of the eight mussel species collected, four are considered commercially valuable. Average mussel density was 0.03 mussels per square meter (3 mussels per 100 square meters of bottom). The conclusion of the 1982 survey was that construction of barge terminals along this shoreline would not affect substantial populations of any mussel species.

In TVA studies (1949-1994) at Wheeler Reservoir, a total of 78 fish species was identified. During the 1994 cove rotenone sampling around Wheeler Reservoir, 47 fish species were collected. The most abundant species were threadfin shad, bluegill, and warmouth. Ninety-four percent (by number) of the fish collected were young-of-year, 3 percent were of intermediate size, and 3 percent were harvestable.

USACE sediment studies performed in conjunction with construction of the barge access channel (USACE, 1989) detected two organic compounds, but neither was present in concentrations that would affect aquatic life. Tests for metals indicated levels that would not pose problems for aquatic life. Based on these results, further sediment testing was not undertaken in this assessment.

3.14 Terrestrial Ecology

The project site lies within the Western Mesophytic Forest Region as described by Braun (1950). More specifically, it lies within the Tennessee Valley portion of this region. The natural forests of this area are characterized by red oaks, southern red oaks, white oaks, shortleaf pine, and loblolly pine. Common forested wetland tree species in the region include water oak, willow oak, and sweetgum. Because of agriculture and industrial land uses, remaining forested areas on the study site are restricted to wetland areas and uplands with steeper slopes.

There are seven general vegetative cover types on the study site. They are hardwood-pine forest, bottomland hardwood forest, pine plantation, grassland, cropland, brush land, and barren land. Roughly 16 percent (123 acres) of the study site is forested, including some wetlands. Grassland, cropland, and brushy areas cover the remaining portion.

Hardwood-pine forest communities are restricted in the project area to sites not cleared for agricultural use (see grasslands and croplands below). These sites are typically too dry to support bottomland forests. Species observed in these stands include red oak, southern

red oak, white oak, sassafras, dogwood, winged elm, hackberry, shortleaf pine, red cedar, and Japanese honeysuckle.

Bottomland hardwood forests on the study site occur along creeks, drainage ditches, and certain portions of reservoir shoreline. These areas usually contain sweetgum, green ash, water oak, hackberry, red maple, willow oak, deciduous holly, poison ivy, multiflora rose, and elderberry.

Loblolly pine plantations cover less than 1 percent of study site. These stands have a sparse understory of winged sumac, winged elm, blackberry, and Japanese honeysuckle. These pine forests would eventually develop into hardwood-pine forests if left undisturbed for several decades.

Grasslands, mostly agricultural pasture and hayfields, are early successional open lands maintained by grazing or mowing. This plant community is composed of numerous grasses, sedges, herbs, and forbs, and has few woody species.

Croplands on the project site have been devoted to row crop agricultural use for many years. They presently occupy 519 acres (90 percent) of the Sewell Property. In recent years this land has been planted to cotton. None of the TVA property is currently farmed. Weeds found in these areas include cocklebur, Johnson grass, pigweed, nutsedge, dock, and foxtail grass. Because of aggressive weed control associated with cotton production, populations of these weeds are low. These fields are typically tilled and left barren or with minimal crop stubble during the winter.

Brushy areas on the study site are in various stages of early succession and contain native and exotic species common to the area and region. These areas include old fields and recently cleared forests, as well as farm roadsides and fencerows. Species frequently observed here include sweetgum, loblolly pine, red cedar, winged sumac, blackberry, winged elm, sassafras, goldenrod, Japanese honeysuckle, sericea lespedeza, partridge pea, privet, multiflora rose, and various sedges, grasses, and asters.

Barren lands are bare soil areas that lack vegetation year round. Such lands, occupying less than 1 percent of the study site, have resulted from grading and removal of topsoil so only subsoil remains.

The Mallard-Fox Creek EIS (TVA, 1980) lists animal species found in the vicinity of the WMA. Because of the relatively low diversity of plant communities on the study site and the limited forested area, the animal community present on the site has a relatively low species diversity. Common species present include the opossum, white-footed mouse, cotton rat, striped skunk, eastern cottontail, mourning dove, brown thrasher, common yellowthroat, northern cardinal, field sparrow, eastern meadowlark, red-winged blackbird, black racer, and American toad. White-tailed deer are fairly common. The highest species diversity is probably in the forested wetlands, which are described in Section 3.10. Most of the animal species present are widespread and common in the region, and no regionally rare or unusual wildlife communities are known from the site.

3.15 Aquatic and Terrestrial Threatened and Endangered Species

Within the last 20 years, two federal endangered mussel species--the pink mucket (*Lampsilis orbiculata*) and the orange-footed pearly mussel (*Plethobasus cooperianus*)--have been found in Wheeler Reservoir between Huntsville (TRM 330) and Guntersville Dam (TRM 349). Results of a survey of mussel resources adjacent to this site (TRM 297-298) indicate that very few mussels, and no representatives of endangered species, occur along the river frontage (TVA, 1982).

The Tuscumbia darter (*Etheostoma tuscumbia*) is an identified candidate for possible endangered or threatened species protection which occurs in springs and spring runs with abundant submergent plant growth. One site where this fish has been found is located in the Mallard Creek watershed. TVA aquatic biologists have examined the drainage channels and lowlands in the vicinity of the study site without finding the Tuscumbia darter or any potential Tuscumbia darter habitat.

No federally listed or proposed endangered or threatened plant or animal species are known to occur on the study site, according to the U.S. Fish and Wildlife Service (see Appendix B). Federally listed endangered animal species historically observed in the vicinity of the project area include gray bat (*Myotis grisescens*), Indiana bat (*Myotis sodalis*), and bald eagle (*Haliaeetus leucocephalus*). Federally listed threatened plant species known to occur in the vicinity of the project area include American hart's tongue fern (*Phyllitis scolopendrium* var. *americana*).

Gray bats use several caves located near Wheeler Reservoir. Although none of these caves are in the immediate project area, small numbers of gray bats probably forage along the shoreline fronting the project site. No Indiana bat caves or known summer roost sites occur in the immediate project area.

A small population of bald eagles (about five) winters on Wheeler Reservoir at the Wheeler National Wildlife Refuge. The Refuge is located about 10 miles east and upstream of the project site. The project site is likely within the typical movement range of these birds, although it is not regularly visited by eagles.

American hart's tongue fern inhabits limestone pits with cave entrances at their bases. No pits or caves are known to occur on the project site. The nearest locality for this species is approximately 30 miles southwest of the proposed mill site.

3.16 Navigation

Decatur is the most active urban port on the Tennessee River. Of the 18 river terminals on Wheeler Reservoir, 15 are located within 9 miles of the proposed project site. Terminals in the Decatur area handle about 2.8 million tons of waterborne commodities annually. About 75 percent of these commodities are in-bound from outside the Tennessee Valley. USACE records show that 6,838 loaded barges carrying 9,104,444 tons traveled upbound from Wheeler Lock in 1994. A total of 4,962 barges carrying 6,610,225 tons traveled downbound from Guntersville Lock. Thus, an estimated 11,800 barges transported

15,714,669 tons by the study site riverfront in 1994. Therefore, about four tows pass this stretch of the river each day.

There are three channels in Wheeler Reservoir that serve barge traffic in the vicinity of the proposed barge terminal. The main channel handles the through traffic. It is located near the north shore of Finley Island. An auxiliary channel (the Finley Island backchute) is located around the south side of Finley Island and is primarily used by Amoco to access the company's barge terminal. An access channel is located along the south shore of the reservoir and provides service to the Mallard-Fox Creek Industrial Park.

The proposed terminal facilities are to be located off the main channel on the dredged access channel. USACE dredged the channel in 1988-89 to serve the Decatur-Morgan County Port and backlying industrial park. The access channel connects with the main channel at TRM 297.2L and the Finley Island backchute channel at mile 1.7L. The access channel has a minimum width of 300 feet and a minimum depth of 11 feet at extreme drawdown elevation 549, which is adequate for 9-foot draft barges.

3.17 Existing Energy Resources

As an industrial area, the vicinity is well served with energy utilities. The Sewell Property is bisected, roughly east-west, by the Alabama-Tennessee natural gas pipeline. Electric transmission lines run north-south along the eastern property line (see Figure 2, page 9). These include the Browns Ferry-Trinity 500-kV line, the Browns Ferry-Trinity #2 500-kV, and the Huntsville-Decatur-Trinity Substation Loop. The Wheeler Dam-Guntersville Dam 161-kV line crosses the study site diagonally along the southern boundary. The Browns Ferry switchyard is approximately 3.5 miles away, and the Trinity 500-kV substation is within 2 miles, south of Highway 20. The Joe Wheeler Electric Membership Cooperative maintains a substation located in an inholding within the TVA sale property.

3.18 Property Values

The study site is bounded on the north by the Tennessee River (Wheeler Reservoir) and fronts on navigable water. To the east and southeast are existing facilities. The area to the west and south is currently in agricultural use and woodland. The topography of the proposed site is fairly level with small drains and branches. Considering its physical characteristics, the fact that there are no insurmountable legal restrictions on use of the land, and the economic demand for industrial land in the area, the highest and best use of this property and the surrounding area is for industrial and industrial supplement use.

Local residential waterfront property on a navigable channel is valued at about \$40,000 per acre in the current market. The Decatur-Morgan County Port Authority is asking \$40,000 to \$50,000 per acre for riverfront property and \$25,000 to \$35,000 per acre for backlot property at the Mallard-Fox Industrial Park. Agricultural land in the area typically sells for approximately \$1500 per acre. Residential prices in the vicinity of the study site vary considerably, depending on the type of residence, lot size, and amenities. The residential area along Sewell Road north of Highway 20 contains modest homes having an estimated average of \$60,000 or less.

CHAPTER 4 ENVIRONMENTAL CONSEQUENCES

4.0 Introduction

The potential environmental effects associated with each of the three alternatives are presented in this chapter. Discussion is organized by potentially affected resources and parallels the outline of Chapter 3. Within each section (i.e., potentially affected resource), the environmental consequences of adopting each of the three alternatives are discussed.

4.1 Effects on Cultural, Archaeological, and Historical Resources

Regardless of the alternative adopted, there would be no effects to NRHP-listed cultural, archaeological, or historical resources because none are located on the study site or on adjacent properties. The Alabama Historical Commission has concluded that the proposed project would have no effect on any cultural resources included in or eligible for nomination to the NRHP. No significant archaeological sites occur on the study site and, therefore, none would be impacted.

Primarily due to its atypical architectural style, the Dr. William Murphey house, located on the adjacent Glenn property, is listed on the Alabama Register of Landmarks and Heritage by the Alabama Historical Commission. The house is now structurally unsafe and has been abandoned. The southeast view from this house would be affected somewhat by the mill, which would be located approximately 2,000 feet away. These effects are not expected to be significant, as a line of trees located along the property boundary partially screens the house.

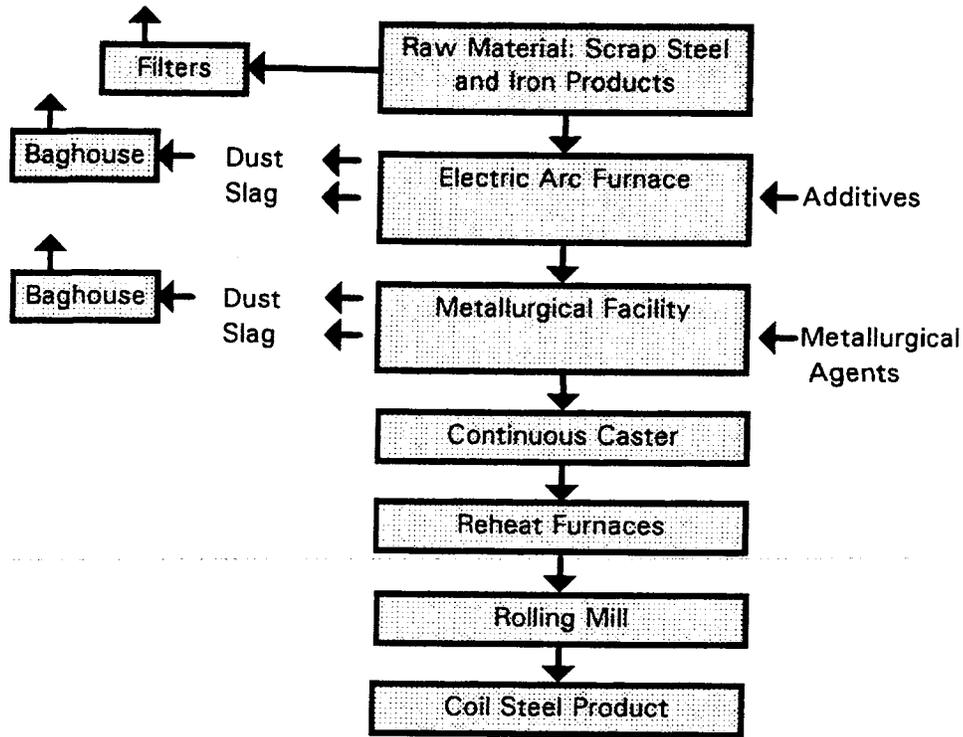
The mill layout would avoid the Minor Cemetery on the Sewell Property. Neither this cemetery nor the small offsite cemetery adjacent to the USACE dredge disposal area would likely be affected.

4.2 Air Quality Effects

Under Alternative A - No Action, the proposed barge terminal and the Trico steel recycling mill would not be built. Therefore, no change in air quality would result from adoption of this alternative.

If Alternative B or C were adopted, the proposed facilities would likely be built. Because construction and operation of the proposed barge terminal would produce only small amounts of air emissions, these operations are not expected to affect air quality.

The Trico steel manufacturing facilities would include: two 170-ton electric arc furnaces, two single station ladle metallurgical facilities (LMF), two single-strand continuous thin slab casters, slab reheating and holding furnaces and hot rolling line. Annual steel making capacity would be about 2.2 million tons when fully operational. The process for manufacturing recycled steel at the proposed mill is presented in the following diagram.



The Clean Air Act requires companies planning to construct new major stationary sources of air pollution to obtain an air pollution permit before commencing construction of permanent facilities. This new source review permit process requires that a source locating in an area meeting NAAQS undergo prevention of significant air quality deterioration (PSD) review. Anticipated air emissions for the proposed facility are listed in Table 6 below.

Table 6. Estimated Trico Process Air Controlled Emissions.

Pollutant	NAAQS Attainment Status	Potential Emissions (tons/year)
TSP/PM ₁₀	Attainment	206/177
SO ₂	Attainment	179
NO _x	Attainment	655
CO	Attainment	3305
VOC	Ozone Attainment	263
Pb	Attainment	2.7

Because the proposed Trico facility would be a major stationary source located in an area designated attainment for all criteria pollutants, Alabama's PSD rules and regulations would apply, as contained in Chapter 335-3-14-.04 "Air Permits Authorizing Construction in Attainment Areas." Regulated pollutant emission sources subject to PSD new source review must comply with the following criteria to obtain a permit to construct.

- Utilize best available control technology (BACT), taking into account control technology applicability, and energy; and environmental and economic impacts for each pollutant subject to PSD review.
- Conduct an ambient air quality analysis to demonstrate that the new pollutant emissions will not violate either the NAAQS or the allowed PSD increment.
- Analyze whether proposed emission increases would adversely impact soils or vegetation, impair visibility, or adversely impact any nearby Class I areas.
- PSD permit decision process requires issuance of a public notice and comment period before the state takes final action on the application.

All pollutant emitting processes would be equipped with air pollution control technology that meets or exceeds Alabama BACT requirements. Electric arc furnace fume capture would consist of a direct evacuation control to capture melting emissions and a canopy hood to capture charge and tap emissions. One large baghouse would collect the emissions from the two electric arc furnace direct evacuation controls and the melt shop canopy hood. The LMFs would be controlled by side draft hoods ducted to a dedicated baghouse. The two-strand tunnel furnace and the ladle preheaters and ladle dryers would employ low-NO_x design natural gas burners. Enclosures and filters would be used for materials handling. Storage silos for furnace dust would be equipped with bin vent filters. For the control of fugitive dust emissions generated by vehicular traffic, Trico would pave the main roadways and use dust suppressants along with watering.

ADEM published a set of computer modeling guidelines for PSD studies. These guidelines were followed in determining that the proposed facility meets the requirements of federal and state criteria, specifically:

- All Class I screening impacts at the Sipsey Wilderness are below the screening criteria, requiring no further analyses in Class I areas.
- Class II detailed modeling revealed that there is ample PSD increment margin to accept the Trico facility at its maximum operating rate.
- Detailed modeling revealed that emissions from the proposed Trico facility would not exceed the NAAQS.

4.3 Water Quality Effects

Selection of Alternative A would result in no construction activities and no change in site characteristics. Thus, adoption of Alternative A would result in no effects on water quality.

Construction of the proposed steel recycling mill and the barge terminal would proceed under Alternatives B and C. Under either of these two alternatives, water quality could potentially be affected by dredge and fill operations, construction activities, wastewater disposal, storage and handling of potential contaminants, and surface water runoff. Depending on the nature and management of these activities, both surface and groundwaters could be adversely impacted.

Dredging approximately 70,000 cubic yards to expand the barge fleeting area is expected to result in temporary and localized increases in turbidity. Dredging operations would be conducted in accordance with standard procedures for minimizing increased turbidity and adverse water quality impacts.

The method of dredge disposal would allow sufficient time for settling suspended solids prior to any release to Wheeler Reservoir. Fill for the docking facility would be clean, crushed aggregate. Best Management Practices will be employed in material handling and exposed areas to control the discharge of pollutants.

Surface runoff from the site may contain sediment or other contaminants from parking lots, material storage areas, or atmospheric deposition. Local erosion and temporary increases in turbidity are expected from construction activities on the site. To control these effects, Best Management Practices would be incorporated in the design and implementation of construction activities. These include sediment basins, vegetative cover, silt barriers, flow diversions, and buffer zones. These control measures would be routinely maintained to ensure proper operation. At least three detention basins totaling 40 acres and an oil-water separator would be used to remove potential pollutants from rainfall runoff. Detention basins would be designed to handle a 25-year storm event. Discharges would require permits and would be regulated by the ADEM.

Wastewater flows would be approximately 331,000 gallons per day of domestic sewage and industrial wastewater. Sewer service would be provided to the site by Decatur Utilities. Approximately 288,000 gallons per day of industrial wastewater would be piped to the Decatur Utilities treatment plant after it has been pretreated onsite. Approximately 43,000 gallons per day of domestic sewage would be piped to the treatment plant.

The current treatment plant capacity is 24 million gallons per day (mgd) with average daily flows of 16 to 18 mgd. Construction is underway to expand the plant to 36 mgd. The plant outfall is located at TRM 306.0.

Trico has not yet decided whether the excavation for the barge fleeting and mooring areas would be performed by hydraulic dredging or by mechanical dredging, using a clamshell or dragline. Because there is an existing disposal area located adjacent to the site, the use of hydraulic equipment would probably be the most cost-effective method. In hydraulic dredging, the dredged material slurry would be pumped through a discharge line into the disposal area. The solids would settle out in the disposal area and the clarified return water (which would have to meet state water quality standards) would be discharged back into the reservoir. If the material is excavated by mechanical methods, it would be loaded onto barges for transport to the shore for off-loading and then trucked to a disposal area. Both types of excavation would result in elevated turbidity levels in the vicinity of the dredging. Floating silt booms could potentially be used to contain the turbidity to the immediate dredging area.

4.4 Effects of Solid Waste

Selection of the No Action Alternative (Alternative A) would not result in the production of additional solid waste.

Construction and operation of the proposed steel recycling mill and the barge terminal would result if either of the action alternatives (i.e., Alternative B or C) were chosen. Solid waste production from mill construction and operation would be the same under either action alternative. Construction and operation of the barge terminal are not expected to produce substantial amounts of solid wastes. The waste generated at the mill would primarily include slag, scale, dust, and municipal solid waste. Most of the waste material generated at the mill would be reused and recycled. The amount of residual material that would be placed into local landfills would not be large enough to shorten landfill life expectancy.

Slag

The mill would produce approximately 320,000 tons of steel slag per year. This equates to about 960 tons per operating day. Slag is a by-product of the steel-making process. Major constituents of slag include calcium oxide and iron. Other components include silicon dioxide, magnesium oxide, aluminum oxide, and manganese oxide, along with traces of titanium dioxide and sulfur. Typically, slag does not exceed EPA Regulatory Maximum Allowable Concentrations and is not considered hazardous waste. The slag produced at the Trico mill is not expected to exceed these concentrations and is not expected to be hazardous.

Slag would be processed onsite to remove metal that could be reused at the mill as raw material. Slag would be temporarily stored onsite on a compacted earthen pad. A 30-to-45-day supply of slag would generally be stored awaiting transport offsite for reuse. Slag is in demand for reuse as highway and railroad building sub-base applications, due to its high compactability characteristics. Slag is also used in asphalt for top course paving.

Scale

Scale is oxidized metal that is removed from the hot steel strip with pressurized water. The mill would produce approximately 40,000 tons of scale per year or about 120 tons per operating day. The material would be transported offsite and used for industrial purposes.

Baghouse Dust

Baghouse dust is the solid material collected by air emissions control devices. Approximately 48,000 tons of dust per year or 144 tons per operating day would be collected at the mill. The material would be transported offsite where zinc, lead, and other metals would be reclaimed for reuse.

Municipal Solid Waste

Approximately 1 ton of municipal garbage would be generated per day at the mill. This material would be collected primarily from offices, the cafeteria, and other break areas. Waste would likely be disposed of at the Decatur and Morgan County Landfill by a local collector.

Because the study site contains two buildings (frame houses) and is not heavily forested, large amounts of demolition and land clearing waste produced during construction are unlikely. Construction waste would likely be taken to the Decatur and Morgan County Landfill for disposal by a local collector.

4.5 Land-Based Transportation Effects

Adoption of Alternative A would result in no effects to land-based transportation.

Adoption of either of the action alternatives (Alternative B or C) would likely result in construction of the proposed steel recycling mill. Any potential effects to land-based transportation would result from mill operation.

Road access to the mill site for operation would be via a new four-lane industrial driveway located approximately 2,000 feet west of Sewell Road (see Figure 2, page 9). Sewell Road would be closed at the southern border of the study site. A heavy-duty four-lane road would be needed to minimize pavement damage from heavy loads and allow both right and left turns by exiting vehicles. This new industrial driveway would eliminate mill traffic through the residential area along Sewell Road. The new driveway would likely have a fully actuated traffic signal that would not stop traffic on Highway 20 unless vehicles were waiting at the intersection to exit the site.

A construction phase access road would be constructed along an existing rail spur from Red Hat Road to the study site. Construction impacts would be due primarily to worker traffic. Conservatively assuming no transit service or carpooling, and no absenteeism, an average of about 520 cars would enter and leave the site each workday during construction. Construction work shifts usually begin and end earlier than other shifts, so peak hours of arriving and leaving traffic should not overlap with other peak hour traffic. There would probably be three shifts. Second and third shifts would likely be smaller than the first shift, and this would reduce congestion. There would be some traffic congestion due to construction trucks, but truck arrivals and departures would tend to be spread out during the day. The project would probably have its own batch concrete plant to avoid high concrete transportation costs, and this would reduce truck traffic. Some large components would probably be fabricated offsite and barged to the proposed site. These features of the project would keep traffic-related effects at a manageable level. During the few months of peak construction, impacts would be more noticeable.

Construction workers leaving the Trico site may be backlogged at the intersection of Highway 20 and Red Hat Road.

Transportation effects during operation would primarily be due to truck traffic. At maximum capacity, deliveries to the mill are projected to include 43 large trucks per day carrying carbon, lime, or scrap. Shipments from the mill are projected to be a maximum of 251 trucks per day of steel coils and 20 trucks per day of waste. Therefore, an average of 314 trucks per day would enter and leave the mill when it is operating at maximum capacity. This assumes no trucks would be used for both delivery and shipment, i.e., one leg of the round trip would be by an empty truck.

Truck traffic to most destinations to the south and east would use Highway 67 and I-65, whereas most destinations to the north would use Highway 20 and I-65. Truck traffic to the west would use Highway 20. Other impacted roadways would include I-565, US 31, and Highway 24. Major traffic arteries in the Decatur area are shown in Figure 4. The roadbed of each of these highways is designed to handle heavy trucks and the travel lanes are wide enough for large trucks. The increase in daily truck volumes would result in a slight decrease in the life cycle of these highway pavements.

About three-fourths of the trucks are expected to arrive at the site west-bound on Highway 20 and would have a free right turn into the site. About one-fourth of the incoming trucks are expected to be east-bound on Highway 20 and would need to turn left across oncoming traffic. These trucks might occasionally have to wait until exiting traffic would actuate the traffic signal. If that were determined not to allow sufficient time for enough trucks to turn, a left-turn arrow might have to be added. This would create additional delays for through traffic on Highway 20. A left-turn lane might be needed, as well, to avoid delaying traffic in the left through traffic lane.

Due to the degree of congestion on some of the area highways likely to be truck routes, the additional truck traffic could worsen the traffic flow, especially during the afternoon peak period. This could be particularly noticeable on Highway 20 in downtown Decatur. About half the departing trucks (135 per day) would use this route and need to turn left on Highway 31 to cross the river. Traffic congestion could occur on Belt Line Road, but only about one-fourth of the departing trucks would use that route, so effects would be less. Highway 67 east of Decatur to I-65 is a two-lane road, and part of it is a causeway across Flint Creek. Normally, traffic flows fairly smoothly because there are few intersections.

Traffic impacts from employees would be modest. At capacity, the mill would employ a total of about 320 production workers and 40-to-50 administrative and other workers. There would be an average of 80 production workers per shift on each of four shifts. Individual shifts run 12 hours on, and 12 hours off for four days, followed by four days off. Because administrative and other workers would work different schedules, on any given 12-hour shift there would be approximately 90 workers (i.e., 80 production and 10 administrative, etc.), for a total of 180 workers per 24-hour period. Conservatively assuming no transit service or carpooling and 5 percent absenteeism (for vacations, sick leave, sales calls, etc.), 180 workers would generate 342 trips per day (i.e., 172 in and 172 out). All employee traffic would arrive and depart from the site via Highway 20. The 12-hour shifts for most workers would not conflict with peak traffic period traffic. From Highway 20, the workers would disperse to a wider network of other highways, making contributions to other congested areas negligible. The small number of visitor and service vehicles would not have a noticeable effect.

One train per day would serve the mill via an extension to the Amoco Lead Line discussed in Section 3.5. Two locomotives would handle approximately 84 cars in each direction. Current plans call for the train to cross Highway 20 at approximately 9:30 a.m. going to the mill and to return around 1:30 p.m. As with the current train, these crossings would take about 10 minutes each, and because of its length, the train could block both Highway 20 and Belt Line Road for a short time. Due to the additional traffic likely to be on Highway 20 and Belt Line Road during crossings, more traffic would probably be blocked than is blocked by the current crossings. However, peak traffic periods are avoided.

4.6 Noise

If Alternative A were selected, there would be no noise effects.

Under Alternative B or C, the mill and barge terminal would likely be constructed and operated. There would be six major noise sources at the mill and related facilities. These include: (1) vehicular traffic to and from the mill, (2) compressors used at the air separation plant, (3) two electric arc furnaces, (4) railroad, (5) loading and unloading of materials at the barge terminal, and (6) transport of barges to and from the barge terminal.

Traffic

On average, an estimated 314 heavy trucks per day would enter and leave the mill when it is operating at maximum capacity, for a total average daily truck traffic of 628. Most of this truck traffic would occur during daylight hours. Medium trucks and passenger cars would generate an estimated total daily average of 422 trips. The total daily trips by trucks and cars entering and leaving the mill would be approximately 1,050. Receptors NO1, NO2, NO3, and NO4 (see Figure 2, page 9) are the noise receptors most sensitive to traffic increases. Determination of future operational noise levels was accomplished by adjusting monitored existing noise levels in the following manner: $FNL = MENL + (PFNL - PENL)$. PFNLs and FNLs include estimated Trico traffic noise. Noise sensitive receptors can be analyzed for potential noise impacts by comparing total predicted design year noise levels (FNLs) to monitored existing noise levels (MENL). Existing, predicted, and future noise levels at these receptors are shown in Table 7.

Table 7. Existing and Predicted Noise Levels in the Vicinity of the Proposed Trico Mill.

Receptor	Land Use	Monitored Existing Noise Level (MENL) Leq(10 min) (dBA)	Predicted Existing Noise Level (PENL) (dBA)	Predicted Future Noise Level (PFNL) (dBA)	Future Noise Level (FNL) (dBA)
NO1	Residence	53	53	54	54
NO2	Residence	67	68	69	68
NO3	Health Center	60	60	60	60
NO4	Residence	48	46	47	49

The FNLs in Table 7 represent up to a 1-dBA increase above MENLs. A change of 3 dBA is a "just noticeable" change in sound pressure level (Cowen, 1944), while a change in 1 dBA is usually not noticeable to most people.

The above analysis indicates that there would be minimal noise level increases resulting from Trico traffic anticipated at the receptors. This analysis is based upon Federal Highway Administration Title 23 CFR, Part 772 criteria.

Air Separation Plant

The plant yard boundary would be located 675 feet northwest of Receptor NO5. The air compressors would be located approximately 350 feet from the yard boundary and 1,025

feet from Receptor N05. A 25-foot-high earthen berm would be constructed along the southern boundary of the study site to attenuate the noise emanating from the air separation plant and the mill.

Average noise levels emanating from compressors are expected to range between 70 and 75 dBA at the air separation plant yard boundary. Noise dispersion and ground absorption are expected to attenuate plant noise. The night sound level (L_n) at Receptor N05 is expected to increase from 48 dBA to 51 dBA due to air separation plant noise. The day sound level (L_d) at Receptor N05 is expected to remain at 59 dBA. The predicted day-night average (L_{dn}) at Receptor N05 is 60 dBA. This L_{dn} is described as marginally compatible with the single-family home land use according to ANSI S12.40-1990 (Acoustical Society of America, 1990). A yearly average L_{dn} would be developed under Alternative C to enable long-term noise comparison.

Electric Arc Furnaces

The two 170-ton electric arc furnaces would be enclosed in the sheet metal mill building. Most of the noise generated by the furnaces that leaves the building would exit through the large car transfer doors, which face east-southeast toward the Mallard-Fox Creek Industrial Park. The nearest residence located in this direction is approximately 4,800 feet southeast of the mill. Furnace noise that leaves the mill would be attenuated primarily by dispersion and ground absorption to acceptable levels before reaching sensitive receptors.

Railroad

The rail car marshaling yard and most of the connecting lines would be located between the proposed mill and the Decatur-Morgan County Industrial Park. The nearest residence is located 3,800 feet southeast of the marshaling yard. Noise emanating from the yard and connecting rail lines would be attenuated primarily by dispersion and by ground absorption to acceptable levels before reaching sensitive receptors.

One train per day would serve the mill via an extension of the Amoco Lead Line. The western end of this line crosses Red Hat Road and traverses the southern boundary of the Mallard-Fox Creek Industrial Park. Two locomotives would handle approximately 84 cars in each direction. It is anticipated that the train would take approximately 10 minutes to cross Red Hat Road. Current plans call for the train to enter and exit the mill site between 9:30 a.m. and 1:30 p.m. The nearest residence is located approximately 2,300 feet south of the western end of the Amoco Lead Line. Adverse noise impacts to area residents are not anticipated.

Barge Terminal

A residential area known as Blacks Landing is located on the north shore of Wheeler Reservoir approximately 9,000 feet across the reservoir from the proposed barge terminal. The noise source at the terminal would consist primarily of the loading/unloading of material between barges and railcars and crane operation. Noise levels would depend on loading and unloading techniques. Steel coils shipped by barge will be placed, not dropped, into barges. Noise generation would be considered during the final design stages of the terminal. This noise is expected to be similar to the noise generated at the nearby

Mallard-Fox Creek Industrial Park Public Dock and the Amoco Barge terminal. Noise levels on Wheeler Reservoir from the proposed Trico barge terminal are not expected to increase significantly.

Barge Transport

Tow boats and harbor tugs that would handle Trico barges would produce noise similar to that generated by existing commercial river traffic. The increase in noise levels produced by Trico river traffic is not expected to impact noise sensitive receptors.

4.7 Visual and Aesthetic Effects

Under the No Action Alternative, the visual character of the site would remain unchanged, and there would be no visual or aesthetic effects.

Construction and operation of the proposed mill and related facilities resulting from the selection of either action alternative (i.e., Alternative B or C) would produce a number of visual impacts. However, because the area is located at the end of an industrial corridor, the general visual characteristics of the area would not be changed.

A visual barrier would be constructed along the southern boundary of the study site to screen the view of the mill from the residential area located along Sewell Road. The barrier would be a 25-foot-high earthen berm. The berm would be planted with trees and its top elevation would vary with the natural ground contours to present a more natural appearance. The visual anticipated effect at receptor V01 is shown as Figure 4. Locations of visual receptors are shown on Figure 2, page 9.

Some visual impact may be realized by local residents (V02, V03) and surrounding highway travelers from the increased number of truck trips per day.

The proposed mill would impact the view from the Dr. William Murphey House (V04). The house is not suitable for habitation due to its poor condition. Effects to this structure were discussed in Section 4.1.

The view looking south from the Mallard-Fox WMA (V05, V06) would be impacted; however, most of this view would be screened by trees and topography. The mill would be located approximately 2,000 feet from the WMA property line.

Reservoir users (V07) and residents of Blacks Landing would realize some visual impacts as a result of proposed barge terminal operations and increased barge traffic maneuvering in the reservoir adjacent to the terminal. These impacts are not anticipated to be significant due to the existing presence of barge terminals and barge traffic in this area. Nighttime lighting of the proposed mill and terminal would be visible to some nearby residents. Nighttime illumination would be similar to that from other local industrial facilities.

Because the proposed mill would be required to comply with stringent visible air emission standards for new steel mills, there would likely be little or no pollutant emissions during normal operations that would be visible to a nearby offsite observer.

4.8 Socioeconomic Effects

Adoption of Alternative A would not result in any socioeconomic effects.

Construction and operation of the proposed steel recycling mill and associated facilities resulting from adoption of either Alternative B or C would have beneficial socioeconomic effects.

Construction is expected to occur from June 1995 through February 1997. Onsite work force is estimated to average about 520 jobs, with a peak of 905 in August 1996. These jobs would pay an average of about \$38,000 per year, for a total payroll over the entire construction period of approximately \$35 million. Mill operation would result in the direct creation of 320 permanent jobs by 1997. The average wage would be about \$50,000 per year, for a total payroll of about \$16 million. These jobs, particularly those in operation, would be relatively high-paying for the labor market area. (These wages are not per capita income. To calculate per capita income, the average household size of the employees and all other household income would have to be known, and these cannot be determined at this time.)

These direct jobs and wages would lead to the creation of indirect jobs and incomes, as money is spent on a variety of indirect expenditures (equipment and supplies to the mill, employee consumer spending, etc.). Based on TVA experience, each direct job would lead to about two indirect jobs in the labor market area, for a total of about 640 jobs. Each dollar of direct wages leads to about \$2.50 in indirect income in the labor market area, for a total of about \$40 million per year. Only the operation jobs were considered in this calculation because of the temporary nature of the construction jobs.

These direct and indirect jobs and incomes would be important to the individuals involved, probably raise per capita income slightly, and probably lower the unemployment rate slightly. However, the number of jobs created and the income effects would be insignificant in comparison to the size of the civilian labor force and total income in the labor market. The relatively small number of jobs would mean few in-movers and thus no significant increase in demand for housing, community services, and infrastructure (police, firefighters, schools, water and sewer service, etc.) beyond those increases currently being made (such as the Decatur wastewater system improvements discussed in Section 4.3) or which would be planned by local governments and developers under conditions without the project. There would be no significant change to the relative percentages of the categories of employment in the labor market area's economy.

4.9 Changes in Land Use Patterns

Under Alternative A, land use on the TVA property and the Sewell Property would remain unchanged, at least for the foreseeable future.

Construction of the mill resulting from adoption of either action alternative would convert the entire Sewell Property portion of the study site from farming to industry. This would be a loss of 0.16 percent of the farmland in Morgan County, according to the Farmland Conversion Impact Rating (see Appendix C). Based on this rating, the site is relatively suited for conversion due to the nearby industrial land use and utility service and because conversion would have little impact on the area's agriculture. Therefore, the impact would be insignificant.

4.10 Effects on Wetlands

Under the No Action Alternative (Alternative A), disjunct farmed wetlands on the Sewell Property would continue to be periodically disturbed and negatively impacted by agricultural operations. These actions would keep wetland function and associated value at a low level. Wetlands on the 17 acres on the WMA would continue to provide a similar level of functions and associated values. Over the long term, continued intensive agricultural operations on the adjacent private property may begin to degrade some of these functions and values if proper nonpoint source sediment abatement control measures are not implemented.

Adoption of Alternative B or C would result in construction of the proposed facilities. As described in Section 3.10, approximately 50 acres of wetlands occur on the Sewell Property. Trico made several adjustments to the original plant layout to avoid wetland areas to the extent practicable. As proposed, the final locations of the access road, stormwater retention, and railroad spur facilities has avoided about 48 acres (96 percent) of the onsite wetlands. Consequently, 1.98 acres of lesser value scrub-shrub and emergent wetlands would be impacted and this would be minor and insignificant. Because potential wetland impacts have been reduced to the extent possible and there is no practicable alternative that would avoid these impacts, the proposed activities would comply with Executive Order 11990.

Under these two action alternatives, 17 acres of WMA land would be conveyed to Trico. Of this total, 12 acres are forested wetland that would not be directly affected by the project. This land, including the 12 acres of wetland, is located between the mill site and the proposed barge terminal. The area is bordered on the east by the Browns Ferry-Trinity #2 500-kV transmission line and the Norfolk-Southern railroad spur to Decatur-Morgan County Port. The Mallard-Fox Creek WMA adjoins this 17-acre parcel to the west.

Currently, there are no development activities planned that might affect this area. However, there may be potential needs in the future for new or improved access to the proposed barge facility. Because much of this tract lies below the 560-foot contour and surrounds an unnamed tributary of Fox Creek and Wheeler Reservoir, any future development that might impact wetlands in this area would require Section 26a approval from TVA as well as a Section 404 permit from USACE. Strategies for minimizing or mitigating wetland impacts would be developed in the course of review for those approvals. Consistent with Executive Order 11990, TVA would provide notice of these requirements.

Under Alternative C, a total of 1.98 acres of wetlands would be impacted directly by construction of the mill and its associated facilities. Adoption of this alternative would result in the same wetland effects as those under Alternative B.

4.11 Effects on Floodplains

If Alternative A (No Action) were adopted, the proposed mill and associated facilities would not be constructed. The floodplain areas described previously in Section 3.11 would not be impacted under this alternative. There would be no change in existing conditions.

If either action alternative (i.e., B or C) were adopted, the proposed barge terminal would be constructed. Only material needed for the dock facility, the mooring cells, and elevating the access road and railroad would be placed within the limits of the 100-year floodplain. Dredge material would be placed in the dredge disposal area used for the USACE barge channel construction project. This disposal site is located outside the limits of the 100-year floodplain at about elevation 570 and is protected by a dike at approximately elevation 582. Material excavated during construction of the rail spur and access road would be used as fill material for other parts of the project, which would prevent additional fill from being brought in from offsite.

The proposed project would result in the loss of about 4.2 acre-feet of power storage and about 5.8 acre-feet of flood control storage. Loss of flood control storage is associated with the construction of the barge loading facilities. This project would not involve placement of fill on land except as needed for elevating the access road and railroad. Elevating the access road and railroad is necessary because of slope requirements for the rail line and the need to have the loading deck at an elevation that would allow for operations during lake fluctuations. There would be no other land disturbance below the Flood Risk Profile elevation.

4.12 Recreational Effects

The major recreational activities occurring in the vicinity of the study site are informal bank fishing (including some at the site of the proposed terminal), wildlife observation, and limited hunting. Adoption of the No Action Alternative would allow these informal public recreational activities to continue until such time that industrial development occurs. The current industrial land use designation on the site limits any significant long-term public recreation benefits.

Industrial development will result in the immediate future from adoption of either action alternative (i.e., Alternative B or C). If and when this industrial development occurs on the study site, informal land-based public recreation opportunities would be lost, but it would not significantly impact the availability of public recreation opportunities in the general project area.

Under Alternative C, as with Alternative B, the planned industrial development would eliminate current land-based informal recreation use on the proposed plant site and would

remove 17 acres from the WMA. However, approximately 224 acres would be donated to the WMA under either Alternative B or C, and this donation would more than compensate for the loss.

Effects of increased barge traffic on recreational boating are expected to be minor. None of the alternatives is expected to result in significant direct, indirect, or cumulative impacts on either the water-based or land-based recreational activities associated with any public, private, or commercial recreation facility in the project area.

4.13 Effects on Aquatic Resources

Adoption of this Alternative A (i.e., no action) would result in no additional effects on aquatic resources.

Adoption of Alternative B or C would likely result in the construction and operation of the proposed barge terminal, which would be the most likely source of effects to aquatic resources.

Dredging activities for the barge terminal facilities would cause some mortality among immobile benthic organisms, including mollusks, but this mortality would be restricted to the general area of activity. Sedentary organisms would likely recolonize the area after construction was completed. Mobile organisms such as fish and turtles would leave the area temporarily during dredging activities. There could be a temporary inhibition of feeding activity by fish, fish driven away by gill irritation, and death of smaller and younger fish due to gill clogging.

The barge terminal facilities would have some positive effects on fish. Newly located structures such as riprap and pilings would create new habitat and substrate for benthic organisms that serve as food for fish. This habitat would provide a protected retreat for fish. During barge moorings and unloading activities some organisms may temporarily move out of the area. Prop wash from vessels propelling the barges may dislodge some organisms from the dock piling or sediments near the dock, but this effect would be short-lived and restricted to the immediate dock area. Fish and fishing use would be temporarily affected during dredging, riprapping, and other construction activities.

The proposed terminal area excavation would result in the physical deepening and disturbance of approximately 5 acres of marginally productive shallow water bottom substrate. The existing gravel and clay substrate would be removed and deepened, resulting in a temporary loss of seasonal protective cover and feeding areas for benthic organisms such as crustaceans, aquatic insects, and small mollusks. Such action would cause a temporary disruption of the aquatic food chain and a temporary decrease in the biological productivity of the proposed site. However, within a relatively short period of time, similar benthic communities should become reestablished at the site, resulting in only temporary adverse impacts upon aquatic communities.

Adverse impacts to seasonal shallow water habitats within the impact area could be minimized under Alternative C, as the applicant would be required to the extent practicable to dredge only after the spring spawning period ends (June 1). This restriction would

minimize turbidity and sedimentation impacts during the fish spawning season. Overall, the proposed dredging would have minor adverse impacts upon the aquatic environment of the area if accomplished during the specified period.

Treated stormwater would discharge into unnamed tributaries of the Fox Creek embayment in accordance with an approved NPDES stormwater permit.

4.14 Effects on Terrestrial Ecology

Under the No Action Alternative, the land use of the area would remain principally agricultural. The existing cover types would continue, with the ratio of forested land to open land remaining essentially constant. No direct, indirect, or cumulative impacts to the area's plant communities would occur. No impacts to the wildlife community would occur under the No Action Alternative.

Selection of Alternative B would result in the loss of some of each vegetative cover type described in Section 3.14. However, plant communities and vegetation types that would be impacted by the project are common and representative of the region. No vegetation present is significant or uncommon from a local or regional perspective. Direct, indirect, and cumulative impacts to this resource from construction or operation of the proposed Trico mill are expected to be minor and regionally insignificant.

Approval of Alternative B would result in a reduction in the populations of wildlife species present on the Sewell Property and on the TVA property proposed for conveyance. The magnitude of this impact would, for most species, be proportional to the amount of their preferred habitat lost. Because the species present are generally widespread and common in the region, the results would not be significant.

Selection of Alternative C would result in the loss of some of each cover type described in Section 3.14. However, the plant communities and vegetation types that would be affected by the project are common and well represented throughout the region. No sensitive or uncommon vegetation types are present on or near the proposed mill site. Therefore, direct, indirect, and cumulative impacts to this resource from construction or operation of the steel recycling mill are expected to be minor and regionally insignificant.

Approval of Alternative C would impact wildlife populations on the study site in a manner similar to those described for Alternative B. However, fee transfer of the 224-acre donation tract to the ADCNR for inclusion in the WMA would offset these losses, including the removal of 17 acres from the WMA. This donation land would expand the WMA by 15 percent and would provide land suitable for management of upland small game and nongame wildlife. Impacts to terrestrial species under Alternative C would be the same as those under Alternative B.

4.15 Effects on Aquatic and Terrestrial Threatened and Endangered Species

No endangered or threatened terrestrial or aquatic species are known to occur on or near the proposed barge terminal or the proposed steel recycling mill. Therefore, no effects on

endangered, threatened, or protected species are expected to occur from adoption of the No Action Alternative or from construction or operation of the proposed barge terminal or mill.

Project development would result in minor losses of bald eagle, gray bat, and Indiana bat foraging habitat. However, direct, indirect, and cumulative impacts to these species from construction or operation of the mill would be insignificant.

4.16 Effects on Navigation

Should Alternative A be chosen, there would be no impacts to navigation. The river terminal facility would not be constructed and barge traffic would continue at the current rate.

Should either Alternative B or C be selected, the proposed river terminal facility would be constructed on the access channel opposite TRM 297.3L. As proposed, the terminal facility would consist of a 200-by-400-foot concrete dock. The dock would be formed by a series of 22 sheet pile cells, each 30 feet in diameter. The deck elevation would be at 565, 9 feet above normal maximum pool elevation 556, and 7.7 feet above the 100-year flood elevation of 557.3. Seven mooring cells, each 16 feet in diameter, would be constructed. Four additional 16-foot-diameter cells would be constructed immediately downstream for fleeting purposes. All cells would have a top elevation at 565.

Under the proposed operating plan, approximately three to six barges of scrap steel and pig iron would be off-loaded per day at the facility. Mobile cranes would be used to transload the raw material from the barges to rail cars for transport to the mill. The finished product, flat rolled steel, would be railed, barged, and trucked to market. Approximately three to six barges of finished steel coils and waste materials (i.e., slag, scale, and dust) would be loaded daily for shipment on the Tennessee River.

Barges moored at the downstream end of the site would extend into the access channel. There should be no obstruction to navigation because the access channel is wider at this location. To eliminate the risk of navigation impacts, barges moored at the terminal would be restricted to two barge widths (70 feet) from the docking face. Because the dredged harbor area will be wider on the downstream end, barges can be moored four wide (140 feet from the mooring cells) at the fleeting area without obstructing navigation. Any impact on commercial navigation would be limited to tows serving the adjacent terminal located about a half mile upstream. Towboat pilots would likely have to reduce speed and use more caution when passing moored barges at the planned terminal. However, the procedure would not be unlike operations in the vicinity of other river terminals on the Tennessee River.

Additional dredging would be necessary to provide adequate water depth in the proposed barge harbor area from the dock face to the access channel. The dredged material, approximately 70,000 cubic yards, would be placed in a nearby dredge disposal area that was used by USACE in 1988-89 for the barge access channel project.

Based on company projections, approximately 870 barges would be delivered to the proposed barge terminal and 870 barges would leave the terminal yearly. These barges would carry approximately 1,322,000 tons per year. Assuming this traffic would primarily move downstream, the annual tonnage locked through Wheeler Lock would increase to about 12.7 million tons. The increased total tonnage would represent about 42 percent of the lock's capacity. Based on projected tonnages, the number of tows that would pass this stretch of the river would increase by about two per week. This increase in barge traffic would increase the chance of an accident between commercial and recreational vessels by a *de minimis* amount. Such accidents are rare on the Tennessee River system because of the width of the reservoirs, clearly defined navigation channels, and the safety record of the towing industry.

An increase in barge traffic would have a positive economic impact on the waterborne transportation industry. Wheeler Lock would be more fully utilized and the additional towing service involved would benefit existing terminals in the Decatur area. Potential adverse impacts on navigation are expected to be insignificant under Alternative B or C.

4.17 Effects on Energy

Under Alternative A, the proposed mill would likely not be built. Therefore, under this alternative there would be no change from existing conditions and no additional demand for electric power.

If Alternative B or C were adopted, Trico would likely build the proposed steel recycling mill. The expected load for this entire facility, including the electric arc furnaces, is about 240 MW. This load is large but is within the range of the direct-served industrial loads which TVA now serves. The arc furnace load requires the facility to be located near a strong electrical source. The proximity of the Browns Ferry-Trinity #2 500-kV transmission line, the Browns Ferry switchyard, and the Trinity substation would satisfy this requirement.

The size of the load is less than 1 percent of TVA's installed generating capacity and would not impose any new operating conditions on that system. Likewise, the expected mix of generation by type of capacity would not be altered significantly because of the additional load. At some time in the future, additional generating resources may be required to serve this load and other new loads on the TVA system. TVA is in the process of preparing an environmental impact statement on alternative strategies to meet future demands on its power system. The draft and final of this EIS are scheduled to be released in July and December 1995, respectively.

There are three basic transmission alternatives for connecting the Trico plant to the TVA system: a single tap connection to the Browns Ferry-Trinity #2 500-kV transmission line with no line switches; a tap connection with line switches on either side of the tap point; and a loop connection of this line. The loop connection would create a Browns Ferry-Trico line and a Trico-Trinity line.

All three would result in a line length of about 1500 feet, although the loop connection would result in a second line of equal length parallel to the first. These two lines would be

located on a right-of-way 325 feet wide separated by 150 feet. The single lines for the tap alternatives would be located on a 175-foot-wide right-of-way. The loop connection is shown on the plant diagram, Figure 2, page 9.

The loop and taps would utilize the same type laced-steel, self-supporting structures and would be located on land included in the plant area that is being assessed by this document. All of the alternatives would require that two or more large structures be placed in the existing line. The alternative that includes a tap line with line switches could require a fenced area on the existing transmission line right-of-way to enclose the switches. The line would utilize a bundle of three conductors per phase and an overhead ground wire over each of the two outside phases. Structure heights would be determined by terrain and engineering constraints.

Tangent structures would be built using a buried lattice-work type foundation at each of the four legs. Structures at angle points will have concrete foundations. Construction crews would utilize Best Management Practices to control erosion. The proposed line route or routes would cross an open area. No clearing of trees is expected to be necessary, and impacts associated with constructing and operating the lines would be minimal.

The transmission of electric energy does produce electromagnetic fields (EMF). Several studies have concluded that there is a statistical association between EMF exposure and some types of cancer. Other studies have found no association. No studies have found a cause and effect relationship. Research into the potential health effects of EMF continues and TVA is monitoring results.

4.18 Effects on Property Values

Because the highest and best use of the land in the general area of the proposed project is industrial in nature, use of the site as part of a steel-producing facility would be compatible with current and possible uses of adjacent land. This being the case, acquisition of the site by a steel company would have negligible effects on the value of commercial or agricultural property in the vicinity.

Potential effects to residential property values in the immediate area are speculative and would depend primarily on market demand. However, if residential property in the area were rezoned industrial, property values would likely increase.

4.19 Unavoidable Adverse Effects

Adoption of Alternative A (No Action Alternative) would result in no unavoidable adverse effects. Adoption of either of the action alternatives (i.e., B or C) would result in unavoidable adverse effects to wetlands. Slightly less than 2 acres of wetlands would be impacted adversely (i.e., filled) by rail and access road construction. Potential wetland impacts have been discussed earlier in Section 4.10.

4.20 Relationship of Short-Term Uses and Long-Term Productivity

Under Alternative A, the study site would remain essentially unchanged. Although current land uses are primarily for agriculture, the study site would retain its industrial designation. Eventually, the site will be used for commercial or industrial purposes, as this appears to be the highest and best use of the property (see Section 3.18).

In the long term, conversion of the study site to an industrial site appears inevitable. Adoption of either Alternative A or B would hasten that conversion. In the short-term, farmland and some of the visual and aesthetic amenities afforded by open land would be lost. In the long term, local economic growth associated with new industry would result. Because the proposed industry would produce steel from recycled sources, some environmental benefits (e.g., avoidance of new mining, creation of new markets for scrap metal, and the removal of ferrous metals from the waste stream) would result.

4.21 Irreversible and Irretrievable Commitments of Resources

Adoption of the No Action Alternative would not result in irreversible or irretrievable commitments of resources.

Irreversible commitments are those that cannot be reversed, except over an extremely long period of time. If either action alternative were chosen, there would be an irreversible commitment of fuels associated with construction activities.

Irretrievable commitments are those that are lost for a period of time. Under either action alternative, there would be irretrievable resource commitments. Construction of the proposed mill would convert onsite farmland to other uses. The visual and aesthetic character of the immediate area would be changed somewhat by construction of the proposed mill, the barge terminal, and transportation facilities. Approximately 2 acres of wetlands would be filled. Approximately 5 acres of river bottom would be dredged to accommodate barge traffic.

**CHAPTER 5
LIST OF PREPARERS**

This environmental assessment was prepared cooperatively by TVA and USACE. Information was supplied by TriLine Associates, Inc., and other consulting firms as directed by Trico. The following persons participated in the preparation of the document.

Tennessee Valley Authority

Hugh S. Barger, Environmental Engineer, Chattanooga, Tennessee
Carline C. Bryant, Land Use Specialist-Navigation, Knoxville, Tennessee
J. Leo Collins, Botanist, Norris, Tennessee
Michael R. Crowson, Recreation Planner, Norris, Tennessee
Stanford E. Davis, Environmental Scientist, Norris, Tennessee
J. Bennett Graham, Senior Archaeologist, Norris, Tennessee
Wesley K. James, Biologist-Wildlife, Norris, Tennessee
John J. Jenkinson, Senior Malacologist, Chattanooga, Tennessee
Janice G. Martin, Word Processor, Norris, Tennessee
Charles P. Nicholson, Zoologist, Norris, Tennessee
Samuel C. Perry, Landscape Architect, Norris, Tennessee
S. Berry Stalcup, Biologist, Muscle Shoals, Alabama
James F. Williamson, Jr., Environmental Scientist, Norris, Tennessee

U.S. Army Corps of Engineers

J. Ruben Hernandez, Project Manager, Nashville, Tennessee
William L. James, Project Manager, Nashville, Tennessee
Carl R. Olsen, Biologist, Nashville, Tennessee

TriLine Associates, Inc.

Daniel R. Burgandy, P.E., Senior Bridge Engineer, McMurray, Pennsylvania
Roger E. Carrier, PhD., P.E., President, McMurray, Pennsylvania
David J. Cooper, Wetlands Specialist, McMurray, Pennsylvania
Edward T. Gergerich, P.E., Senior Traffic Engineer, McMurray, Pennsylvania
Brenda L. Moody, Environmental Technician, McMurray, Pennsylvania
Raymond Kim Pritchard, Senior Environmental Scientist, McMurray, Pennsylvania
John W. Purvis, Senior Geologist, McMurray, Pennsylvania

The Galbreath Company

Harry A. Henshaw, Vice President, Cleveland, Ohio

Porter, White & Company, Inc.

Thomas N. Carruthers, III, Vice President, Birmingham, Alabama

Lockwood Greene Engineers

Robert V. Chalfant, P.E., Manager Air Quality Services, Atlanta, Georgia
David J. Matlock, P.E., Civil Engineer, Knoxville, Tennessee
Rodney S. Watson, Project Engineer, Knoxville, Tennessee
John B. Wharton, P.E., Senior Project Manager, Knoxville, Tennessee

Energy & Environmental Management, Inc.

Larry L. Simmons, P.E., Principal, Murraysville, Pennsylvania

**CHAPTER 6
LIST OF AGENCIES AND PERSONS CONTACTED**

Lee A. Barclay, Ph.D., Field Supervisor
U. S. Fish and Wildlife Service

Timothy C. Boyce, State Forester
Alabama Forestry Commission

Jimmy Butts, Director
Alabama Department of Transportation

Tom Hill
Morgan County Economic Development Association

Robert Lunsford, Director
Alabama Department of Economic and Community Affairs

James Martin, Commissioner
Alabama Department of Conservation and Natural Resources

Ronald Mathews, Director
North Central Alabama Regional Council of Local Governments

Gary Moody
Alabama Department of Conservation and Natural Resources

F. Lawrence Oaks, Executive Director
Alabama Historical Commission

Mike Roberts
North Alabama Industrial Development Association

John M. Smith, Director
Alabama Department of Environmental Management

Charles Snider, Jr., Director
Alabama Development Office

Jack Thompson, Commissioner
Alabama Department of Agriculture and Industries

Thomas C. Welborn, Chief
Wetlands Protection Section
U. S. Environmental Protection Agency

REFERENCES

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APPENDIX A

**Trico Steel Company, L.L.C.
Siting Criteria**

Trico and its site selection consultants--The Galbreath Company; Porter, White & Company; and TriLine Associates, Inc.--collected extensive data on over 50 sites in Alabama, Indiana, Kentucky, Louisiana, Mississippi, and Tennessee. Each site was analyzed for its suitability for a steel recycling mill. Some of the site selection criteria included:

- Proximity to market and suppliers
- Adequate property size, minimal number of landowners, and ability to acquire additional property
- Favorable topography
- Proximity to navigable waterway, major rail carriers, and interstate highway system
- Availability of adequate electric power and natural gas
- Availability of water and sanitary sewer
- Availability of skilled labor force
- Air quality attainment status
- Minimal presence of streams and wetlands
- Absence of contamination
- Absence of historic structures
- Ability to construct a barge terminal

The list of over 50 potential sites was reduced to 8 sites in Alabama, Kentucky, Louisiana, Mississippi, and Tennessee using these criteria. It appears that the alternate sites considered would likely have equal or greater impacts to waters of the United States and other environmental resources.

APPENDIX B

Letters Responding to USACE Public Notice

~~XXXXXXXXXX~~

P. O. Box 1304
DECATUR, ALABAMA 35602
April, 4, 1995

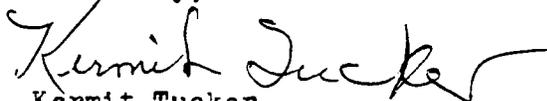
US Army Corps of Engineers
Regulatory Branch
P.O. Box 1070
Nashville, Tn 37202 - 1070

Gentlemen:

In my opinion it is to everyone's best interest to grant a permit to Trico Steel Company for their proposed barge terminal at mile 297.5, left bank, Tennessee river.

Since the proposed facilities will in no way affect the natural integrity of the area, the proposed donation of 224 acres to Alabama Department of Conservation and Natural Resources should be denied.

Sincerely,


Kermit Tucker

cc: Director, Al Dept. of Environmental Management
Julian Price Jr. Decatur Mayor

APR 07 1995



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET NE
ATLANTA, GEORGIA 30365

APR 18 1995

Colonel John D. Norwood
District Engineer
U.S. Army Corps of Engineers
Nashville District
ATTN: J. Ruben Hernandez
P.O. Box 1070
Nashville, TN 37202-1070

SUBJ: Public Notice 95-32, Trico Steel Company, L.L.C.

Dear Colonel Norwood:

This is in response to the above referenced public notice which proposes to construct and operate a steel recycling mill. Construction of the plant, railroad, road widening, and stormwater detention ponds would disturb approximately 1.98 acres of wetlands (.13 acres farmed, 1.06 emergent, .79 shrub-scrub). The project is located at mile 297.5, left bank, Tennessee River, near the cities of Trinity and Decatur, in Morgan County, Alabama. The Environmental Protection Agency (EPA) has reviewed the public notice and offers the following comments.

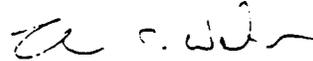
As mitigation for the impacts, the applicant proposes to utilize the discharge from a stormwater detention pond (Pond Cell A) to provide hydrology to a small wetland system (Pond Cell B). Stormwater will pass through an oil/water separator and Cell A before entering Cell B. Cell B will be constructed to detain a 10-year storm event and will likely be flooded an average of twice per year but not for an extended period of time. Further, the applicant proposes to donate a 224-acre tract adjacent to Mallard-Fox Creek Wildlife Management Area (WMA) which would be managed by the State of Alabama as part of the WMA. While we have no serious objection to this proposal overall, we would like to take this opportunity to present the shortcomings of the stormwater aspect of the mitigation. Since Cell B would only be flooded for short periods of time on an occasional basis, we are concerned about the probable success of the mitigation. The donated parcel appears to contain wetlands and we would rather the applicant and the Corps investigate the possibility of restoring/enhancing wetlands in the parcel. We believe this scenario may provide for more successful mitigation and improve the value of the donated parcel.

APR 19 1995

-2-

Thank you for the opportunity to comment on this public notice. Should you have any questions regarding this response please contact Mark LaRue at the above letterhead address or at (404) 347-4015, Ext 6571.

Sincerely,



Thomas C. Welborn
Chief
Wetlands Protection Section



United States Department of the Interior

FISH AND WILDLIFE SERVICE

446 Neal Street
Cookeville, TN 38501

April 21, 1995

Lt. Colonel J. David Norwood
District Engineer
U.S. Army Corps of Engineers
P.O. Box 1070
Nashville, Tennessee 37202-1070

Attention: Mr. J. Ruben Hernandez, Regulatory Branch

Dear Colonel Norwood:

The Fish and Wildlife Service has reviewed the public notice listed below. No significant adverse effects to fish and wildlife, their habitats, and human uses thereof are expected to result from the proposed work or activity.

Based on our records, it is our belief that there are no federally listed or proposed endangered or threatened plant or animal species in the impact area of the project. In view of this, we believe that the requirements of Section 7 of the Endangered Species Act have been fulfilled and no further consultation is needed at this time. However, consultation should be reinitiated if: (1) new information reveals that the proposed project may affect listed species in a manner or to an extent not previously considered, (2) the proposed project is subsequently modified to include activities which were not considered during this review, or (3) new species are listed or critical habitat designated that might be affected.

These constitute the comments of the U.S. Department of the Interior in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), and are consistent with the National Environmental Policy Act of 1969.

<u>Permit #</u>	<u>Date</u>	<u>Applicant</u>	<u>Due Date</u>
95-32	03-31-95	U.S. Army Corps of Engineers (USACE) Tennessee Valley Authority (TVA) and State of Alabama	04-29-95

Sincerely,

Lee A. Barclay, Ph.D.
Field Supervisor

xc: Director, ADEM, Montgomery, AL

BSC:sjs

APR 24 1995



FOB JAMES, JR.
GOVERNOR

STATE OF ALABAMA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
64 NORTH UNION STREET
MONTGOMERY, ALABAMA 36130

April 26, 1995

JAMES D. MARTIN
COMMISSIONER
BOB MACRORY
ASSISTANT COMMISSIONER

Mr. J. Reuben Hernandez
U.S. Army Corps of Engineers, Nashville District
Regulatory Branch
P. O. Box 1070
Nashville, TN 37202-1070

RE: Joint Public Notice 95-32 [USACE, TVA, and State of Alabama (ADEM)]
Application No. 53,937 (Trico Steel Company, L.L.C.)
Tennessee River (Wheeler Reservoir), Morgan Co., Alabama

Dear Mr. Hernandez:

The Alabama Department of Conservation and Natural Resources accepts the donation of the 224-acre parcel located adjacent to the Mallard-Fox Creek Wildlife Management Area and approves the removal of 17 acres of leased property from Mallard-Fox WMA, provided that:

- (1) Satisfactory access to the 224-acre parcel is provided, as discussed at the joint meeting between the developers, regulatory and resource agencies in Montgomery on March 13, 1995;
- (2) No federally-listed or candidate species, and no state protected species or species of concern is adversely impacted;
- (3) Property owner, at its cost, will, prior to conveyance, provide the Department with an environmental assessment (EA) in form satisfactory to the Department;
- (4) Property owner will provide title insurance to be provided at its cost certifying good and merchantable title in fee simple;
- (5) And that neither free-flowing stream habitat nor water quality are adversely impacted by the project.

The donation of the 224-acre parcel coupled with access will greatly enhance the Mallard-Fox WMA and will constitute adequate mitigation for the loss of 1.98 acres of wetlands, the removal of 17 acres from the WMA, and for the loss of shallow water fish spawning habitat associated with the project. If the above conditions cannot be met, we request further consultation regarding the applicant's work plan, mitigation plan, and/or species recovery plan.

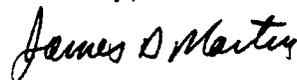
The Department of Conservation and Natural Resources does not discriminate on the basis of race, color, religion, age, gender, national origin, or disability in its hiring or employment practices nor in admission to, access to, or operations of its programs, services, or activities.

MAY 05 1995

Mr. J. Reuben Hernandez
Page 2
April 26, 1995

The applicant is hereby advised that further consultation with the State Lands Division (334-242-3484) regarding state property rights pertaining to this permit application may be required. If you have questions regarding our response, please contact Mr. Gary Moody, Chief, Wildlife Section, Division of Game and Fish at 334-242-3469.

Sincerely,



James D. Martin
Commissioner

cc: Director, ADEM (Attn: Mining and Nonpoint Source Section)
Cookeville U.S. Fish and Wildlife Service
Director, State Lands Division
Director, Division of Game and Fish
Chief, Wildlife Section, Division of Game and Fish
Applicant

APPENDIX C

Farmland Conversion Rating Form

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request	
Name Of Project	TRICO STEEL CO., L.L.C.	Federal Agency Involved	TVA
Proposed Land Use	STEEL MINIMILL	County And State	Morgan County, AL
PART II (To be completed by SCS)		Date Request Received By SCS	
Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply - do not complete additional parts of this form).		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Acres Irrigated
Major Crops(s)	Cotton Soybeans Corn	Farmable Land In Govt. Jurisdiction Acres: 269 740 % 75	Amount Of Farmland As Defined in FPPA Acres: 142 378 % 39.6
Name Of Land Evaluation System Used	LESA	Name Of Local Site Assessment System	Date Land Evaluation Returned By SCS
PART III (To be completed by Federal Agency)		Alternative Site Rating	
		Site A	Site B
A. Total Acres To Be Converted Directly		790	
B. Total Acres To Be Converted Indirectly		-	
C. Total Acres In Site		790	
PART IV (To be completed by SCS) Land Evaluation Information			
A. Total Acres Prime And Unique Farmland		425	
B. Total Acres Statewide And Local Important Farmland		-	
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted		.76	
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value		9.5	
PART V (To be completed by SCS) Land Evaluation Criterion		Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)	
		80	
PART VI (To be completed by Federal Agency)		Maximum Points	
Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))			
1. Area In Nonurban Use		3	
2. Perimeter In Nonurban Use		3	
3. Percent Of Site Being Farmed		10	
4. Protection Provided By State And Local Government		0	
5. Distance From Urban Builtup Area		5	
6. Distance To Urban Support Services		0	
7. Size Of Present Farm Unit Compared To Average		10	
8. Creation Of Nonfarmable Farmland		10	
9. Availability Of Farm Support Services		5	
10. On-Farm Investments		5	
11. Effects Of Conversion On Farm Support Services		3	
12. Compatibility With Existing Agricultural Use		10	
TOTAL SITE ASSESSMENT POINTS	160	64	
PART VII (To be completed by Federal Agency)			
Relative Value Of Farmland (From Part V)	100	80	
Total Site Assessment (From Part VI above or a local site assessment)	160	64	
TOTAL POINTS (Total of above 2 lines)	260	144	
Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input type="checkbox"/>	
Reason For Selection:			

According to the regulations implementing the Federal Farmland Protection Act (7 CFR Part 658.4(c)(2)), sites receiving a total score of less than 160 points need not be given further consideration for protection and no additional sites need to be evaluated.

Appendix D

Comments and Responses



Mr. Davis.

I am writing in response to the proposed Trico Steel recycling mill construction on the Tennessee River, Morgan County, Alabama. The possibility of another industry on this section of the river disturbs me. After I read the details of the proposal I have concluded this particular barge terminal with its associated activity would be very detrimental to aesthetics, and increase noise levels for recreational users of the lake, in addition to being detrimental to waterfront property investments of many nearby homeowners.

I have recently invested a large sum of money (at least from my perspective) in a home directly across the river from the proposed site of the barge terminal. I am one of dozens of property / home owners in this area that includes the Blacks Landing, Lookingbill, and Pointe Westmoreland subdivisions. In addition I have been an active recreational user of the lake for over 20 years. I purchased this home, which is 36 miles from my work, to appreciate the quietness and tranquillity that I believed would exist in this area. I find this proposed steel mill and barge terminal to be extremely undesirable and unacceptable for the following reasons:

- 1) NOISE: I cannot conceive of anything, short of an explosion, more noisier than loading / loading scrap iron to and from a steel barge. It is a well documented fact sound carries across water many times faster than across land. The current industries are noisy, but the noise created by this proposed activity would become unacceptable.
- 2) BARGE TRAFFIC: In addition to the noise associated with the terminal, the increased barge traffic would increase noise. Another adverse effect for local homeowners is the powerful spotlights directed at our homes. I am often bothered and sometimes even awakened by the barges' spotlights shining into my windows throughout the night.
- 3) WILDLIFE MGT. AREA: From what I understand the proposed site is in close proximity to the Mallard-Fox Creek Wildlife Mgt. Area. The proposed disturbance is in conflict with what I consider to be wildlife mgt. objectives.

The TRICO proposal states there will be three to six barges a day (OR NIGHT). My question is ; For how long ? Typically the objective of any business is to increase revenue. Unless TRICO is a monopoly (which they are not) increased revenue means increased volume. This will inevitably lead to more and more barge traffic, noise, lights, etc.

I have rationalized my concerns and am pleading with you to reject TRICO's proposal.

BEST REGARDS,

MARK BREEN
9513 HAWKINS DR.
ATHENS, AL 35611

COMMENTS

We are interested in hearing from you to better understand your issues and concerns. All comments will be considered as public responses and be taken into account before final decisions are made. Completing this form is equivalent to providing oral comments during this meeting and/or recording statements on the 1-800-TVA-LAND number. Please register your comments in response to the following questions.

1. Please explain why you generally support or oppose the Trico Steel Company's desire to construct and operate a steel recycling mill at the proposed location.

I AM GENERALLY OPPOSED TO ANY INDUSTRY THAT INCREASES BARGE TRAFFIC AND THAT WOULD CREATE ANY POSSIBILITIES OF WATER POLLUTION BUT PRIMARILY THE NOISE FACTOR AS I AM A PROPERTY OWNER DIRECTLY ACROSS (N.W.) FROM THE PROPOSED SITE (PUNTE WESTMORELAND - ADJACENT OF THE BROWN'S FERRY) NUCLEAR PLANT.

2. What major issues should be considered before final decisions are made?

CONSIDERATION SHOULD BE GIVEN TO PROPERTY OWNERS PARTICULARLY THE ONES BUILDING PERMANENT HOMES ON THE RIVER WHERE BARGE TRAFFIC, WATER POLLUTION AND NOISE ARE DEFINITE FACTORS.

3. Are there other comments that you would like to share with us?

I REALLY FEEL AS IF I AM IN THE SILENT MINORITY WHOSE COMMENTS ARE OF NO INFLUENCE ON DECISIONS MADE FOR OR AGAINST MAJOR INDUSTRY COMMING IN ANY AREA. NONE THE LESS, I HAVE EXPRESSED MYSELF AND I APPRECIATE THE FACT THAT YOU READ THIS FAR (IF IN FACT YOU DID).

Harrison McMain

HARRISON McMAINS
2517-B TOLLGATE RD.
HUNTSVILLE, AL 35801

(205) 539-5941 H.M.
(205) 232-7072 OFF

Response to Mr. Breen's comments:

Additional noise analysis was performed after release of the draft environmental assessment. Results of the noise analyses are provided in Section 4.6 of the final environmental assessment. Potential noise produced from the barge terminal and barge transport is discussed in Section 4.6, page 34.

As stated in Section 4.16, the steel mill would typically load and unload between 3 and 6 barges per day. Estimated total mill barge traffic is about 870 barges per year. These figures reflect mill operations at full capacity.

As shown in Figure 2, page 9, the Trico property borders the Mallard-Fox Creek Wildlife Management Area (WMA). The mill proper would be located approximately one-fourth mile from the closest WMA property line. Potential effects to terrestrial ecology, including the removal of 17 acres from the WMA and the enlargement of the WMA from the donation of 224 acres to the WMA, are discussed in Section 4.14.

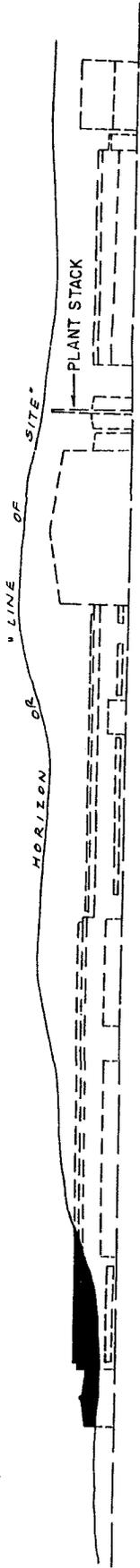
Response to Mr. McMains' comments:

Increases in barge traffic are discussed in Section 4.16, Effects on Navigation, and potential effects on water quality appear in Section 4.3 of the environmental assessment. Noise is discussed in Sections 3.6 and 4.6 of the document. Noise analyses considered potential effects to residents on the north side of Wheeler Reservoir at Blacks Landing.

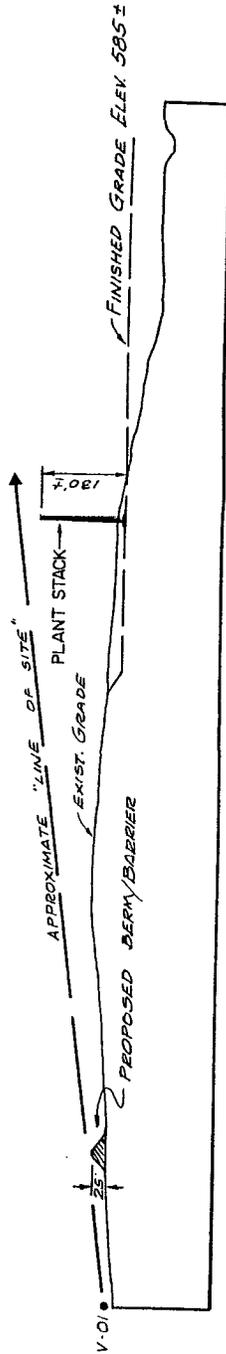
TVA and the U.S. Army Corps of Engineers consider all comments received during comment periods and provide responses as a part of the decision-making process in accordance with the requirements of the National Environmental Policy Act.

GLOSSARY

- ADCNR** - Alabama Department of Conservation and Natural Resources
ADEM - Alabama Department of Environmental Management
ADOT - Alabama Department of Transportation
ADT - average daily traffic
Alt. - Alternate
aquatic - growing or living in or frequenting water
BACT - best available control technology
benthic - relating to or occurring at the bottom of a body of water
berm - a long earthen barrier
Best Management Practices - construction standards that--when implemented--reduce adverse effects, such as sedimentation runoff
centroid - center of mass
chert - a flint-like type of rock
cumulative impacts - effects on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions
-
- dba** - A-weighted decibel scale
deciduous - shedding leaves seasonally
direct effects (impacts) - those caused by the action and occur at the same time and place
disjunct - discontinuous, separated
EIS - environmental impact statement
embayment - a bay or a conformation resembling a bay
emergent - arising or protruding out of water
EMF - electromagnetic fields
EPA - Environmental Protection Agency
FNL - future noise level
forb - a herbaceous plant other than grass
groundwater - water within the earth that supplies wells and springs. Specifically, water in the zone of saturation where all openings in soils and rocks are filled - the upper surface of which forms the water table.
hydric - requiring an abundance of moisture
impound - to collect and confine (water) in or as if in a reservoir
indirect effects (impacts) - those caused by the action that are later in time or farther removed in distance, but are still reasonably foreseeable
irretrievable commitments - those that are lost for a period of time, e.g., construction of a highway would result in an irretrievable loss in exchange for the benefits of the highway
irreversible commitments - those that cannot be reversed, except perhaps in the extreme long term, e.g., once ore is removed by mining, it can never be replaced; it is an irreversible commitment of resources.
kV - kilo-volt, 1,000 volts of electricity
L - liter
L_d - average day sound level
LMF - ladle metallurgical facilities
L_n - average night sound level
L_{dn} - average day-night level



EFFECT OF VISUAL BARRIER / NOISE BARRIER AT VISUAL RECEPTOR V-01
SCALE: 1" = 200'



LINE OF SIGHT DIAGRAM
SCALE: 1" = 200'

DATE 4-11-95
SCALE AS SHOWN
DR: J CK KP
DWG. NO. FIGURE 4

VISUAL EFFECT AT RECEPTOR V-01

TRILINE ASSOCIATES, INC.

TRICO STEEL CO., L.L.C.
DECATUR, ALABAMA

GLOSSARY (continued)

- Leq(h)** - the hourly equivalent sound level indicator, which--in a specific time interval-- contains the same acoustic energy as the time varying sound level during the same period
- L_{pk}** - peak sound level
- MENL** - monitored existing noise level
- mgd** - million gallons per day
- mg/L** - milligrams per liter
- mitigation** - avoidance of an impact altogether, minimization of impacts, rectification of impacts, reduction or elimination of impacts, or compensation for impacts
- MW** - megawatts
- NAAQS** - National Ambient Air Quality Standards
- NCRS** - Natural Resource Conservation Service
- NPDES** - National Pollution Discharge Elimination System
- NRHP** - National Register of Historic Places
- overburden** - material overlying a deposit of useful geological materials
- palustrine** - marsh; not standing water or edge of creek or stream or pond
- Pb** - symbol for the element lead
- PENL** - predicted existing noise level
- PFNL** - predicted future noise level
- pH** - a measure of both acidity and alkalinity on a scale of values from 0 (most acidic) to 14 (most alkaline), with 7 representing neutrality
- PSD** - Prevention of Significant Deterioration
- recharge** - replenishment, usually of groundwaters
- regime** - a regular pattern of occurrence or action
- riprap** - a foundation or sustaining wall of stones thrown together without order, as in deep water or on an embankment slope to prevent erosion
- rotenone** - an insecticide frequently used to collect fish
- ROW** - right of way
- secchi** - standard of measurement of water clarity, obtained by lowering a secchi disk into the water
- study site** - consists of the privately owned 583-acre Sewell Property and the 188-acre TVA property
- substrate** - the base on which an organism lives, e.g., the soil is the substrate of most seed plants
- successional** - a group, type, or series that succeeds or displaces another
- terrestrial** - living on or in or growing from land
- thermal stratification** - a layering, such as in water, caused by temperature differences
- tree canopy** - the uppermost layer of a forest
- TRM** - Tennessee River Mile
- TSP** - total suspended particulates
- turbidity** - the state of being stirred up; opaque or muddy
- TVA** - Tennessee Valley Authority
- USACE** - U.S. Army Corps of Engineers
- VOC** - volatile organic compound
- wetland** - land or areas, as tidal flats or swamps, containing much soil moisture
- WMA** - Wildlife Management Area

X TWR-92E

**TENNESSEE VALLEY AUTHORITY
FINAL
ENVIRONMENTAL
IMPACT
STATEMENT**

**PROPOSED DEVELOPMENT AND USE
OF MALLARD-FOX CREEK AREA
IN NORTH ALABAMA**

**Supplement 1
Prepared by U.S. Army
Corps of Engineers**

FACSIMILE HEADER SHEET
(NR 105-1-8)

FROM (Name) SANER	OFFICE SYMBOL ORD-G/L	TELEPHONE NO. 527-8204	RELEASEE'S SIGNATURE <i>[Signature]</i>		
TO (Name) JOHN KESSLER	OFFICE SYMBOL ORLPD-R	TELEPHONE NO. 352-5697	# PAGES 31	PRECEDENCE	DTG
SUBJECT					

NR 105-1-8

INITIALS RESULTS

Station: **MFCDP**

Metal Results

		BKG Water	Elutriate
AL	ug/L	1900	230
BA	ug/L	30	37
BE	ug/L	<1	<1
CA	mg/L	18	15
FE	ug/L	200	581
K	mg/L	4	<1
MG	mg/L	5	3
MN	ug/L	70	4150
NA	mg/L	10	13
SB	ug/L	130	<100
ZN	ug/L	<50	<50
CD	ug/L	<1	<1
CR	ug/L	<1	<1
CU	ug/L	<5	<5
PB	ug/L	<2	<2
NI	ug/L	<5	<5
AS	ug/L	<1	<1
SE	ug/L	<1	<1
Hg	ug/L	<1	<1

John: Mercury will be analyzed early next week.

Pine

MARS/SPECTROMETRIC RESULTS

STATION # ID: MFCDP

BASE-NEUTRAL (Detected Limit 0.5 ug/m³)

RESULTS

Sediment

N-nitrosodimethylamine	N/D
Bis(2-chloroethyl)ether	"
1,3-dichlorobenzene	"
1,4-dichlorobenzene	"
1,2-dichlorobenzene	"
Bis(2-chloroisopropyl)ether	"
Hexachloroethane	"
N-nitroso-di-n-propylamine	"
Nitrobenzene	"
Isophorone	"
Bis(2-chloroethoxy)methane	"
1,2,4-trichlorobenzene	"
Naphthalene	"
Hexachlorobutadiene	"
Hexachlorocyclopentadiene	"
Acenaphthylene	"
2-chloronaphthalene	"
Dimethylphthalate	"
2,6-Dinitrotoluene	"
Acenaphthene	"
2,4-dinitrotoluene	"
Fluorene	"
Diethylphthalate	"
4-chlorophenylphenyl ether	"
N-nitrosodiphenylamine	"
4-bromophenyl-phenyl ether	"
Hexachlorobenzene	"
Phenanthrene -	"
Anthracene	"
Di-N-butylphthalate	"
Fluoranthene	"
Benzidine	"
Pyrene	"
Butylbenzylphthalate	"
Benzo(A)anthracene	"
3,3'-dichlorobenzidine	"
Chrysene	"
Bis(2-ethylhexyl)phthalate	"
Di-N-octyl phthalate	"
Benzo(B)fluoranthene	"
Benzo(K)fluoranthene	"
Benzo(A)pyrene	"
Indeno(1,2,3-CD)pyrene	"
Dibenzo(A,H)anthracene	"
Benzo(BHI)perylene	"

N/D = not detected

Page 2 - Station ID#: MFCDP

PHENOLS (Detection Limit 0.5 ug/cm) **RESULTS**
Sediment

2-chlorophenol	N/D
Phenol	"
2-nitrophenol	"
2,4-dimethylphenol	"
2,4 dichlorophenol	"
P-chloro-M-cresol	"
2,4,6-trichlorophenol	"
2,4-dinitrophenol	"
4-nitrophenol	"
2-methyl-4,6-dinitrophenol	"
Pentachlorophenol	"

CHLORINATED PESTICIDES (Detection Limits 0.5 ug/cm)

A-BHC	N/D
B-BHC	"
δ-BHC	"
D-BHC	"
Heptachlor	"
Aldrin	"
Heptachlor Epoxide	"
Endosulfan I	"
P,P' DDE	"
Dieldrin	"
Endrin	"
Endosulfan II	"
P,P' DDD	"
Endrin Aldehyde	"
Endosulfan Sulfate	"
P,P' DDT	"
Toxaphene (Detection Limit 50 ug/gm)	"
Chlordane (Detection Limit 5 ug/gm)	"

PCB'S (Detection Limit 0.1 ug/cm)

Aroclor 1221	N/D
Aroclor 1232	"
Aroclor 1016	"
Aroclor 1242	"
Aroclor 1248	"
aroclor 1254	"
Aroclor 1260	"

N/D = not detected

MASS/SPECTROMETRIC RESULTS

STATION # ID: MFCDP

BASE-NEUTRALS

(Detection Limit 0.5 ug/L)

RESULTS

	ESG Water	Elutriate
N-nitrosodimethylamine	N/D	N/D
Bis(2-chloroethyl)ether	"	"
1,3-dichlorobenzene	"	"
1,4-dichlorobenzene	"	"
1,2-dichlorobenzene	"	"
Bis(2-chloroisopropyl)ether	"	"
Hexachloroethane	"	"
N-nitroso-di-n-propylamine	"	"
Nitrobenzene	"	"
Isophorone	"	"
Bis(2-chloroethoxy)methane	"	"
1,2,4-trichlorobenzene	"	"
Naphthalene	"	"
Hexachlorobutadiene	"	"
Hexachlorocyclopentadiene	"	"
Acenaphthylene	"	"
2-chloronaphthalene	"	"
Dimethylphthalate	"	"
2,6-Dinitrotoluene	"	"
Acenaphthene	"	"
2,4-dinitrotoluene	"	"
Fluorene	"	"
Diethylphthalate	"	"
4-chlorophenylphenyl ether	"	"
N-nitrosodiphenylamine	"	"
4-bromophenyl-phenyl ether	"	"
Hexachlorobenzene	"	"
Phenanthrene-	"	"
Anthracene	"	"
Di-N-butylphthalate	"	"
Fluoranthene	"	"
Benzidine	"	"
Pyrene	"	"
Butylbenzylphthalate	"	"
Benzo(A)anthracene	"	"
3,3'-dichlorobenzidine	"	"
Chrysene	"	"
Bis(2-ethylhexyl)phthalate	22.5	"
Di-N-octyl phthalate	"	"
Benzo(B)fluoranthene	"	"
Benzo(K)fluoranthene	"	"
Benzo(A)pyrene	"	"
Indeno(1,2,3-CD)pyrene	"	"
Dibenzo(A,H)anthracene	"	"
Benzo(GHI)perylene	"	"

N/D = not detected

PHENOLS	(Detection Limit 0.5 ug/L)	RESULTS	
		BKG Water	Elutriate
2-chlorophenol		N/D	N/D
Phenol		"	"
2-nitrophenol		"	"
2,4-dimethylphenol		"	"
2,4 dichlorophenol		"	"
p-chloro-m-cresol		"	"
2,4,6-trichlorophenol		"	"
2,4-dinitrophenol		"	0.8
4-nitrophenol		"	"
2-methyl-4,6-dinitrophenol		"	"
Pentachlorophenol		"	"

CHLORINATED PESTICIDES (Detection Limit 0.5 ug/L)

A-BHC		N/D	N/D
B-BHC		"	"
δ-BHC		"	"
D-BHC		"	"
Heptachlor		"	"
Aldrin		"	"
Heptachlor Epoxide		"	"
Endosulfan I		"	"
P, P' DDE		"	"
Dieldrin		"	"
Endrin		"	"
Endosulfan II		"	"
P, P' DDD		"	"
Endrin Aldehyde		"	"
Endosulfan Sulfate		"	"
P, P' DDT		"	"
Toxaphene	(Detection Limit 50 ug/L)	"	"
Chlordane	(Detection Limit 5.0 ug/L)	"	"

PCB'S (Detection Limit 50 ug/L)

Aroclor 1221		N/D	N/D
Aroclor 1232		"	"
Aroclor 1016		"	"
Aroclor 1242		"	"
Aroclor 1248		"	"
Aroclor 1254		"	"
Aroclor 1260		"	"

N/D = not detected

SECTION 404(b)(1) EVALUATION
SMALL NAVIGATION PROJECT
SECTION 107 OF THE RIVER AND HARBOR ACT OF 1960
MORGAN COUNTY PORT
MORGAN COUNTY, ALABAMA

1. PROJECT DESCRIPTION

A. Location. The project area is located on the south side of the Tennessee River (Wheeler Reservoir) at River Mile 298 in Morgan County, Alabama. Morgan County lies in north central Alabama within 200 miles of the major metropolitan areas of Birmingham, Memphis, Nashville and Atlanta. The proposed port and industrial park lies within the city limits of Decatur, the largest town in the county.

B. General Description.

(1) Corps Activities. The project involves the construction of a port access channel to provide river access to the 450 acre Morgan County Industrial Site. Current plans call for a gently curving channel 350 feet wide and about 9,000 feet long dredged parallel to the river frontage. The dredged material would be disposed within the Industrial Site, probably on a 95 acre area, which includes a shallow 20 acre embayment, creating fast land. Land adjacent to the proposed channel is fairly flat, varying from 550 feet above mean sea level to a high of 590 feet.

(2) Sponsor Activities. The Morgan County Port Authority proposes to construct a transfer structure consisting of the following: a sheet-pile cell dock, concrete loading/unloading and open storage area, terminal building and warehouse storage, access ramp, rail spurs, and five mooring cells.

The project has many components. Only those activities which are covered by Section 404 of the Clean Water Act will be addressed in this document.

C. Authority and Purpose. Authority for this activity comes from the Rivers and Harbors Act of 1960, as amended. The proposed project was designed to provide direct port access to the Morgan County Industrial Site. The primary goal in designing the project is to allow a typical Tennessee River barge tow to traverse the port without having to be broken down, and to provide dock facilities for temporary storage and transshipment of goods.

D. General Description of the Dredged or Fill Material.

(1) Corps Activities. The dredged material will be composed of approximately 1,300,000 cubic yards (c.y.) of silty, sandy clay. Of this material, approximately 232,000 c.y. would be placed below the Ordinary High Water (OHW) level of 560 (msl). A retaining dike requiring approximately

133,000 cubic yards of embankment fill will be constructed to contain the dredged material and create fast land. The top of the dike would be approximately elevation 577.

Dredging of the proposed channel will vary from approximately 5 feet to 13 feet to establish the channel bottom at Elevation 538. It is estimated that 1,500 c.y. of riprap would be necessary to armor portions of the channel which have weaker soils. All of this riprap would be below O.H.W. and varying in size up 360 pounds with an average of 84 pounds.

(2) Sponsor Activities. The Morgan County Port's transfer structure is to be approximately 460 feet long and consists of up to 22 steel sheet piling cells that are proposed to measure approximately 35 feet in diameter. The cells would be joined by steel sheet piling forming a solid cluster structure. The fill would consist of crushed aggregate graded 2-inch to 1/2-inch particle size. The average fill per cell below Elevation 556 is 285 c.y., and 320 c.y. above Elevation 556. The top of the cells would be capped with reinforced concrete at Elevation 565, which is 9 feet above ordinary high water Elevation 556. The estimated quantity of select backfill behind this cluster of cells is 5,500 c.y. below Elevation 556 and 7,680 c.y. above to create fast land for the 460-foot by 450-foot concrete dock area at Elevation 566.

Other construction includes five 35-foot diameter mooring cells which would be filled to top Elevation 565, with crushed stone and capped with reinforced concrete. The riverward face of the structures would be approximately 50 feet from the shoreline at water surface Elevation 556.0. The mooring cells would be placed downstream of the transfer structure at approximately 97.5 feet from centerline to centerline.

E. Description of the Proposed Discharge Site. Disposal will take place in a 95-acre site (including a 20 acre embayment) adjacent to the access channel, and within the boundaries of the Mallard-Fox Creek Industrial Park. By enclosing this area with a dike with a top elevation of 577 (msl), this site can contain all disposal material.

The 20-acre embayment is bordered by such wetland species as buttonbush, alder, common rush, bull rush, various smart weeds and wet-site grasses. Bottomland hardwood forest is found around this area, and is dominated by willow oak, water oak, sweetgum and hackberry.

Much of the remaining 75 acres is presently open with many species of grasses and annuals. The grasses present include big bluestem, little bluestem, broomsedge bluestem, old field three-awn, arrowfeather three-awn, mat sandbur, Virginia wildrye, switchgrass, purple lovegrass, purpletop, beaked panicum, scribner panicum and Florida paspalum. The annuals and perennials present include various species of sunflower, ragweed, milkweed, aster, thistle, pokeweed, woodsorrel, beggarweed, spurge, doveweed and nightshade.

This site is considered by the Fish and Wildlife Service (FWS) to have moderate habitat value at present. This area would be permanently altered by the recommended plan, however, FWS feels this area would be degraded by runoff from the proposed industry, therefore, no net loss of habitat would result. A 300-foot buffer will be left around the highly productive Embayment 3 to protect it from industrial runoff.

F. Description of Disposal Method. Sound engineering practices will be followed during all phases of project construction. The dredge material will be removed hydraulically; the embayment material will be placed by mechanical means.

2. FACTUAL DETERMINATIONS

"Factual Determinations" as required by Section 230.11 of the EPA Final Guidelines of 24 December 1980 include the following:

A. Physical Substrate Determinations. As stated earlier, the ordinary high water elevation at the Mallard-Fox Project is 556 MSL. The bottom elevation of 20-acre embayment 1 is 552.5 MSL; consequently, it is completely exposed during the normal winter pool of 551 MSL. The dike would be constructed at this time to lessen construction impacts on aquatic life and water quality.

The material which would fill the embayment, eliminating the aquatic habitat, would be dredged from the river bed to make a channel 350 feet wide by 9,000 feet long. 72.3 acres of the bottom configuration would be changed.

B. Water Circulation, Fluctuation and Salinity Determinations. Water chemistry, odor, taste, dissolved oxygen levels, nutrients, and eutrophication will be affected by the dredging and fill operation. These effects will stabilize in preconstruction ranges fairly quickly in the new channel, as discussed on Page 41 of TVA's EIS; the fill area will, over a longer period of time, become fast land. Current patterns, river flow and velocity and hydrologic regime will be only locally affected. There will be no discernable fluctuation of pool level and no significant project induced effects during high water periods. Salinity is not a consideration.

C. Suspended Particulate and Turbidity Determinations. Turbidity levels will be significantly elevated locally during dredging activities and the construction of the containment dike. Following construction activities, turbidity levels should return to preconstruction levels. The fill materials will be obtained from adjacent site sources. Dredged material will be disposed of in a diked area to prevent sediment from returning to the river. A discussion of contaminants is presented below. The effect on the chemical and physical properties of the Tennessee River will be insignificant. Primary production in the channel should not be significantly affected since light penetration will be modified only locally for short periods of time. The channel construction will not significantly affect filter and sight feeding organisms. However, the construction of the channel and subsequent

port development, and attendant frequent prop-wash disturbance and lack of bottom structure, will render the area inconducive to significant fishery. The effect of fill material for construction of the dike will have no significant effect on post-construction fisheries and it will protect water quality by preventing runoff from the dredge material. The dike will be constructed during low pool, therefore, decreasing impacts on aquatic organisms. The enclosure and filling of a 20-acre embayment will have the following environmental effects: 42 acres of periodically inundated wetland will, after draining and drying, become fast land; this habitat loss will diminish fish and wildlife resources.

D. Contaminate Determination. Analyzed water and sediments collected from the proposed project area determined that bis (2-ethylhexyl) phthalate is the only organic compound above detectable limits in the water samples. Elutriate tests revealed a low concentration of another organic compound: 2,4, dinitrophenol. Extensive water quality surveys were conducted by TVA and discussed in detail on page 10 of TVA's EIS. In these low concentrations, neither compound should pose problems to aquatic life. Metal test results indicate no problems at the site. Appendix I of the main report provides water quality tests results.

E. Aquatic Ecosystem and Organism Determination. The preferred alternative will permanently eliminate 35 acres of wetland in the disposal area. In the channel area, 72.3 acres of substrate will be disturbed. Excluding the dredged material disposal area, which will become fast land, the trophic levels of the aquatic system will not be significantly affected. Within the area proposed for dredging and nearby, 11 species of mussels were identified. No Federally listed endangered species was found.

F. Proposed Disposal Site Determinations. The preferred alternative is one of six sites or methods investigated in the course of the proposed project development. Two other embayments, contained open-water disposal, upland disposal, and open water disposal were analyzed. Economic, engineering, and environmental concerns resulted in the selection of the preferred site evaluated here. Placement of the dredged and fill materials will not violate Alabama water quality standards. There will be no effect on municipal water supplies; no significant recreation fishery will be affected.

G. Determination of Cumulative Effects on the Aquatic Ecosystem. No cumulative effects to the aquatic ecosystem of the Tennessee River could be attributed to the disposal of dredged and fill materials associated with the construction of the proposed project.

H. Determinations of Secondary Effects on the Aquatic Ecosystem. No significant adverse secondary effects to the aquatic ecosystem can be identified from the proposed placement of dredged and fill materials. However, it is doubtful the area would provide a valuable fishery due to prop-wash disturbance.

3. FINDINGS OF COMPLIANCE OR NON-COMPLIANCE WITH THE RESTRICTIONS ON DISCHARGE.

The Environmental Protection Agency's "Guidelines for Specification of Disposal Sites for Dredged or Fill Material", published in the 24 December 1980 Federal Register were applied to the various discharges associated with construction of the Morgan County Port. No adaptations of the guidelines were applied to this proposed project.

Because the materials to be discharged are standard in the construction industry, are non-toxic, and are primarily composed of riprap (limestone rock), concrete, gravels, and earth, there will be no significant adverse effects on human health and welfare, including municipal and private water supplies, recreation and commercial fishing, plankton, shellfish, wildlife, and endangered species. Life stages of aquatic and terrestrial species will not be adversely affected. No significant adverse effects on aquatic ecosystem diversity, productivity, and stability will occur. Recreational, aesthetic, and economic values will not be adversely affected. Water quality parameters will not be violated nor will the State's assigned uses of aquatic life, wildlife and agricultural be jeopardized. The disposal operation will not violate the toxic effluent standards of Section 307 of the Clean Water Act, or harm any species protected by the Endangered Species Act.

Appropriate steps to minimize potential adverse impacts of the discharge on the aquatic ecosystem of the Tennessee River include sound engineering design and placement of dredged material behind a confining dike. In addition, the Contractor(s) placing of the fill material and the dredged material will be governed by detailed contract specifications to prevent pollution and damage to the aquatic system, as a result of construction operation and fill placement. Any losses of aquatic habitat would be offset by proper placement of riprap.

On the basis of the guidelines, the proposed disposal site for the discharge of dredged material is specified as complying with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects to the aquatic ecosystem.

Date:

16 July 1987



EDWARD A. STARBIRD
Colonel, Corps of Engineers
District Engineer



November 30, 2004

TVA/River Operations
Navigation & Hydraulic Engineering
400 W. Summit Hill Drive
Knoxville, Tennessee 37902-1499

Attention: Ms. Debbie Ruth

Subject: **DRILLING AND SAMPLING REPORT**
Tennessee River at Decatur Harbor
Decatur, Alabama
S&ME Project No. 1432-04-720

Dear Ms. Ruth:

S&ME, Inc. (S&ME) is pleased to provide this report to the Tennessee Valley Authority (TVA) for drilling and sampling services at proposed mooring cell locations in the Decatur, Alabama harbor area. This report has been developed based on the scope of work outlined in S&ME Proposal No. 3204895 dated October 5, 2004 for Drilling & Environmental Services. The purpose of these services was to determine the depth to bedrock, the stiffness of the overburden, the depth of sediment, and to obtain environmental samples beneath the riverbed at these locations for laboratory screening. This information is intended to allow TVA to determine a suitable location to construct two new mooring cells in the Decatur harbor area.

Field Work

S&ME personnel conducted drilling and sampling activities within the Tennessee River in the Decatur, Alabama harbor area on October 19 and 20, 2004. Three proposed mooring cell locations were pre-selected by TVA for investigation. A work platform with spuds and survey coordinates at each boring location was provided by TVA aboard the M/V Sideview. Drilling was conducted by S&ME personnel using an ATV mounted CME 550 drill rig. Boring logs including location, depth of water, depth to bedrock, and generalized drilling conditions are

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1413 Topside Road
Louisville, Tennessee 37777

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(865) 970-2312 fax
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attached. Standard Penetration Testing (SPT) was used to determine blow counts and overburden lithology at select borings as directed by Mr. Minchew. Survey coordinates for each boring location are provided in Table 1 (attached). The boring locations are shown on the Site Location Map included as Figure 1 (attached).

Analytical Results

Environmental samples from the top of river sediment were obtained from the split spoon samples at each potential mooring location. The samples were placed in laboratory prepared jars, refrigerated, and submitted to Environmental Science Corporation (ESC) in Mt. Juliet, Tennessee for PCB's, RCRA metals, TCLP metals, and EPH analysis. The analytical reports from ESC and the chain of custody forms are attached. A summary of the analytical results is provided in Table 2 (attached). None of the samples submitted for analysis exceeded the EPA Region 9 2002 Industrial Preliminary Remediation Goals (PRGs) or the Toxicity Characteristic Leaching Procedure (TCLP) Action Levels [40 CFR 261.24]. All samples were handled in general compliance with S&ME quality assurance/control protocol to ensure sample integrity and prevent cross-contamination.

S&ME appreciates the opportunity to be of service to TVA. If you have any questions regarding this report, please feel free to call us at (865) 970-0003.

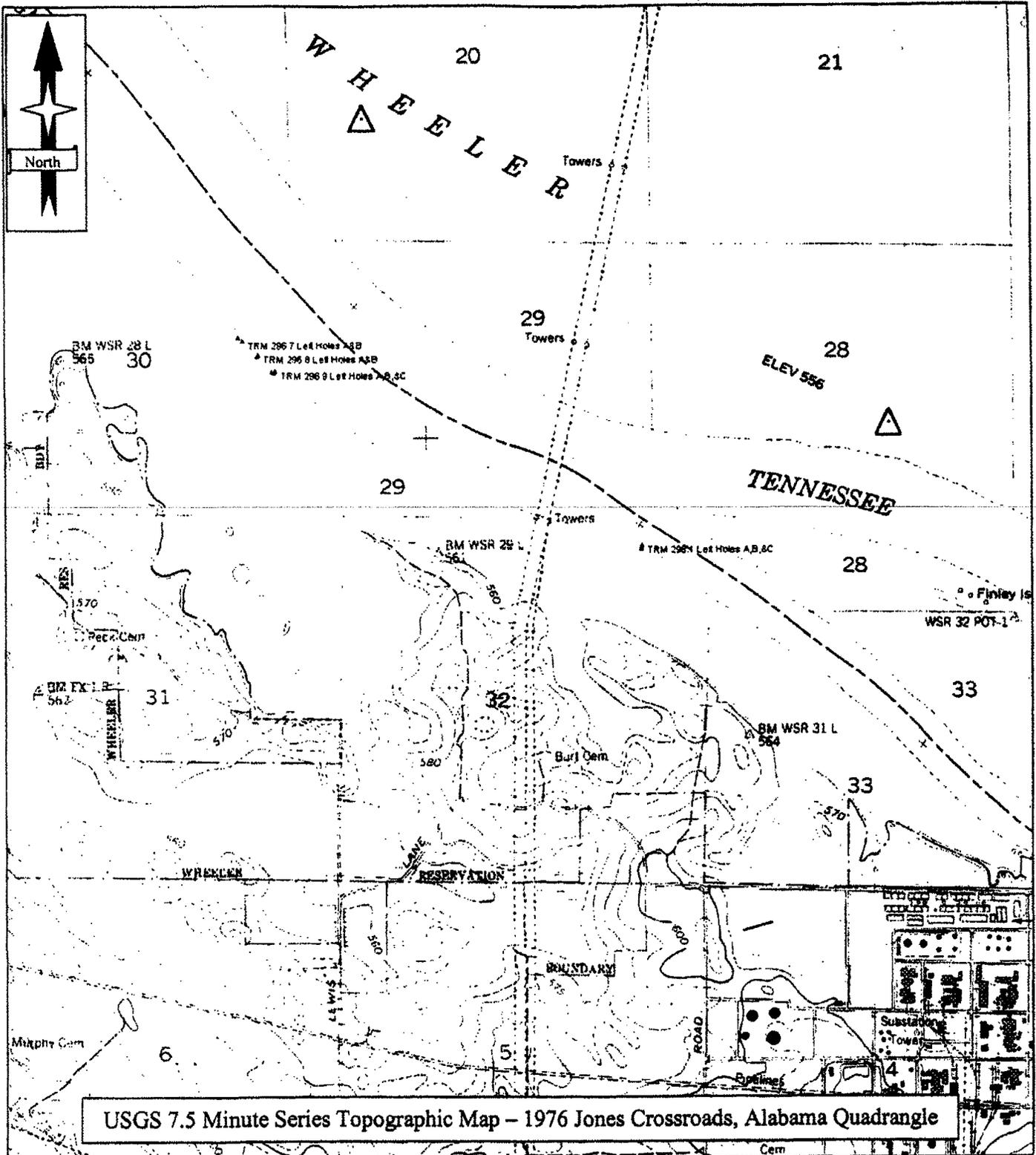
Sincerely,
S&ME, Inc.


J. Curt Watson
Project Professional


Michael R. Stomer
Branch Manager

JCW/MRS/jcw

S:\2004 Interoffice Projects\720 TN River - Decatur\1432\Reports\Drilling-Sampling Report.doc



USGS 7.5 Minute Series Topographic Map - 1976 Jones Crossroads, Alabama Quadrangle

0 2000'
 Scale: 1:24,000
 Checked By: JCW
 Date: 11-08-04



SITE LOCATION MAP
 TN River at Decatur Harbor
 Decatur, Alabama
 Project No.: 1432-04-720

Figure
 1

PROJECT: **Tennessee River at Decatur Harbor
Decatur, Tennessee
S&ME Project No. 1432-04-720**

BORING LOG TRM 296.8 Left Hole A

DATE DRILLED: 10/20/04
 DRILLING METHOD: CME 550; 3/4" H.S.A.
 LOGGED BY: C. Watson
 DRILLER: T. Hall/A. Jennings

ELEVATION: 555
 BORING DEPTH: 24.0 feet
 WATER LEVEL @ TOB: N/A
 WATER LEVEL @ 24 hrs: N/A

NOTES: Boring in the Tennessee River.
 Approximate water elevation 555.2 ft.

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet)	SAMPLE NO. SAMPLE TYPE	STANDARD PENETRATION TEST DATA (blows/ft)					N VALUE	
						10	20	30	60	80		
5		Water		550								
10		Sediment		545								
15		Silty Clay - brown; with gray mottling		540	1							16
20		Silty Clay - brown; with gray mottling		535								
24		Auger Refusal at 24 ft.										

BORING LOG NEW 04-720.GPJ S&ME.GDT 12/1/04

NOTES:

1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.



PROJECT:		Tennessee River at Decatur Harbor Decatur, Tennessee S&ME Project No. 1432-04-720			BORING LOG TRM 296.9 Left Hole A							
DATE DRILLED: 10/20/04		ELEVATION: 555			NOTES: Boring in the Tennessee River. Approximate water elevation 555.2 ft.							
DRILLING METHOD: CME 550; 3/4" H.S.A.		BORING DEPTH: 29.0 feet										
LOGGED BY: C. Watson		WATER LEVEL @ TOB: N/A										
DRILLER: T. Hall/A. Jennings		WATER LEVEL @ 24 hrs: N/A										
DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet)	SAMPLE NO. SAMPLE TYPE	STANDARD PENETRATION TEST DATA (blows/ft)					N VALUE	
						10	20	30	60	80		
5		Water		550								
10				545								
15		Silty Clay - brown; with gray mottling		540	1	X						17
20				535								
25		Weathered Limestone - light gray; angular		530	2	X						16
		Auger Refusal at 29 ft.										

BORING LOG NEW 04-720.GPJ S&ME.GDT 12/1/04

NOTES:

1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.



PROJECT: Tennessee River at Decatur Harbor Decatur, Tennessee S&ME Project No. 1432-04-720	BORING LOG TRM 296.8 Left Hole B
---	---

DATE DRILLED: 10/20/04	ELEVATION: 555	NOTES: Boring in the Tennessee River. Approximate water elevation 555.2 ft.
DRILLING METHOD: CME 550; 3 1/4" H.S.A.	BORING DEPTH: 26.0 feet	
LOGGED BY: C. Watson	WATER LEVEL @ TOB: N/A	
DRILLER: T. Hall/A. Jennings	WATER LEVEL @ 24 hrs: N/A	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet)	SAMPLE NO. SAMPLE TYPE	STANDARD PENETRATION TEST DATA (blows/ft)				N VALUE
						10	20	30	60 80	
5		Water		550						
10		Silty Clay - brown; with gray mottling		545	1		2			2
15		Silty Clay - brown; with gray mottling		540	2		12			12
20		Silty Clay - brown; with gray and dark brown mottling. Weathered rock fragments-light brown angular fragments.		535	3		11			11
20		Silty Clay - brown; with gray and dark brown mottling. Weathered rock fragments-light brown angular fragments.		535	4		20			20
20		Silty Clay - brown; with gray and dark brown mottling. Weathered rock fragments-light brown angular fragments.		535	5		6			6
20		Silty Clay - brown; with gray and dark brown mottling. Weathered rock fragments-light brown angular fragments.		535	6		5			5
25		Silty Clay - brown; with gray and dark brown mottling. Weathered rock fragments-light brown angular fragments.		530	7		43			43
		Auger Refusal at 26 ft.								

BORING LOG NEW 04-720.GPJ S&ME.GDT 12/1/04

- NOTES:**
1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
 2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
 3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
 4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.



PROJECT: Tennessee River at Decatur Harbor Decatur, Tennessee S&ME Project No. 1432-04-720				BORING LOG TRM 298.1 Left Hole B								
DATE DRILLED: 10/19/04		ELEVATION: 554		NOTES: Boring in the Tennessee River. Approximate water elevation 553.6 ft.								
DRILLING METHOD: CME 550; 3/4" H.S.A.		BORING DEPTH: 29.0 feet										
LOGGED BY: C. Watson		WATER LEVEL @ TOB: N/A										
DRILLER: T. Hall/A. Jennings		WATER LEVEL @ 24 hrs: N/A										
DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet)	SAMPLE NO.	SAMPLE TYPE	STANDARD PENETRATION TEST DATA (blows/ft)				N VALUE	
							10	20	30	60 80		
5		Water		549								
10				544								
15				539								
20		Sediment and Silt		534	1	X						3
25		Silt - gray		529	2	X						1
		Auger Refusal at 29 ft.										

BORING LOG NEW 04-720.GPJ S&ME.GDT 12/1/04

NOTES:

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2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.



PROJECT: Tennessee River at Decatur Harbor
 Decatur, Tennessee
 S&ME Project No. 1432-04-720

BORING LOG TRM 296.9 Left Hole C

DATE DRILLED: 10/20/04 ELEVATION: 555
 DRILLING METHOD: CME 550; 3 1/2" H.S.A. BORING DEPTH: 33.0 feet
 LOGGED BY: C. Watson WATER LEVEL @ TOB: N/A
 DRILLER: T. Hall/A. Jennings WATER LEVEL @ 24 hrs: N/A

NOTES: Boring in the Tennessee River.
 Approximate water elevation 555.2 ft.

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet)	SAMPLE NO.	SAMPLE TYPE	STANDARD PENETRATION TEST DATA (blows/ft)				N VALUE
							10	20	30	60 80	
5		Water		550							
10		Silt and Sediment		545							
12		Silty Clay - brown; with gray mottling		540	1	X					7
14		Silty Clay - brown; with gray and dark brown mottling		540	2	X					20
16		Silty Clay - brown; with gray and dark brown mottling		540	3	X					12
18		Silty Clay - brown; with gray and dark brown mottling		540	4	X					20
20		Silty Clay - brown to gray		535	5	X					10
22		Silty Clay - brown to gray		535	6	X					10
24		Silty Clay - brown; with weathered rock fragments-light gray angular fragments		530	7	X					34
26		Silty Clay - brown to greenish gray; with rounded coarse gravel-light gray		530	8	X					15
28		Silty Clay - brown		530	9	X					2
30		Silty Clay - brown to light gray		525	10	X					10
32		Weathered Limestone - light gray; angular		525	11	X					42
33		Auger Refusal at 33 ft.									

BORING LOG NEW 04-720.GPJ S&ME.GDT 12/1/04

NOTES:

1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
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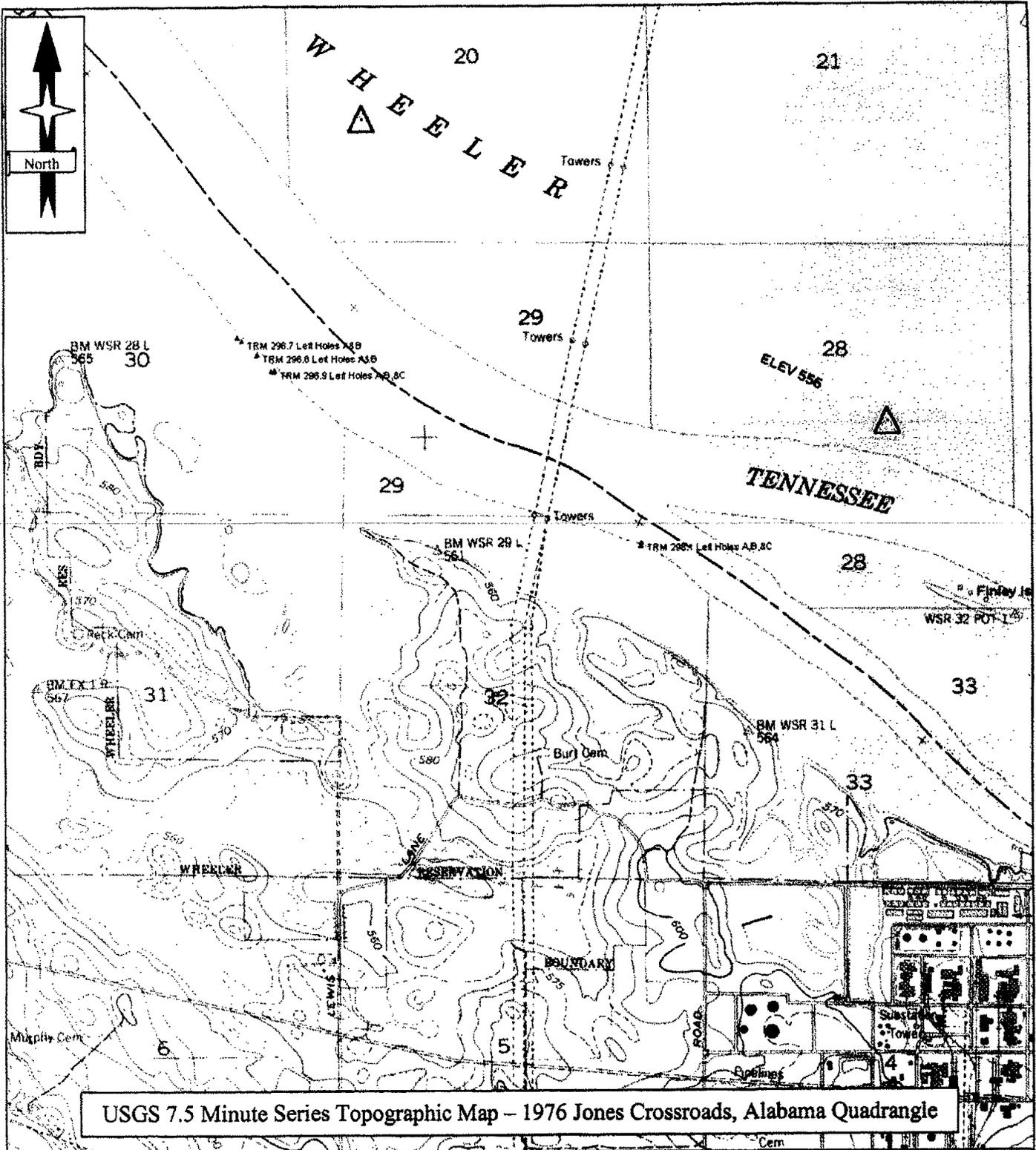


TABLE 1

**Borehole Survey Coordinates
Tennessee River at Decatur Harbor
Decatur, Alabama
S&ME Project No. 1432-04-720**

Borehole Location ID	Surveyors ID	Drilling Date	Surface Water Elevation (ft msl)	Survey Coordinates	
				Northing	Eastings
TRM 298.1 Left Hole A	Hole 6	10/19/2004	553.6	N 1696435.03	E 2096979.64
TRM 298.1 Left Hole B	Hole 6A	10/19/2004	553.6	N 1696400.96	E 2096969.29
TRM 298.1 Left Hole C	Hole 6B	10/19/2004	553.6	N 1696388.70	E 2096963.86
TRM 296.9 Left Hole A	Hole 5	10/20/2004	555.2	N 1698962.21	E 2091612.67
TRM 296.9 Left Hole B	Hole 5A	10/20/2004	555.2	N 1698934.09	E 2091598.47
TRM 296.9 Left Hole C	Hole 5B	10/20/2004	555.2	N 1698946.65	E 2091571.68
TRM 296.8 Left Hole A	Hole 4	10/20/2004	555.2	N 1699194.99	E 2091364.65
TRM 296.8 Left Hole B	Hole 4A	10/20/2004	555.2	N 1699172.29	E 2091349.59
TRM 296.7 Left Hole A	Hole 7	10/20/2004	555.2	N 1699395.84	E 2091134.09
TRM 296.7 Left Hole B	Hole 7A	10/20/2004	555.2	N 1699445.80	E 2091071.21

Note: Coordinate System is State Plane (F) NAD 83 Datum



USGS 7.5 Minute Series Topographic Map - 1976 Jones Crossroads, Alabama Quadrangle

<p>Scale: 1:24,000</p>
<p>Checked By: JCW</p>
<p>Date: 11-08-04</p>



SITE LOCATION MAP
 TN River at Decatur Harbor
 Decatur, Alabama

Project No.: 1432-04-720

Figure
 1



**ENVIRONMENTAL
SCIENCE CORP.**

12065 Lebanon Rd.
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1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Curt Watson
S&ME - Hixon, Tn.
2733 Kanasita Dr. Suite A
Hixon, TN 37343

November 02, 2004

Date Received : October 22, 2004
Description : TVA Decatur
Sample ID : TRM 298.1 LHA 22 FT
Collected By : Curt Watson
Collection Date : 10/19/04 11:50

ESC Sample # : L174641-01

Site ID : TN RIVER DECATUR HARBO

Project # : 143204720

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	69.7		%	2540G	10/28/04	1
Mercury	0.14	0.020	mg/kg	7471	10/26/04	1
Arsenic	1.5	0.50	mg/kg	6010B	10/30/04	1
Barium	48.	0.25	mg/kg	6010B	10/30/04	1
Cadmium	0.47	0.25	mg/kg	6010B	10/30/04	1
Chromium	23.	0.50	mg/kg	6010B	10/30/04	1
Lead	10.	0.25	mg/kg	6010B	10/30/04	1
Selenium	BDL	0.50	mg/kg	6010B	10/30/04	1
Silver	0.49	0.25	mg/kg	6010B	10/30/04	1
Extractable Petroleum Hydrocarb Surrogate Recovery o-Terphenyl	15. 97.	4.0	mg/kg % Rec.	EPH EPH	10/25/04 10/25/04	1 1
Polychlorinated Biphenyls						
PCB 1016	BDL	0.085	mg/kg	8082	10/29/04	5
PCB 1221	BDL	0.085	mg/kg	8082	10/29/04	5
PCB 1232	BDL	0.085	mg/kg	8082	10/29/04	5
PCB 1242	BDL	0.085	mg/kg	8082	10/29/04	5
PCB 1248	BDL	0.085	mg/kg	8082	10/29/04	5
PCB 1254	BDL	0.085	mg/kg	8082	10/29/04	5
PCB 1260	BDL	0.085	mg/kg	8082	10/29/04	5
PCBs Surrogates						
Decachlorobiphenyl	97.3		% Rec.	8082	10/29/04	5
Tetrachloro-m-xylene	76.8		% Rec.	8082	10/29/04	5

Tom Mellette, ESC Representative

BDL - Below Detection Limit

Det. Limit - Estimated Quantitation Limit (EQL)

Laboratory Certification Numbers:

AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742

Note:

The reported analytical results relate only to the sample submitted.
This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 11/02/04 06:33 Printed: 11/02/04 06:34



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Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

November 02, 2004

Curt Watson
S&ME - Hixon, Tn.
2733 Kanasita Dr. Suite A
Hixon, TN 37343

Date Received : October 22, 2004
Description : TVA Decatur
Sample ID : TRM 296.9 LHA 12 FT
Collected By : Curt Watson
Collection Date : 10/20/04 08:50

ESC Sample # : L174641-02

Site ID : TN RIVER DECATUR HARBO

Project # : 143204720

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	78.9		%	2540G	10/28/04	1
Mercury	0.041	0.020	mg/kg	7471	10/26/04	1
Arsenic	1.4	0.50	mg/kg	6010B	10/30/04	1
Barium	130	0.25	mg/kg	6010B	10/30/04	1
Cadmium	BDL	0.25	mg/kg	6010B	10/30/04	1
Chromium	40.	0.50	mg/kg	6010B	10/30/04	1
Lead	9.5	0.25	mg/kg	6010B	10/30/04	1
Selenium	BDL	0.50	mg/kg	6010B	10/30/04	1
Silver	BDL	0.25	mg/kg	6010B	10/30/04	1
Extractable Petroleum Hydrocarb Surrogate Recovery	BDL	4.0	mg/kg	EPH	10/25/04	1
o-Terphenyl	84.		% Rec.	EPH	10/25/04	1
Polychlorinated Biphenyls						
PCB 1016	BDL	0.085	mg/kg	8082	10/29/04	5
PCB 1221	BDL	0.085	mg/kg	8082	10/29/04	5
PCB 1232	BDL	0.085	mg/kg	8082	10/29/04	5
PCB 1242	BDL	0.085	mg/kg	8082	10/29/04	5
PCB 1248	BDL	0.085	mg/kg	8082	10/29/04	5
PCB 1254	BDL	0.085	mg/kg	8082	10/29/04	5
PCB 1260	BDL	0.085	mg/kg	8082	10/29/04	5
PCBs Surrogates						
Decachlorobiphenyl	98.1		% Rec.	8082	10/29/04	5
Tetrachloro-m-xylene	73.6		% Rec.	8082	10/29/04	5

Tom Mellette, ESC Representative

BDL - Below Detection Limit

Det. Limit - Estimated Quantitation Limit (EQL)

Laboratory Certification Numbers:

AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742

Note:

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Reported: 11/02/04 06:33 Printed: 11/02/04 06:34



**ENVIRONMENTAL
SCIENCE CORP.**

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289
Est. 1970

REPORT OF ANALYSIS

November 02, 2004

Curt Watson
S&ME - Hixon, Tn.
2733 Kanasita Dr. Suite A
Hixon, TN 37343

Date Received : October 22, 2004
Description : TVA Decatur
Sample ID : TRM 296.8 LHA 12 FT
Collected By : Curt Watson
Collection Date : 10/20/04 13:05

ESC Sample # : L174641-03
Site ID : TN RIVER DECATUR HARBO
Project # : 143204720

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	71.0		%	2540G	10/28/04	1
Mercury	0.042	0.020	mg/kg	7471	10/26/04	1
Arsenic	1.3	0.50	mg/kg	6010B	10/30/04	1
Barium	110	0.25	mg/kg	6010B	10/30/04	1
Cadmium	1.2	0.25	mg/kg	6010B	10/30/04	1
Chromium	40.	0.50	mg/kg	6010B	10/30/04	1
Lead	8.4	0.25	mg/kg	6010B	10/30/04	1
Selenium	BDL	0.50	mg/kg	6010B	10/30/04	1
Silver	BDL	0.25	mg/kg	6010B	10/30/04	1
Extractable Petroleum Hydrocarb Surrogate Recovery	BDL	4.0	mg/kg	EPH	10/25/04	1
o-Terphenyl	89.		% Rec.	EPH	10/25/04	1
Polychlorinated Biphenyls						
PCB 1016	BDL	0.085	mg/kg	8082	10/29/04	5
PCB 1221	BDL	0.085	mg/kg	8082	10/29/04	5
PCB 1232	BDL	0.085	mg/kg	8082	10/29/04	5
PCB 1242	BDL	0.085	mg/kg	8082	10/29/04	5
PCB 1248	BDL	0.085	mg/kg	8082	10/29/04	5
PCB 1254	BDL	0.085	mg/kg	8082	10/29/04	5
PCB 1260	BDL	0.085	mg/kg	8082	10/29/04	5
PCBs Surrogates						
Decachlorobiphenyl	91.5		% Rec.	8082	10/29/04	5
Tetrachloro-m-xylene	75.2		% Rec.	8082	10/29/04	5


Tom Mellette, ESC Representative

BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit (EQL)

Laboratory Certification Numbers:
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KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742

Note:
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REPORT OF ANALYSIS

November 02, 2004

Curt Watson
S&ME - Hixon, Tn.
2733 Kanasita Dr. Suite A
Hixon, TN 37343

Date Received : October 22, 2004
Description : TVA Decatur
Sample ID : TRM 298.1 LHA 22 FT
Collected By : Curt Watson
Collection Date : 10/19/04 11:50

ESC Sample # : L174641-04
Site ID : TN RIVER DECATUR HARBOR
Project : 143204720

Parameter	Result	Det. Limit	Units	Limit	Method	Date	Dil
TCLP Extraction	-				1311	10/30/04	1
Mercury	BDL	0.0010	mg/l	0.20	7470A	10/30/04	1
Arsenic	BDL	0.050	mg/l	5.0	6010B	11/01/04	1
Barium	0.060	0.050	mg/l	100	6010B	11/01/04	1
Cadmium	BDL	0.050	mg/l	1.0	6010B	11/01/04	1
Chromium	BDL	0.050	mg/l	5.0	6010B	11/01/04	1
Lead	BDL	0.050	mg/l	5.0	6010B	11/01/04	1
Selenium	BDL	0.050	mg/l	1.0	6010B	11/01/04	1
Silver	BDL	0.050	mg/l	5.0	6010B	11/01/04	1

Tom Mallette, ESC Representative

BDL - Below Detection Limit

Det. Limit - Estimated Quantitation Limit (EQL)

Laboratory Certification Numbers:

AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
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Note:

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REPORT OF ANALYSIS

Curt Watson
S&ME - Hixon, Tn.
2733 Kanasita Dr. Suite A
Hixon, TN 37343

November 02, 2004

Date Received : October 22, 2004
Description : TVA Decatur
Sample ID : TRM 296.9 LHA 12 FT
Collected By : Curt Watson
Collection Date : 10/20/04 08:50

ESC Sample # : L174641-05

Site ID : TN RIVER DECATUR HARBOR

Project : 143204720

Parameter	Result	Det. Limit	Units	Limit	Method	Date	Dil
TCLP Extraction	-				1311	10/30/04	1
Mercury	BDL	0.0010	mg/l	0.20	7470A	10/30/04	1
Arsenic	BDL	0.050	mg/l	5.0	6010B	11/01/04	1
Barium	0.060	0.050	mg/l	100	6010B	11/01/04	1
Cadmium	BDL	0.050	mg/l	1.0	6010B	11/01/04	1
Chromium	BDL	0.050	mg/l	5.0	6010B	11/01/04	1
Lead	BDL	0.050	mg/l	5.0	6010B	11/01/04	1
Selenium	BDL	0.050	mg/l	1.0	6010B	11/01/04	1
Silver	BDL	0.050	mg/l	5.0	6010B	11/01/04	1

Tom Mallette, ESC Representative

BDL - Below Detection Limit

Det. Limit - Estimated Quantitation Limit (EQL)

Laboratory Certification Numbers:

AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233

Note:

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REPORT OF ANALYSIS

Curt Watson
S&ME - Hixon, Tn.
2733 Kanasita Dr. Suite A
Hixon, TN 37343

November 02, 2004

Date Received : October 22, 2004
Description : TVA Decatur
Sample ID : TRM 296.8 LHA 12 FT
Collected By : Curt Watson
Collection Date : 10/20/04 13:05

ESC Sample # : L174641-06

Site ID : TN RIVER DECATUR HARBOR

Project : 143204720

Parameter	Result	Det. Limit	Units	Limit	Method	Date	Dil
TCLP Extraction	-				1311	10/30/04	1
Mercury	BDL	0.0010	mg/l	0.20	7470A	10/30/04	1
Arsenic	BDL	0.050	mg/l	5.0	6010B	11/01/04	1
Barium	0.054	0.050	mg/l	100	6010B	11/01/04	1
Cadmium	BDL	0.050	mg/l	1.0	6010B	11/01/04	1
Chromium	BDL	0.050	mg/l	5.0	6010B	11/01/04	1
Lead	BDL	0.050	mg/l	5.0	6010B	11/01/04	1
Selenium	BDL	0.050	mg/l	1.0	6010B	11/01/04	1
Silver	BDL	0.050	mg/l	5.0	6010B	11/01/04	1

Tom Mallette, ESC Representative

BDL - Below Detection Limit

Det. Limit - Estimated Quantitation Limit (EQL)

Laboratory Certification Numbers:

AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233

Note:

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Attachment A
List of Analytes with QC Qualifiers

Sample #	Analyte	Qualifier	
L174641-01	PCB 1016	O	
	PCB 1221	O	
	PCB 1232	O	
	PCB 1242	O	
	PCB 1248	O	
	PCB 1254	O	
	PCB 1260	O	
	Decachlorobiphenyl	O	
	Tetrachloro-m-xylene	O	
	Barium	B	
	L174641-02	PCB 1016	O
		PCB 1221	O
		PCB 1232	O
PCB 1242		O	
PCB 1248		O	
PCB 1254		O	
PCB 1260		O	
Decachlorobiphenyl		O	
Tetrachloro-m-xylene		O	
Barium		B	
L174641-03		PCB 1016	O
		PCB 1221	O
		PCB 1232	O
	PCB 1242	O	
	PCB 1248	O	
	PCB 1254	O	
	PCB 1260	O	
	Decachlorobiphenyl	O	
	Tetrachloro-m-xylene	O	
	Barium	B	

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
B	(EPA) - The indicated compound was found in the associated method blank as well as the laboratory sample.
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable unless qualified as 'R' (Rejected).

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

	Control Limits		(AQ)	(SS)		
2-Fluorophenol	31-119	Nitrobenzene-d5	43-118	Dibromfluoromethane	79-126	83-119
Phenol-d5	12-134	2-Fluorobiphenyl	45-128	Toluene-d8	81-114	82-116
2,4,6-Tribromophenol	51-141	Terphenyl-d14	43-137	4-Bromofluorobenzene	65-129	72-126

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
11/02/04 at 06:34:58

TSR Signing Reports: 690
R5 - Desired TAT

Sample: L174641-01 Account: SMEHTN Received: 10/22/04 09:00 Due Date: 10/29/04 00:00 RPT Date: 11/02/04 06:33
Sample: L174641-02 Account: SMEHTN Received: 10/22/04 09:00 Due Date: 10/29/04 00:00 RPT Date: 11/02/04 06:33
Sample: L174641-03 Account: SMEHTN Received: 10/22/04 09:00 Due Date: 10/29/04 00:00 RPT Date: 11/02/04 06:33
Sample: L174641-04 Account: SMEHTN Received: 10/22/04 09:00 Due Date: 10/29/04 00:00 RPT Date: 11/02/04 06:33
Sample: L174641-05 Account: SMEHTN Received: 10/22/04 09:00 Due Date: 10/29/04 00:00 RPT Date: 11/02/04 06:33
Sample: L174641-06 Account: SMEHTN Received: 10/22/04 09:00 Due Date: 10/29/04 00:00 RPT Date: 11/02/04 06:33

Prepared by:
ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (800) 767-5859
FAX (615) 758-5859

Acronym: **SMEHTN** (lab acronym)
Tennessee Dept. of Environment & Conservation
Order #: **1013 DS**
Shipped Via: **Express Overnight**

Analysis/Container/Preservative

Sample ID	Matrix*	Depth	Date	Time	No. of Cntrs	PCB's 4ozClr-NOPres	NCP's 20ozClr-NOPres	TCLP METALS 8ozClr-NOPres	Remarks/Contaminant	Sample # (lab only)
TRM 298.1 Left Hole A	SS	22 ft	10/19/04	11:50	3	X	X	X	L79641-01	
TRM 296.9 Left Hole A	SS	12 ft	10/20/04	08:50	3	X	X	X	-02	
TRM 296.8 Left Hole A	SS	12 ft	10/20/04	13:05	3	X	X	X	-03	
	SS				3	X	X	X		
	SS				3	X	X	X		
	SS				3	X	X	X		
	SS				3	X	X	X		
TRM 298.1 Left Hole A	SS	22 ft	10/19/04	11:50	1	X	X	X	-04	
TRM 296.9 Left Hole A	SS	12 ft	10/20/04	09:50	1	X	X	X	-05	

Alternate billing information:
Report to: **Smart-Watson** Email: **CWATSON@smart-watson.com**
Project Description: **TVA Decatur** City/State Collected: **Decatur, AL**
Client Project #: **143204720** Lab Project #: **SMEHTN-TVADCAUR**
Phone: (423) 826-2110 P.O.#: **604012**
FAX: (423) 870-1005
Collected by (print): **Smart-Watson**
Collected by (signature): *[Signature]*
Packed on Ice: **N** **Y** **Y**

Matrix: **SS - Soil** **GW - Groundwater** **WW - Wastewater** **DW - Drinking Water** **OT - Other**
Remarks:
Temp _____
pH _____
Flow _____
Other _____

Relinquished by (Signature)	Date	Time	Received by (Signature)	Date	Time	Relinquished by (Signature)	Date	Time	Received by (Signature)	Date	Time
<i>[Signature]</i>	10/21/04	16:00	<i>[Signature]</i>	10/21/04	16:00	<i>[Signature]</i>	10/21/04	16:00	<i>[Signature]</i>	10/21/04	16:00
<i>[Signature]</i>			<i>[Signature]</i>			<i>[Signature]</i>			<i>[Signature]</i>		
<i>[Signature]</i>			<i>[Signature]</i>			<i>[Signature]</i>			<i>[Signature]</i>		

8446 7387 4847
Temp: **3.05** Date: **10/22/04** Time: **0900**
Condition: **OK**
Samples returned via: UPS FedEx Courier Boxes Received: **17**
pH: **3.05** pH Checked: **900**

Prepared by:



ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (800) 767-5859
FAX (615) 758-5859

APPLICANT: SMEHTN
ANALYSIS REQUIRED: TCLP METALS 80ZCH-NOPTes
ORDER NO: 101305
SHIPPED VIA: FedEx Ground

Remarks/Contaminant	Sample # (lab only)
	LT74691 -04

Alternate billing information:

S&ME - Hixon, Tn.
2733 Kanasita Dr. Suite A
Hixon, TN 37343

Report to: **Curt Watson**
Email: **curtwatson@smecinc.com**

Project Description: **TVA Decatur**
City/State Collected: **Decatur, AL**
Lab Project #: **SMEHTN-TVADDECATUR**
Phone: (423) 826-2110
FAX: (423) 870-1005
P.O.#: **604012**

Site/Facility ID#: **TNRiver@DecaturHixon**
Rush? (Lab MUST Be Notified)
 Same Day 200%
 Next Day 100%
 Two Day 50%

Collected by (print): **Curt Watson**
Collected by (signature): *[Signature]*

Packed on lot: **N Y V**

Sample ID	Comp/Grab	Metric*	Depth	Date Results Needed		No. of Ctns	Analysis/Container/Preservative
				Email? No Yes	FAX? No Yes		
TRM 296.8 Left Hole A	Grab	SS	12-ft	10/30/04	13:05	1	EPHIN 40ZCH-NOPTes
		SS				1	PCB's 40ZCH-NOPTes
		SS				1	HGRA METALS 80ZCH-NOPTes
		SS				1	TCLP METALS 80ZCH-NOPTes
		SS				1	
		SS				1	

*Metric: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Time:	Samples returned via:	Condition:
<i>[Signature]</i>	10/21/04	16:00	<i>[Signature]</i>		<input checked="" type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier	(lab uses only)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Time:	Yield: 3.0g Bottles Received: 12	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Time:	Yield: 10/22/04 Bottles Received: 9/10	

TABLE 2
Summary of Analytical Results
Tennessee River at Decatur Harbor
Decatur, Alabama
S&ME Project No. 1432-04-720

Sample ID	TRM 298.1 LHA	TRM 296.9 LHA	TRM 296.8 LHA	TCLP	Industrial
Sample Date	10/19/04	10/20/04	10/20/04	Action Levels ¹	PRGs ²
Depth (ft)	22	12	12		
TCLP Metals (mg/l)					
Mercury	<0.0010	<0.0010	<0.0010	0.2	--
Arsenic	<0.050	<0.050	<0.050	5.0	--
Barium	0.060	0.060	0.054	100.0	--
Cadmium	<0.050	<0.050	<0.050	1.0	--
Chromium	<0.050	<0.050	<0.050	5.0	--
Lead	<0.050	<0.050	<0.050	5.0	--
Selenium	<0.050	<0.050	<0.050	1.0	--
Silver	<0.050	<0.050	<0.050	5.0	--
RCRA Metals (mg/kg)					
Mercury	0.14	0.041	0.042	--	310
Arsenic	1.5	1.4	1.3	--	260
Barium	48	130	110	--	67000
Cadmium	0.47	<0.25	1.2	--	450
Chromium	23	40	40	--	450
Lead	10	9.5	8.4	--	750
Selenium	<0.50	<0.50	<0.50	--	5100
Silver	0.49	<0.25	<0.25	--	5100
TPH-EPH (mg/kg)	15	<4.0	<4.0	--	100 ³
PCBs (mg/kg)					
PCB 1016	<0.085	<0.085	<0.085	--	21
PCB 1221	<0.085	<0.085	<0.085	--	0.74
PCB 1232	<0.085	<0.085	<0.085	--	0.74
PCB 1242	<0.085	<0.085	<0.085	--	0.74
PCB 1248	<0.085	<0.085	<0.085	--	0.74
PCB 1254	<0.085	<0.085	<0.085	--	0.74
PCB 1260	<0.085	<0.085	<0.085	--	0.74

Notes: ¹ - Toxicity Characteristic Leaching Procedure (TCLP) Action Levels [40 CFR 261.24]

² - U.S. EPA Region 9 2002 Industrial Preliminary Remediation Goals (PRGs).

³ - TDEC "Drinking Water Supply" Cleanup Level.