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ENVIRONMENTAL ASSESSMENT

MALLARD-FOX CREEK INDUSTRIAL PARK LAND DISPOSAL OF TRACT NO. XWR-633

Morgan County, Alabama

PREPARED BY:
TENNESSEE VALLEY AUTHORITY

OCTOBER 2011

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ACRONYMS, ABBREVIATIONS, AND GLOSSARY OF TERMS

ADEM	Alabama Department of Environmental Management
BMPs	Best management practices, i.e., accepted construction practices designed to reduce environmental effects
CAA	Clean Air Act
CBMPP	Construction Best Management Practices Plan
CFR	Code of Federal Regulations
CH_4	Methane
clayey sand	Mixture of clay sized particles and sand sized particles with the majority of the matrix being sand.
CO_2e	Carbon dioxide equivalent emissions
CO	Carbon monoxide
CO_2	Carbon dioxide
CWA	Clean Water Act
dB	Decibel(s)
dBA	A-weighted decibel
e.g.	Abbreviation for the Latin term, *exempli gratia*, meaning “for example”
EIS	Environmental Impact Statement
EPRI	Electric Power Research Institute
fallow	Agricultural land left uncultivated for one or more seasons
fat clay	Cohesive and compressible clay of high plasticity, containing a high proportion of minerals that make it feel greasy to touch.
GCC	Global climate change
GHGs	Greenhouse gases
i.e.	Abbreviation for the Latin term, *id est*, meaning “that is”
IPCC	Intergovernmental Panel on Climate Change
lean clay	Clay of low to medium plasticity owing to a relatively high content of silt or sand.
M-2	City of Decatur’s general industry zoning district
msl	Mean sea level
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
N_2O	Nitrous oxide
NO_2	Nitrogen dioxide
NO_X	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
O_3	Ozone
OSHA	Occupational Health and Safety Administration
POTW(s)	Publicly owned treatment work(s)

PM	Particulate matter
$PM_{2.5}$	Particulate matter whose particles are less than or equal to 2.5 micrometers
PM_{10}	Particulate matter whose particles are less than or equal to 10 micrometers
ppm	Parts per million
PSD	Prevention of Significant Deterioration
ROD	Record of Decision
sandy silt	Silt particles ranging between 1⁄256 and 1⁄16 mm (3.9 to 62.5 µm), larger than clay, but smaller than a sand. Sandy silts are a mixture of sand sized particles and silt sized particles with the majority of the matrix being silt.
SIC Code	Standard Industrial Classification Code
SO_2	Sulfur dioxide
SO_3	Sulfur trioxide
SWPPP	Storm Water Pollution Prevention Plan
tpy	Tons per year
TVA	Tennessee Valley Authority
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WMA	Wildlife Management Area
WWT	Wastewater treatment

CHAPTER 1

1.0 PURPOSE OF AND NEED FOR ACTION

1.1. The Proposed Decision and Need

The Tennessee Valley Authority (TVA) received a request from Hexcel Corporation (Hexcel) in May 2011 to purchase approximately 74 acres of TVA property (Tract No. XWR-633) located on Wheeler Reservoir, Tennessee River Mile 298 (left bank), Morgan County, Alabama (Figures 1-1, 1-2). Hexcel proposes to develop an industrial facility on the tract; this intended use is consistent with the current land use allocation for industrial use in the 1995 *Wheeler Reservoir Land Management Plan* (TVA 1995). The subject property is part of the Mallard-Fox Creek Industrial Park and is under permanent easement to the Decatur-Morgan County Port Authority for site development purposes until it is sold for industrial development.

Under the proposed action, TVA would sell the 74-acres tract at a public auction in accordance with Section 31 of the TVA Act. The use of the land would be restricted to industrial purposes. TVA would retain the rights to construct a transmission line on 2.4 acres of the property. TVA's disposal of this land would be consistent with the designated industrial use for the tract and the TVA Land Policy (TVA 2006) regarding economic development for reservoir properties. Thus, the decision before TVA is whether to sell the 74 acres of land or deny the request.

1.2. Other Pertinent Environmental Reviews or Documentation

The suitability of the Mallard-Fox Creek area for industrial use was previously assessed and confirmed in an Environmental Impact Study (EIS) entitled *Proposed Development and Use of Mallard-Fox Creek Area in North Alabama* (TVA 1980). Subsequently, TVA allocated approximately 450 acres of the Mallard-Fox Creek Wildlife Management Area for industrial development and designated the remaining 1,500 acres for long-term wildlife management and recreational use. The industrial land, including Tract No. XWR-633 and neighboring properties, became part of Mallard-Fox Creek Industrial Park.

The United States Army Corps of Engineers (USACE) prepared a supplement to the TVA EIS (1980) that was published March 11, 1988. This supplemental EIS addressed potential effects of dredging a 9,000-foot-long navigation channel parallel to the river frontage of the 450-acre industrial development property. The USACE completed the dredging activities and placed the spoil material in a 20-acre embayment on Tract No. XWR-633, which essentially created the contiguous parcel.

Several documents have been prepared for actions associated with the Mallard-Fox Creek area. The findings in these documents related to this environmental assessment (EA) are summarized and incorporated by reference as appropriate. Table 1-1 lists the documents related to the Mallard-Fox Creek Industrial Park and the nearby Mallard-Fox Creek Wildlife Management Area.

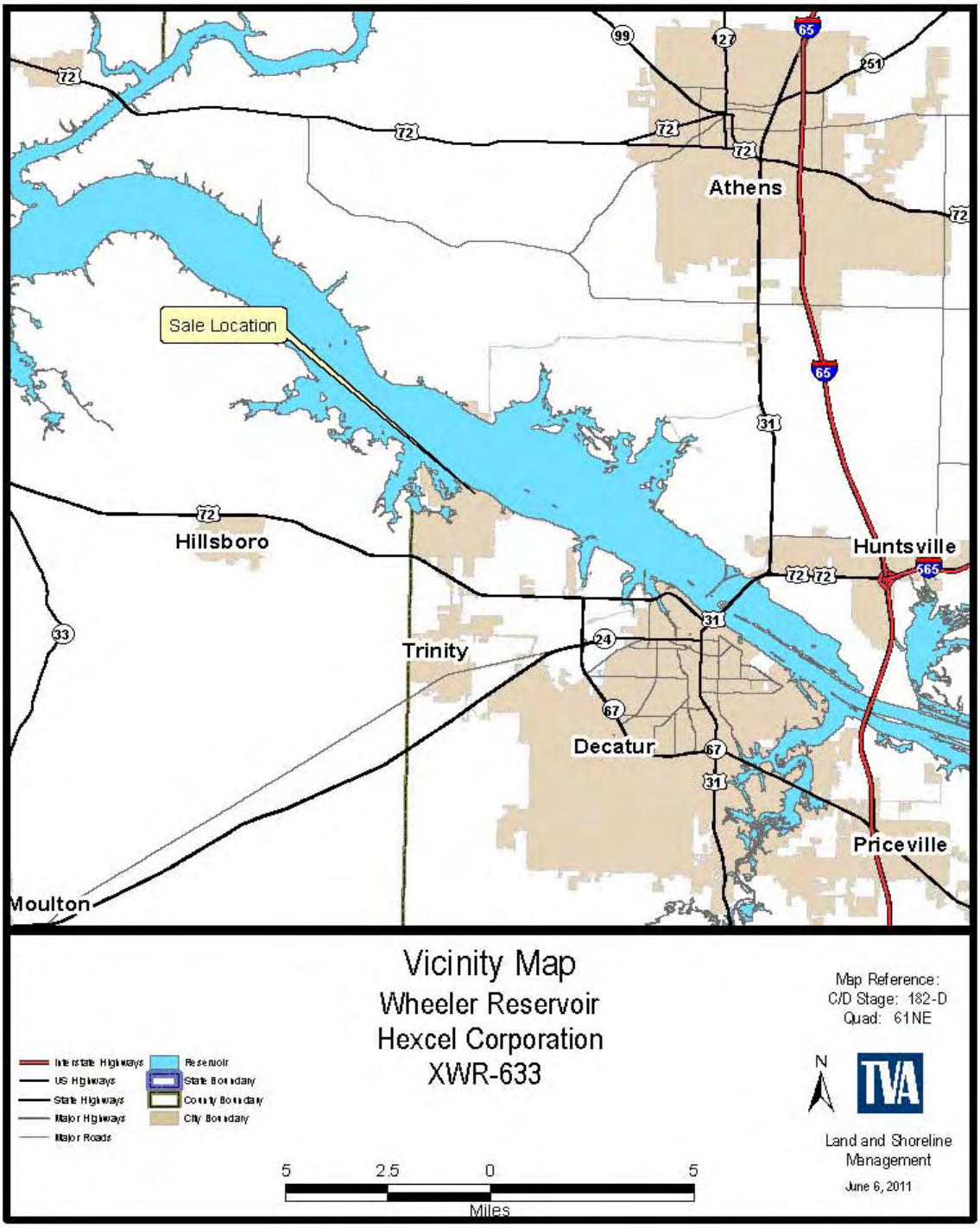

Figure 1-1. Regional Location of Tract XWR-633, Mallard-Fox Creek Industrial Park Decatur, Alabama

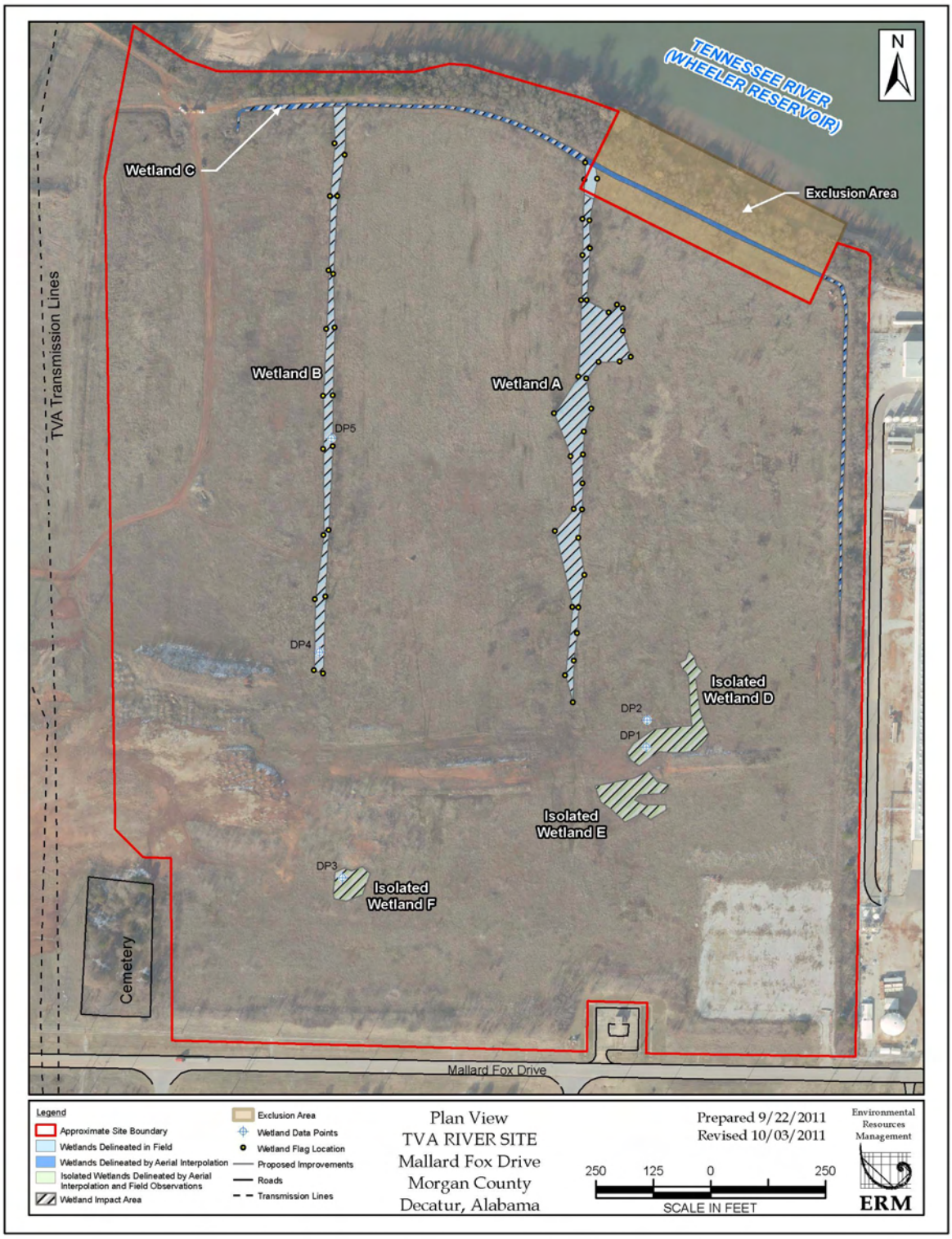

Figure 1-2. Approximate Boundaries of Tract XWR-633, Mallard-Fox Creek Industrial Park Decatur, Alabama

Table 1-1. Environmental and other Documents Related to the Mallard-Fox Creek Industrial Park and Wildlife Management Area

Type of Review	Title	Result/Date	Summary/Relevance for this Review
EIS	Proposed Development and Use of Mallard-Fox Creek Area in North Alabama	Record of Decision (ROD) issued 1980	The need for improved wildlife management and the need for future economic benefits from industrial development were evaluated. As a result of this study, the Mallard-Fox Creek Industrial Park and the Mallard-Fox Creek Wildlife Management Area were created.
SEIS	Proposed Development and Use of Mallard-Fox Creek Area in North Alabama	ROD 1988	The USACE and TVA evaluated dredging a 9,000 foot long navigation channel parallel to the river frontage of the 450-acre industrial development property.
Land Plan	Wheeler Reservoir Land Management Plan	Final Land Plan 1995	TVA evaluated land use designations for TVA property on Wheeler Reservoir.
EA	Mallard-Fox Creek Waterfront Industrial Site Water Improvements	FONSI* 1998	TVA evaluated assisting Decatur Utilities in using an Appalachian Regional Commission grant to install a new water supply line to the Mallard-Fox Creek Waterfront Industrial Site.
EA	Mallard-Fox Wildlife Management Area Term Easement for State of Alabama	FONSI 2000	TVA granted a 30-year easement to the State of Alabama to manage the Mallard-Fox Creek Wildlife Management Area
EA	Proposed 30-Year Term Easement for Wildlife Management Areas State of Alabama Department of Conservation and Natural Resources Tract No.'s XTGR-155WL, XTPR-60WL, XTWR-45RE, & XTWR-114WL Guntersville, Pickwick, & Wheeler Reservoirs, Jackson, Lawrence, Lauderdale, Limestone, and Morgan Counties Alabama	FONSI 2002	ADCNR requested that TVA combine 4 existing wildlife management areas under a single 30-year easement to enhance cost-effectiveness of managing these areas

*Finding of No Significant Impact

1.3. Intergovernmental and Public Review and Comments

Lengthy public scoping efforts occurred in conjunction with the preparation of the EIS for the Proposed Development and Use of Mallard-Fox Creek Area in North Alabama (TVA 1980) and the Wheeler Land Plan. These documents covered the designation of the Mallard-Fox Creek Industrial Park for industrial use and are incorporated by reference.

TVA posted public notice of the proposed sale of Tract No. XWR-633 on its website on June 22, 2011, and requested public comments by July 25, 2011. TVA also published notices of the

proposed sale in two local newspapers, the *Decatur Daily* and the *Huntsville Times*, on June 22, 2011, also requesting comments by July 25, 2011. A copy of the public notice appears in Appendix A. No comments on the notice were received from the public.

Through internal scoping of the proposed action, TVA has determined that there would be no effects to prime or unique farmland, navigation, or wild and scenic rivers. This EA further evaluates the following resource areas for potential environmental impacts: air quality, noise, geological resources, water resources, wetlands, floodplains, aquatic ecology, terrestrial plants and animals, including threatened and endangered species, natural areas, recreation, cultural resources, visual resources, socioeconomics, transportation, and waste.

1.4. Necessary Federal Permits or Licenses

Development of the site for industrial use would most likely result in the destruction of 2.36 acres of wetlands currently existing on the property. The developer would be required to obtain a USACE Section 404 permit covering impacts or destruction of the wetlands prior to impacting the wetlands. The buyer of the property would need to obtain additional permits before constructing or operating an industrial facility on the site. Additional permits would likely include those listed in Table 1-2, but could include additional permits depending on the facility.

Table 1-2. Permits Likely Needed by Purchaser of Tract No. XWR 633 Prior to Construction and Operation of Industrial Facilities on the Site

Type of Permit	Issuing Agency
Construction Air Permit	Alabama Department of Environmental Management (ADEM)
National Pollutant Discharge Elimination System (NPDES) General Permit for Construction Storm Water Discharges	ADEM
Section 103 Permit for Noise Generating Construction Activities	Decatur Police
NPDES Permit for Storm Water Discharges associated with operation	ADEM
Modification to existing State Indirect Discharge Permit if discharging to Decatur Publicly Owned Treatment Works (POTW)	ADEM
Permit covering mitigation for the destruction of the wetlands: Section 10/404 Permit	USACE
For New Industrial Discharge, Intake, or Other Water Use Facility on the Tennessee River	
Section 26a permit	TVA
Section 10/404 Permit(s)	USACE
Industrial Wastewater NPDES Permit	ADEM
Water Quality Certification (Section 401 of the Clean Water Act (CWA)	ADEM

CHAPTER 2

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1. Alternatives

Internal scoping by TVA has determined that from the standpoint of the National Environmental Policy Act (NEPA), there are two alternatives available to TVA: the No Action and the proposed Action Alternative. The two alternatives are described below.

2.1.1. Alternative A – Do Not Authorize Sale of Tract No. XWR-633 for Industrial Development (No Action Alternative)

Under the No Action Alternative, the land would not be sold at this time and additional industrial development, whether by Hexcel or other qualified bidder, would not occur. TVA would not authorize sale of the land and the subject property would remain in its current condition. TVA would retain ownership of Tract No. XWR-633.

If other land sale, transfer, or disposal actions were to be considered by TVA in the future, additional appropriate environmental reviews would be required at that time.

2.1.2. Alternative B – Sale of Tract No. XWR-633 for Industrial Development (Action Alternative)

Under the proposed Action Alternative, TVA would authorize the sale of Tract No. XWR-633 at public auction in accordance with Section 31 of the TVA Act. Use of the property would be limited to industrial purposes. For the purpose of evaluating environmental impacts resulting from this alternative, this EA assumes the future land owner would construct and operate an industrial facility that would disturb the entire 74-acre tract, including on-site wetlands, forests, and open areas. Hexcel has made a case for no practicable alternative to the destruction of the wetlands. This environmental review assumes that other prospective purchasers would similarly be unable to avoid impacting the wetlands. TVA would retain the wooded riparian corridor bordering Wheeler Reservoir below elevation 560 feet above mean sea level (msl). Some of the wooded riparian corridor may be disturbed in the future for construction of a water intake, wastewater discharge, or barge terminal, but these actions would be subject to TVA's 26a permitting requirements and additional environmental review at that time. If Hexcel were to purchase the property, chemical production facilities would be constructed and operated on the site. Other prospective purchasers would similarly construct a manufacturing facility that would generate air emissions, wastewater, and solid waste. Since implementation of the Action Alternative would mean that the site would be sold at auction, predictions of future air, water, and solid waste emissions are speculative.

2.2. Comparison of Alternatives

Table 2-1 compares the environmental effects of the two alternatives.

Table 2-1. Summary of Impacts by Resource Area

Resource Area	No Action Alternative	Proposed Action Alternative
Air Quality	No Changes	Minor localized impact on air quality due to a temporary increase in criteria air pollutant emissions during construction. Developed industry would likely have operational emissions causing a moderate increase in air emissions for the vicinity. Increased air emissions would be mitigated by compliance with federal and State regulations and air permits administered by ADEM. Based on the overall evaluation of potential emissions and the air permitting and control technology requirements that are mandated by state and federal regulations, the proposed action would not have a significant impact on air quality.
Noise	No Changes	Short-term increases above ambient noise levels associated with the use of heavy equipment for site preparation and foundation development. Operational noise would be consistent with ambient noise levels already experienced in the industrial park. Overall, no significant noise impacts would be associated with the proposed action.
Geological Resources	No Changes	No significant alterations to underlying geologic conditions would occur due to construction or operation of a facility at the site. Soil erosion and compaction from construction related grading, excavation, and site development activities would be controlled using erosion and sediment control measures specified in a written Construction Best Management Practices Plan (CBMPP), so as not to impact Wheeler Reservoir. The Action Alternative would not significantly affect geological resources.
Water Resources	No Changes	Due to lack of feasibility, groundwater would not be extracted, and the tract is not in a recharge zone; therefore, no impacts on groundwater resources would occur. Hexcel eventually plans to withdraw water from Wheeler Reservoir for use in its process and discharge treated wastewater via new water intake and wastewater treatment (WWT) systems. Water withdrawals would roughly equate to WWT discharges, resulting in an insignificant impact. Storm water and wastewater discharges would be permitted to meet Clean Water Act discharge criteria aimed at preventing deterioration of the resource. Compliance with federal and state water quality regulations would result in no significant impacts on surface water quality.

Table 2-1. Summary of Impacts by Resource Area

Resource Area	No Action Alternative	Proposed Action Alternative
Wetlands	No Changes	For evaluating the environmental impacts, TVA assumed complete destruction of all 6 wetlands totaling 2.36 acres. Jurisdictional wetlands would be mitigated at a 2 to 1 ratio and non-jurisdictional wetlands would be mitigated at 1 to 1 ratio. This would result in a small gain in wetlands on a regional basis.
Floodplains	No Changes	The land proposed for sale is located above the 100- and 500-year flood plain elevations, and no structures or facilities would be constructed in or encroach on the floodplain. Water use facilities might eventually be built in the floodplain; however, those structures would be evaluated in separate permitting and environmental review processes. The proposed action would have negligible impact on floodplains.
Aquatic Ecology	No Changes	The proposed action would have no significant impacts on aquatic biological resources; impacts associated with construction of a water intake/outfall would be assessed through separate permitting processes.
Terrestrial Biological Resources Plants	No Changes	Assuming disturbance to vegetation on the entire 74-acre tract, about 66 acres of fallow field and sparsely vegetated disturbed plant habitat would be lost. Minimal disturbances would occur to about 2.61 acres of riparian forest.
Terrestrial Biological Resources Animals	No Changes	The predominant vegetation type to be removed (fallow field) has only marginal habitat value for disturbance-tolerant wildlife species common to the region; the loss of this habitat would not result in significant impacts to wildlife.
Threatened and Endangered Plants and Animals	No Changes	No federally or state-listed plants or animals are known to occur on the tract; however, occasional transient use by foraging federally listed gray bats is possible. Given the abundance of foraging habitat in the vicinity and the nature of the project, adoption of the Action Alternative would not result in impacts to this species.
Natural Areas	No Changes	The two closest natural areas, Mallard-Fox Creek State Wildlife Management Area (WMA) and Swan Creek State WMA, are 0.4 and 2 miles from the site, respectively and would not be affected by the sale and development of the property.
Recreation	No Changes	The proposed action would have no impacts on recreation facilities.

Table 2-1. Summary of Impacts by Resource Area

Resource Area	No Action Alternative	Proposed Action Alternative
Cultural Resources	No Changes	The archaeological site that is potentially eligible for inclusion in the National Register of Historic Places would be retained by TVA with a protective buffer, so the site would not be impacted by the sale or development of the property. The only aboveground cultural resource identified is Burt Cemetery, which is also being excluded from the proposed sale and would be avoided during future development of the site.
Visual Resources	No Changes	Only a limited number of viewers would be impacted by the development of an industrial facility adjacent to other industrial buildings and sites. Therefore, the Proposed Action would have a minor impact on visual resources.
Socioeconomics	No Changes	The area around the site is largely industrial, and population in the general area is somewhat sparse and scattered. There would be little negative impact to local residents from changes in traffic, noise levels, or other conditions in the area. Any noticeable differences would occur largely within the industrial areas and would not significantly affect residential locations or recreation areas. Construction and operation of a new industrial facility would have positive economic impacts by increasing jobs and income in the area. No significant negative social, economic, or environmental justice impacts are likely.
Transportation	No Changes	The proposed action would create minor increases in vehicular traffic (0.5 percent of 2010 volumes) due to construction activity. There would be negligible increases in vehicular traffic during operation of an industrial facility following sale under the proposed action. There would be minor increases in rail traffic only if a rail-delivery option is selected, and no impact on water-borne transportation. Overall, there would be no significant impacts on traffic or transportation.

Table 2-1. Summary of Impacts by Resource Area

Resource Area	No Action Alternative	Proposed Action Alternative
Waste	No Changes	Sufficient capacity exists at the City of Decatur/Morgan County Landfill to support the additional solid waste generated by construction and operation of an industrial facility at the site. If developed by Hexcel, the facility would contribute 2% of the landfill daily capacity, a minor impact. If Hexcel developed the site, it would likely qualify as a Small Quantity Generator of hazardous waste. Additional waste materials would be incinerated, recovered, or recycled using the same methods as currently employed by Hexcel at its existing adjacent facility. Overall, the additional waste production would be minor.

2.3. Summary of TVA's Commitments and Proposed Mitigation Measures

TVA's compliance commitments are existing policies, practices, best management practices (BMPs), and measures required by law, regulation, permit, or TVA policy that reduce the environmental impacts of the proposed action. TVA compliance measures and associated BMPs potentially existed prior to the proposed action and are not always specific to the proposed action. Proposed mitigation measure(s) are requirements developed specifically for the proposed action for the purpose of avoiding, minimizing, reducing, or compensating project-specific impacts identified during the environmental review process.

2.3.1. Routine Environmental Compliance Measures Required by Law or Deed Restrictions

The following routine compliance measures, protective of the environment, would be required of the purchaser by law or deed restrictions:

1. Emissions from construction equipment would be controlled through engine manufacturing requirements for both mobile sources (40 CFR Part 85) and portable equipment such as air compressors. If necessary, water trucks would be utilized to reduce fugitive dust from construction activities.

2. In the event proposed future air emissions appeared to have potential for adverse impacts, applicable requirements for air permits and associated control equipment would be negotiated by ADEM.

3. BMPs would be employed to minimize and mitigate any impacts associated with increased noise levels during construction, as required. Typical construction BMPs for noise include: 1) provision of mufflers for construction equipment, 2). minimization of idling, 3). conduct outdoor construction during the daytime hours, and 4). nighttime construction limited to indoor tasks.

4. Worker safety and exposure to noise would comply with Occupational Health and Safety Administration (OSHA) standards for construction. In addition, the purchaser would obtain a Section 103 permit from the Decatur Police.

5. The purchaser would operate within the limitations prescribed by a future permit to discharge to the Decatur sewer system (a publicly owned treatment works (POTW)); or operate within the requirements of a future NPDES permit or modification to an existing permit.

6. The purchaser would operate in accordance with the Spill Prevention, Control, and Countermeasures (SPCC) plan and SWPPP.

7. The purchaser would develop or revise the Risk Management Plan as necessary to reduce hazards from chemical spills or releases.

8. Any future facilities or equipment subject to flood damage would be located above elevation 560.2 (TVA Flood Risk Profile elevation plus two vertical feet).

9. Any future development proposed within the limits of the 100-year floodplain, elevation 557.4 would be consistent with the requirements of Executive Order 11988.

2.3.2. Required Mitigation Measure to Ensure No Significant Environmental Impacts

The following measure is required mitigation to ensure no significant environmental impacts on wetlands resources:

1). Jurisdictional wetlands would be mitigated at a ratio of 2 to 1 and the non-jurisdictional wetlands would be mitigated at a ratio of 1 to 1. The mitigation credits would total 4.11 to offset the loss of 2.36 acres of wetlands, unless the USACE requires additional mitigation. In the event USACE requires additional mitigation, TVA would revise this requirement to match.

2.4. The Preferred Alternative

TVA's preferred alternative is the Action Alternative wherein TVA would sell Tract No. XWR-633 at a public auction in accordance with Section 31 of the TVA Act. Under this alternative, the future landowner would construct and operate an industrial facility. Implementation of the Action Alternative would allow TVA to dispose of the property in accordance with the TVA Act and in keeping with the specified land use classification as described in the 1995 Wheeler Land Plan.

CHAPTER 3

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The existing environmental conditions of those environmental resources that could be affected by the proposed actions are described in this section. These affected environment descriptions are based on field surveys, published and unpublished reports, and personal communications with resource experts.

Based on the nature of the proposed action, TVA has determined that the following resources would not be affected: prime or unique farmland, navigation, and wild and scenic rivers. As described in Table 2-1, noise, geological resources, floodplains, aquatic ecology, endangered and threatened aquatic animals, natural areas, recreation, visual resources, transportation, and waste would experience minor impacts.

3.1. Air Quality

3.1.1. Affected Environment

3.1.1.1. Clean Air Act and National Ambient Air Quality Standards (NAAQS)

The ADEM Air Quality Division administers the Air Pollution Control Program for Morgan County. Air quality emission standards and air permitting requirements are established within ADEM's Administrative Code Division 3 of Title 335. Industrial facilities with air emissions permits within about a 1 mile radius are listed in Table 3-1. Industrial operations in the vicinity of the site which are considered existing sources of air emissions include a steel tube sizing facility, a steel slitting facility, various chemical manufacturing facilities, and a steel mill.

Under the Clean Air Act (CAA) Prevention of Significant Deterioration (PSD) of Air Quality Program, ambient air in Alabama is mostly classified as Class I or Class II. A Class II designation indicates areas where moderated change in air quality is allowed but where stringent air quality constraints are implemented, whereas a Class I designation involves those areas where almost no change from current air quality is allowed. The location for the Proposed Action is currently designated as Class II. The closest Class I area to the tract is the Sipsey Wilderness, located approximately 26 miles from the property boundary.

Under the CAA, the United States Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) for pollutants that may have a potential impact on human health and welfare. These pollutants, termed criteria air pollutants, are carbon monoxide (CO), oxides of nitrogen (NOx), particulate matter (PM) less than ten microns in aerodynamic diameter (PM_{10}), particulate matter less than 2.5 microns in aerodynamic diameter ($PM_{2.5}$), ozone (O_3), sulfur dioxide (SO_2), and lead (Pb). Primary NAAQS are established to protect human health while secondary NAAQS are established to protect human welfare. A summary of the primary and the secondary NAAQS for each criteria pollutant is provided in Table 3-2 below. ADEM has adopted, with no change, these NAAQS for each criteria pollutant (Rule 335-3-1-.03).

Table 3-1. Industrial Facilities with Air Emissions Permits within One Mile of Tract No. XWR-633

Facility	EPA Plant ID	State Air ID Number	SIC Code	SIC Code Description	Type Air Emissions	Operating Status
Decatur Mill Service	110006790605	712-0048	9999	Nonclassifiable Establishments	Minor	Operating
Hexcel Corporation	110000367585	712-0058	2824	Manufacturing - Organic Fibers, Noncellulosic	Synthetic Minor	Operating
Kinder Morgan Decatur Inc	110010126185	712-0090	4491	Marine Cargo Handling	Minor	Operating
Neo Industries (USA), Inc.	110012168643	712-0074	3537	Industrial Trucks and Tractors	Minor	Operating
Oci Chemical Corp Decatur Plant	110012168572	712-0081	2819	Manufacturing - Industrial Inorganic Chemicals. NEC	Synthetic Minor	Operating
Steel Technologies Decatur	110001713780	712-0068	3324	Steel Investment Foundries	Synthetic Minor	Operating
Worthington Steel Co	110000367530	712-0044	3499	Fabricated Metal Products	Synthetic Minor	Permanently Closed

Note: SIC Code: Standard Industrial Classification Code, a system of 4 digit codes used to represent the type of industry

Per ADEM, ambient concentrations of criteria pollutants in Morgan County are below the primary and secondary levels indentified in Table 3-2. For this reason, Morgan County is considered to be in “attainment” with the NAAQS for all criteria air pollutants.

Table 3-2. Primary and Secondary NAAQS for Criteria Pollutants

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Time
Carbon Monoxide (CO)	9 ppm (10 mg/m^3)	8-hour	None	
	35 ppm (40 mg/m^3)	1-hour		
Lead (Pb)	0.15 µg/m^3	Rolling 3-Month Average	Same as Primary	
Oxides of Nitrogen (as NO_2)	53 ppb	Annual (Arithmetic Average)	Same as Primary	
	100 ppb	1-hour	None	
PM_{10}	150 µg/m^3	24-hour	Same as Primary	
$PM_{2.5}$	15.0 µg/m^3	Annual (Arithmetic Average)	Same as Primary	
	25 µg/m^3	24-hour	Same as Primary	
Ozone (O_3)	0.075 ppm (2008 std)	8-hour	Same as Primary	
	0.08 ppm (1997 std)	8-hour	Same as Primary	
	0.12 ppm	1-hour	Same as Primary	
Sulfur Dioxide (SO_2)	0.03 ppm	Annual (Arithmetic Average)	0.5 ppm 3-hour	
	0.14 ppm	24-hour		
	75 ppb	1-hour	None	

On January 6, 2010, USEPA proposed a revised primary NAAQS for ozone with a range of 60 to 70 parts per million (ppm) (reduced from 75 ppm established in 2008). Because average ozone levels in Morgan County are greater than 85 percent of the primary NAAQS for ozone, ADEM monitors ambient ozone levels using a network of monitors located throughout Morgan County.

Although Morgan County complies with the ozone NAAQS established in 2008, the county may be designated as “non-attainment” when the revised primary NAAQS are adopted by USEPA, depending on the ozone levels that are set.

3.1.1.2. Greenhouse Gas Emissions and Global Climate Change

Relationship of Greenhouse Gases and Global Climate Change

Global climate change (GCC) and its relationship to greenhouse gases (GHGs) are items of intense international study as well as of importance to TVA. In common usage, “global warming” often refers to the warming of the earth that can occur as a result of emissions of

GHGs to the atmosphere. Global warming can occur from a variety of both natural and man-made causes. "Climate change" refers to any substantive change in measures of climate, such as temperature, precipitation, or wind. The two terms are often used interchangeably, but climate change is broader as it conveys that there are other changes in addition to rising temperatures.

Various components in the atmosphere act like the glass in a greenhouse to retain a portion of the heat that radiates from the surface of the earth. The common term for this phenomenon is the "greenhouse effect," and it is essential for sustaining life on earth. Both man-made and natural processes produce GHGs. Water vapor and, to a lesser extent, water droplets in the atmosphere are responsible for 90 to 95 percent of the greenhouse effect. The most abundant long-lived GHGs are CO_2, methane (CH_4), and nitrous oxide (N_2O). Several classes of halogenated substances that contain fluorine, chlorine, or bromine are also GHGs. For the most part, they are products of industrial activities. According to numerous sources, increases in the earth's average surface temperatures are linked in part to increasing concentrations of GHGs, particularly CO_2, in the atmosphere. This has been a cause for concern among scientists and policymakers. This phenomenon has been studied internationally since 1992 by the United Nations Framework Convention on Climate Change, Intergovernmental Panel on Climate Change (IPCC).

The global carbon cycle consists of large carbon sources and sinks. Billions of tons of carbon in the form of CO_2 are emitted to the atmosphere annually through natural and manmade processes. Billions of tons of CO_2 are absorbed by oceans and living biomass (i.e., carbon sinks). According to the IPCC (2007), since the Industrial Revolution (i.e., about 1750), global atmospheric concentrations of CO_2 have risen about 36 percent, principally due to fossil fuel use.

Greenhouse Gas Emissions

The primary GHG emitted by human activity is CO_2 produced by the combustion of coal and other fossil fuels. Coal- and gas-fired electric power plants and automobiles are major sources of CO_2 in the United States (United States Energy Information Administration 2009). Other important sources include gas combustion used for heating buildings. Indirectly, buildings that utilize large quantities of electric power contribute to CO_2 emissions because of the fuel combustion required for power generation. Forests and other vegetated landforms represent sinks of CO_2.

Worldwide man-made annual CO_2 emissions are estimated at 29 billion tons, with the United States responsible for about 20 percent. United States electric utilities, in turn, emit 2.4 billion tons, roughly 40 percent of the United States emissions. TVA emitted approximately 73 million tons of CO_2 in 2009, about 3.3 percent of the United States electric utilities' total. This amount is down from the 104 million tons produced by TVA in 2008.

Regional Climate Change in the Southeast and the Tennessee River Valley

Compared to the rest of the United States, the climate of the Southeast is warm and wet, with high humidity and mild winters. The average annual temperature across the southeastern United States did not change significantly over the last century; however, since 1970, annual average temperature has risen about 2 degrees Fahrenheit (°F). The greatest seasonal increase in temperature has been during the winter months. Since the 1970s, the number of freezing days in the Southeast has declined by four to seven days per year for most of the region. Average autumn precipitation has increased by 30 percent for the region since 1901. There has been an increase in heavy downpours in many parts of

the region, while at the same time the percentage of the region experiencing moderate-to-severe drought increased over the past three decades.

In order to understand future climate scenarios in the TVA region better, TVA contracted with the Electric Power Research Institute (EPRI) to prepare a report on the impacts of climate change on various resources in the Tennessee Valley, including water and air, that could be reasonably anticipated to occur over the 21st century (EPRI and TVA 2009). Emphasis was placed on the near future (through 2050), as higher uncertainty exists for longer-range predictions. The basis for this report is the United Nations IPCC's *Fourth Assessment Report*, published in 2007 that assumes a medium GHG emissions projection (the A1B scenario), which does not reflect additional efforts to reduce GHG emissions. The TVA region spans two large model regions, the Central and Eastern North America regions. Temperature forecasts for the Tennessee Valley are similar for the two model regions and predict an increase in annual mean temperatures of about 1.4°F from 1990 to 2020 and up to 7.2°F by 2100. Precipitation forecasts for the two model regions are more variable. In the Central region (the western portion of the Tennessee Valley), winter precipitation is forecast to increase by 2.6 percent from 1990 to 2020 and by 3.6 percent by 2100. Central region summer precipitation is forecast to decrease by 6.1 percent from 1990 to 2020 and by 3 percent by 2100. In the Eastern region, winter precipitation is forecast to increase by 11.3 percent from 1990 to 2020 and by 13 percent by 2100. No change in eastern region summer precipitation is forecast from 1990 to 2020 or by 2100. It is important to note that these forecasts are based on coarse-scale model results, and localized downscaled analyses are needed for finer scale results.

3.1.2. Environmental Consequences for the No Action Alternative

Under the No Action Alternative, development of Tract No. XWR-633 would not occur at this time, and there would be no increases in emissions of air pollutants other than those which could be expected to occur over a period of years in conjunction with population growth and industrial development at other sites.

Because no foreseeable changes to existing land use would occur on the study area, no incremental impacts on emission of GHGs or climate change are anticipated as a result of the implementation of the No Action Alternative.

3.1.3. Environmental Consequences for the Action Alternative

3.1.3.1. Construction Air Quality Impacts from the Action Alternative

The Proposed Action would likely result in the construction and operation of equipment that would generate emissions. Construction activities resulting from the proposed action would result in temporary increases in criteria pollutant emissions. Specifically, there would be a temporary increase in fugitive dust (PM_{10}, $PM_{2.5}$) from surface disturbance during initial site preparation (e.g., earth moving, grading, and similar activities), fugitive VOCs from building interior coatings and parking space coatings, combustion emissions from non-road and on-road construction equipment/vehicle use, and combustion emissions from construction worker commuting. These impacts would be temporary and generally limited to the immediate vicinity of the construction area; thus, impacts to air quality associated with construction would not be significant.

All fuel-fired construction equipment would be maintained in accordance with manufacturers' recommendations to minimize construction-related combustion emissions. Emissions from construction equipment would be controlled through engine manufacturing

requirements for both mobile sources (40 CFR Part 85) and portable equipment such as air compressors. If necessary, water trucks would be utilized to reduce fugitive dust from construction activities.

Vegetation has been shown to moderate GHG emissions, therefore removal of dense vegetation could remove a source that potentially stabilizes GHG emission levels. The proposed action would result in removal of vegetation by constructing buildings, parking lots, roads, and other structures. However, the removal of vegetation would be minor as most of the forested areas lie outside the tract being considered for sale. Therefore, the reduction in the CO_2 sink offered by lost vegetation would be minor and insignificant.

3.1.3.2. Operational Air Quality Impacts from the Action Alternative

Industrial development on Tract No. XWR-633 would likely result in new sources of process and combustion emissions. If a chemical company such as Hexcel were to purchase and develop the site, process emissions from point sources would be generated from the loading of bulk liquid organic storage tanks and the operation of the raw material processing equipment (e.g., reactors, process vessels). Emissions control equipment would likely be used to control emissions from the raw material processing equipment. “Non-point” process emissions could occur from leaks from pipeline valves and connectors in organic service and evaporative losses from wastewater treatment operations. Combustion emissions could result from the addition of natural gas-fired steam boilers equipped with low NO_X burners and backup diesel generators to provide necessary electrical power when power from the grid is not available.

Since implementation of the Action Alternative would mean that the site would be sold at auction, specific predictions of future air emissions are speculative. Based on the regulatory framework for prevention of significant deterioration of air quality (40 CFR 52.21), increases of less than 100 tons per year (tpy) for the criteria air pollutants are considered insignificant. The threshold for potential significance for CO_2 equivalent emissions (CO_2e) is 100,000 tpy CO_2e. Increases in air emissions above these levels would require the permit Applicant to demonstrate that the increases would not adversely affect any nearby Class I areas such as the Sipsey Wilderness Area. Future air emissions would also need to comply with NAAQS. As the goal of air emissions permitting is to prevent significant deterioration of air quality, complex and industry-specific computer modeling and engineering evaluation would be needed to determine whether potential emissions would adversely affect air quality. In event proposed future air emissions appeared to have potential for adverse impacts, ADEM would require use of appropriate air pollution control technologies as a condition for permitting, so impacts on air quality would be insignificant.

Regulatory agencies, such as the USEPA, support reductions in GHG through regulatory requirements and enforcement settlements that encourage emission reductions. GHG emissions (as measured by CO_2e emissions) from new facilities in excess of 100,000 tpy CO_2e would be subject to requirements for use of air pollution control technology, enhanced energy efficiency, lower GHG-emitting technology, renewable energy, carbon capture and sequestration, or capture and beneficial re-use of fugitive hydrocarbons. Even though the proposed action may result in an incremental contribution of greenhouse gases, compliance with applicable regulations or permitting requirements would ensure potential impacts would not be adverse locally or globally. Implementation of the control technologies required as a result of the air permitting process would result in GHG emissions that would not have a significant impact on global climate change.

3.2. Noise

3.2.1. Affected Environment

Tract No. XWR-633 is located within the Mallard-Fox Creek Industrial Park, which is within the City of Decatur's General Industry (M-2) zoning district. The site is currently surrounded by various existing industrial operations, public roads, and waterways that contribute to the existing ambient sound levels. Existing ambient sound levels at the site are influenced by a number of factors which include but are not limited to:

1. Operations at the Steel Technology industrial steel slitting facility located immediately south of Tract No. XWR-633;
2. Operations at the industrial steel tube sizing facility located directly west of the Tract No. XWR-633, including a barge terminal and rail line;
3. Operations at the Hexcel facility located directly east of the Tract No. XWR-633;
4. Rail yard operations, rail lines, and barge terminal operations located adjacent to and east of the existing Hexcel facility;
5. Light- and heavy-duty vehicular traffic on public paved roads (Red Hat Road and Mallard Fox Drive); and
6. Motorized water-borne traffic on Wheeler Reservoir.

Noise levels within Decatur city limits are regulated through the City Code of Ordinances and are enforced by the Decatur Police Department. Noise levels are determined based on the classification of the zone (i.e., residential, industrial, commercial), project location, and time of day. For Industrial Zones such as M-2, the maximum daytime noise level is 80 decibels (dB), enforced from 7 AM to 10 PM. The maximum nighttime noise level for Industrial Zones is 75 dB, enforced from 10 PM to 7 AM.

Receptors located in the vicinity of Tract No. XWR-633 that may be considered sensitive to changes in noise levels and that may be impacted by high noise levels are listed in Table 3-3.

Table 3-3. List of Receptors Sensitive to Noise Levels Near the Project Area

Receptor and Location	***Present (Yes/No)***
Residences within 0.1 mile	No
Residences within 1 mile	No
Residences within 5 miles	Yes
Commercial Business within 0.1 mile	No
Commercial Business within 1 mile	No
Commercial Business within 5 miles	Yes
Public Land Use within 1 mile	Yes

3.2.2. Environmental Consequences for the No Action Alternative

Under the No Action Alternative, existing ambient noise would remain unchanged.

3.2.3. Environmental Consequences for the Action Alternative

The two primary sources of noise associated with the Proposed Action are: construction noise primarily associated with equipment used during site development and construction activities; and operational noise, generated during operation of processes and support equipment and services at the facility. Operational noise includes noise that emanates from employee vehicle and truck traffic, light- and heavy-duty vehicle travel, and operation of plant process equipment.

Construction Noise

Construction on the site resulting from the proposed action would generate temporary increases in noise in the vicinity of Tract No. XWR-633. The noise increases would be highly dependent upon the phase of construction. Initial construction activities such as site clearing and establishing foundations, would generate noise associated with heavy equipment operation (e.g., backhoes, front loaders, pile drivers). Smaller construction equipment such as scrapers and pavers would also likely be used as construction progresses. Noise would also be generated due to travel of light and heavy-duty construction vehicles to and from the construction site. Table 3-4 shows noise levels for typical construction equipment and processes that would likely be employed as a result of the Proposed Action. Depending on the construction equipment being used, the noise generated can be either continuous or harmonic noise (e.g., a backup generator) or episodic, intermittent, or short term (e.g., the use of a pile driver).

Table 3-4. Typical Noise Levels for Construction Equipment and Processes

Equipment	***Noise Level[1] (dBA at 50 ft)***
Front Loaders/ Backhoes/Compactors	72 – 92
Scrapers/Graders/Pavers	80 – 93
Trucks	83 – 93
Concrete Mixers	75 – 87
Generators	71 – 82
Jack Hammers/Pile Drivers	81 – 105
Ground clearing	83
Excavation/ Finishing and Cleanup	88
Foundations/Erection	81

[1]Referenced from “Report to the President and Congress on Noise,” EPA Document Number 92-63, 1972.

The purchaser would employ BMPs to minimize and mitigate any impacts associated with increased noise levels during construction. Typical noise BMPs include provision of mufflers for construction equipment and minimization of idling. All outdoor construction would be conducted during the daytime hours. Nighttime construction would be limited to

indoor tasks. Worker safety and exposure to noise would comply with Occupational Health and Safety Administration standards for construction. In addition, the purchaser would obtain a Section 103 permit for noise-generating construction activities from the Decatur Police. Thus, construction noise from the Proposed Action would not have a significant impact on any noise sensitive receptors on- or off-site.

Operational Noise

Operations on the site resulting from the proposed action would likely generate noise from typical plant equipment such as pumps, fans, production machinery, and auxiliary equipment such as boilers and backup diesel generators. Average operational noise levels would depend upon the process equipment in operation and the duration of operation for each piece of process equipment. Certain plant equipment, such as process pumps and boilers, would operate continuously, while certain equipment, such as a backup diesel generator, would operate intermittently. Table 3-5 shows typical noise levels for industrial process equipment.

Table 3-5. Typical Noise Levels for Industrial Process Equipment

Equipment	Noise Level (dBA)[1,2]
Pneumatic power tools	90 – 116
Blowers (forced, induced, fan, etc.)	78 – 100
Air compressors (reciprocating and centrifugal)	93 – 100
Combustion (furnace, flare, stack, etc.)	82 – 96
Pumps (hydraulic, water, etc.)	80 – 91
Industrial Trucks	88 – 90
Transformers	87 - 88

[1]Noise level measured at operator position except for Combustion which was measured at 25 feet from the source, respectively

[2]Referenced from “Report to the President and Congress on Noise,” EPA Document Number 92-63, 1972.

Based on installation of equipment with noise emissions similar to those listed above in Table 3-5 and the anticipated increase in heavy vehicle traffic, plant operations occurring as a result of the Proposed Action would result in a minimal increase in ambient noise levels. Worker safety and exposure to noise would comply with OSHA standards for industry. Compliance with OSHA standards, compliance with the noise limits for an Industrial Zone as established by the City of Decatur, and the distance to the nearest receptors would result in insignificant off-site or onsite noise impacts.

3.3. Geology and Soils

3.3.1. Affected Environment

Geology

Tract No. XWR-633 is located within the Highland Rim section of the Interior Low Plateaus province in the Appalachian Highlands Region. It is underlain by the Tuscumbia Limestone, which is typically gray, coarsely crystalline, massive, and contains beds of chert with abundant chert nodules. Geotechnical drilling on Tract No. XWR-633 encountered bedrock at depths ranging from 50 to 90 feet. Beneath the Tuscumbia Limestone is the Fort Payne Chert, a massively bedded deposit of limestone, dolomite, chert, and shale.

The United States Geological Survey (USGS) National Seismic Hazard Map indicates low to moderate seismic hazard for the northern Alabama area. Seismic events of magnitude capable of causing significant damage are rare in Alabama; however, proximity to the New Madrid seismic zone is sufficiently high to warrant the low to moderate seismic hazard rating in the region of Tract No. XWR-633 (USGS 2002).

Soils
The soil horizon at Tract No. XWR-633 consists of fill material, dredged river sediments, and native soil derived from the limestone bedrock. The fill material is typically 3 to 5 feet thick and sits on top of the dredged river sediments. The fill was deposited on Tract No. XWR-633 during development of the industrial property to the west. The fill consists of sandy lean clay and silty clay with minimal organic matter. Sediment dredged from the Tennessee River was used to fill a 20-acre embayment that formerly extended across Tract No. XWR-633 from the northwest to the east-central portion of the site. The dredge spoils are composed of a variety of materials such as fat clays, lean clays, sandy silts, and clayey sand, with varying consistency.

Native soils exist at the surface in the northernmost portion of Tract No. XWR-633 where dredged material was not placed, as well as beneath the dredged river sediments. The native soils consist of soft, silty deposits in areas at lower original ground elevations and lean clay in other areas. Fat clay layers with varying amounts of sand and weathered rock fragments are encountered at depth, which is typical of limestone residuum.

3.3.2. Environmental Consequences for the No Action Alternative

Under this alternative, construction activities would not occur on Tract No. XWR-633, and existing conditions would not change.

3.3.3. Environmental Consequences for the Action Alternative

No unique or undisturbed soils and no unique structural or mineralogical features of the underlying carbonate bedrock would be affected by construction after implementation of the Proposed Action. The underlying geology presents no major impediments or hazards to construction or operational activities. Due to the high clay content of the subsurface residuum, soils in the project area would not be susceptible to liquefaction resulting from a seismic event. With appropriately engineered footings (including foundations built on pilings, due to the nature of the soils at tract No. XWR-633), geologic conditions are stable and acceptable for standard construction requirements. No significant alterations to the underlying geology would occur during construction or operation of an industrial facility; therefore, the Proposed Action would have no impact on bedrock.

Surface soils in the project area underwent significant disturbance during prior fill activities, such that no unique or undisturbed soils are present in the project area. However, soil erosion and compaction from construction related grading, excavation, and site development activities is probable. To the degree that erosion and compaction are

controlled through BMPs and erosion and sediment control measures specified in a written CBMPP, the Proposed Action would not have a significant impact on soils.

3.4. Water Resources

3.4.1. Affected Environment

Groundwater

Groundwater in the vicinity of Tract XWR-633 exists within the residual soils above bedrock and within the underlying bedrock. Generally, groundwater in the vicinity of the site flows to the north, toward the Wheeler Reservoir. On this property, groundwater is present at a depth of approximately 20 feet in the residuum, but was encountered at shallower depths under perched conditions in the dredged river sediments. Due to the low permeability of the fine-grained materials comprising the uppermost water-bearing zone, groundwater yields of wells tapping the residuum water-bearing zone are typically insufficient for water supply purposes.

Generally, groundwater in the bedrock in the vicinity of Tract XWR-633 would be expected to be present under semi-confined conditions with the flow direction being controlled by the presence and orientation of secondary openings such as fractures, joints, and solution channels. Private water wells and industrial production wells tapping the bedrock aquifer are not present in the general vicinity of Tract XWR-633.

Surface Water

On a regional basis, surface water flows north to the Tennessee River (Wheeler Reservoir) while flow is controlled locally by site-specific topographic highs and lows. No perennial standing surface water bodies or streams are present on the property, but some shallow saturated conditions in the dredge fill area support wetlands (see Section 3.5). Storm drains are interspersed on the site, and two north-south trending ditches were constructed in the central portion of the property to aid in dewatering the dredge spoils placed on the site.

Alabama's climate is generally warm and humid, resulting from its mid-latitude location and proximity to the Gulf of Mexico. Precipitation patterns in the Decatur area average 57.0 inches annually, and the 100-yr, 24-hour precipitation is 7.5 inches (SCS 1986). The drainage area around and including the property is approximately 200 acres (see Figure 3-1). The parcel has adequate space to implement erosion control measures for construction and operation of an industrial facility.

Figure 3-1. Tract XWR-633 Watershed Boundaries

3.4.2. Environmental Consequences for the No Action Alternative

Under this alternative, construction activities would not occur on the property at this time, and it would remain undisturbed. There would be no adverse impacts to water resources from implementing the no action alternative.

3.4.3. Environmental Consequences for the Action Alternative

Groundwater

Groundwater present in the soil residuum overlying bedrock is not of sufficient yield to use as a resource, and the property is not in a groundwater recharge zone. Groundwater would not be extracted from the bedrock aquifer for production or potable use as part of the Proposed Action. Therefore, the Proposed Action would have no impact on groundwater resources.

Surface Water

The Proposed Action could result in an industrial development obtaining potable and process water from and discharging wastewater into Wheeler Reservoir through Decatur Utilities, and eventually installing a new water intake and wastewater outfall directly to Wheeler Reservoir. Any new intakes or discharges to Wheeler Reservoir would be subject to TVA permitting under Section 26a of the TVA Act, USACE Section 404 permitting, and associated permitting by ADEM. As the details of potential new water intakes or discharges are not known at this time, this environmental review cannot address them. However, a

typical industrial discharge flow of 3 million gallons per day (MGD) would be less than 0.04 percent of the minimum daily average river flow expected in the Tennessee River at the site during the summer and would be insignificant. Any future wastewater would be treated to meet NPDES permit requirements intended to protect water quality and then discharged.

If a chemical plant was developed on the site, a Spill Prevention, Control, and Countermeasures (SPCC) Plan, would be developed to address chemical storage, truck unloading/transfer, and pipeline areas, as well as unplanned releases of chemicals onto the ground or waterways. SPCC plans, prepared under the supervision of a registered professional engineer, typically outline how all spills would be contained and how migration of spills to surface water and groundwater would be prevented. Should the purchaser of the property store any hazardous chemicals, secondary containment would be required by law, and Federal Risk Management Plan (RMP) provisions would be developed to reduce risks of spills or releases.

If the company building and operating a facility at the site complies with the requirements listed below, which are required and regulated by other state or federal agencies, construction and operation of an industrial facility on the site would have a minor and insignificant impact on surface water quality:

1.) Comply with requirements of construction storm water permit and SWPPP.

2.) Operate within the limitations prescribed by a future permit to discharge to the Decatur sewer system (a publicly owned treatment works [POTW]).

3.) Operate within the requirements of a future NPDES permit or modification to an existing permit.

4.) Operate in accordance with the SPCC plan and SWPPP.

5.) Develop or revise the Risk Management Plan as necessary to reduce hazards from chemical spills or releases.

Compliance with the above measures would also be required under deed restrictions mandating the buyer to:

1.) Control all emissions of pollutants that might be discharged or released directly or indirectly into the atmosphere, into any stream, lake, reservoir, watercourse, or surface or subterranean waters, or into or on the ground from any part of the property, in full compliance with all applicable standards and requirements relating to pollution control of any kind now in effect or hereafter established by or pursuant to Federal, State, or local statutes, ordinances, codes, or regulations.

2.) Conduct all land-disturbing activities on the property in accordance with the best management practices to control erosion and sedimentation so as to prevent adverse impacts on water quality and related aquatic interests in order to meet the requirements of Section 208 of the Clean Water Act and implementing regulations.

3.5. Wetlands

3.5.1. Affected Environment

National Wetland Inventory maps indicate the site, which included a shallow water embayment of Wheeler Reservoir, had approximately 35 acres of wetlands, primarily forested and scrub-shrub habitat prior to the 1980s. In the late 1980s, the USACE dredged a navigation channel in Wheeler Reservoir and placed the dredge spoils in a 20-acre embayment on the site. Approximately 10-20 feet of dredge spoils and other clay fill material were placed on the site in order to prepare it for future industrial development. This activity filled virtually all the wetlands on site.

A wetland survey of the site was conducted in June 2011. Using the routine on-site determination method, wetland areas were determined by evaluating the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. All three parameters must be present under normal environmental circumstances in order to characterize an area as a wetland.

The six individual wetlands delineated on site are summarized in Table 3-6 and shown in Figure 3-2.

Table 3-6. Wetland Types and Sizes on Tract XWR-633

Wetland ID	Wetland Type	Wetland Size (acres)
Wetland A	Forested/scrub-shrub/emergent	0.88
Wetland B	Forested/scrub-shrub/emergent	0.53
Wetland C	Forested/scrub-shrub/emergent	0.34
Wetland D	Emergent	0.29
Wetland E	Emergent	0.22
Wetland F	Emergent	0.1
TOTAL		**2.36**

Wetlands A, B, and C are associated with ditches constructed to facilitate site drainage and dewatering of the dredge spoils placed in the 1980s. Wetlands D, E, and F are small, isolated, non-jurisdictional wetlands occurring in the south central part of the property. These three remnant wetlands exist in topographic low areas that were not graded during placement of surface cover fill material.

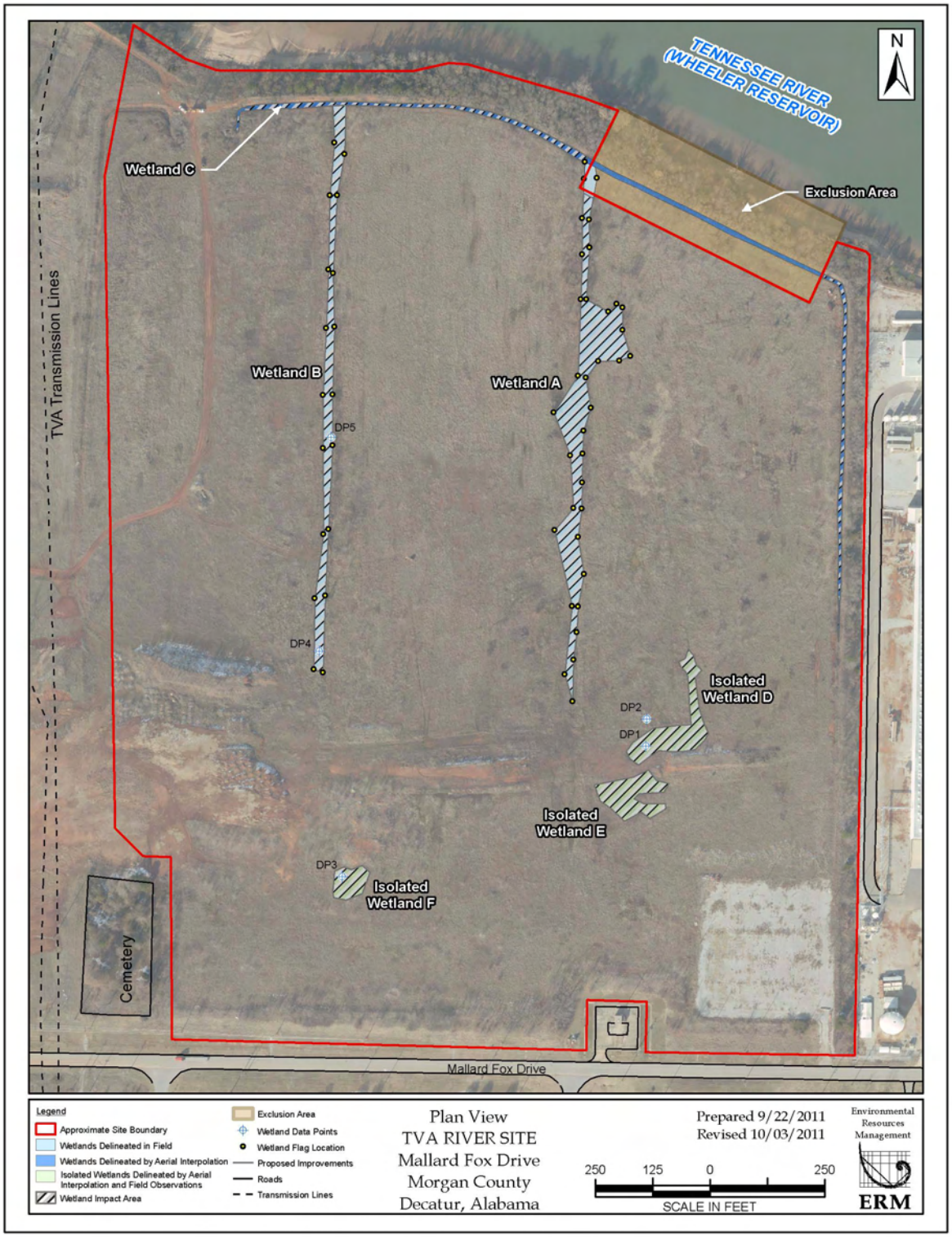

Figure 3-2. Wetland Map – Tract XWR-633

3.5.2. Environmental Consequences for the No Action Alternative

Under the No Action Alternative, the site would remain in its present state, and no wetland impacts would occur.

3.5.3. Environmental Consequences for the Action Alternative

As a federal agency and in accordance with its adopted implementation procedures, TVA complies with EO 11990, Wetlands Protection. Construction of a manufacturing facility on the property, Tract XWR-633, would result in unavoidable impacts to 2.36 acres of wetlands. Impacts would result from fill for construction.

Based on the potential purchaser's siting and construction requirements, economics, and the location and extent of existing wetlands on the property, TVA has determined there is no practical alternative that would avoid impacts to wetlands. The purchaser must apply for and obtain the necessary USACE permit approvals for impacts to jurisdictional wetlands. TVA expects that the USACE would require mitigation for the loss of 1.75 acres of wetlands at a 2:1 ratio at a USACE approved mitigation bank located within the appropriate watershed. TVA would require impacts to 0.61 acre of non-jurisdictional wetlands to be mitigated at a 1:1 ratio through purchase of mitigation bank credits. This would comply with the direction of Executive Order (EO) 11990 to minimize the destruction, loss, or degradation of wetlands located on federal lands. Proposed mitigation credits would total 4.11 to offset the loss of 2.36 acres of wetlands. This is sufficient to offset impacts associated with this project, and overall wetland impacts would be insignificant. The applicant, Hexcel, has applied for the USACE 404 permit with the above mitigation levels. This application is included in Appendix B.

3.6. Floodplains

3.6.1. Affected Environment

Tract No. XWR-633 is located at Tennessee River Mile (TRM) 298.0 on Wheeler Reservoir in Morgan County, Alabama. The 100-year floodplain is the area that would be inundated by the 100-year flood. The 100-year flood elevation at TRM 298.0 is 557.4-feet above mean sea level (msl) and the 500-year flood elevation is 558.2-feet above msl. The TVA Flood Risk Profile (FRP) elevation is 558.2-feet above msl. The FRP is used to control residential and commercial development on TVA lands or on flowage easement lands where such activities would impact TVA rights. All elevations are National Geodetic Vertical Datum 1929. Morgan County participates in the National Flood Insurance Program, and any development must be consistent with these regulations.

3.6.2. Environmental Consequences for the No Action Alternative

Under the No Action Alternative, the proposed land sale would not occur. Therefore, there would be no direct, indirect, or cumulative impacts to floodplains because there would be no physical changes to the current conditions found within the local floodplains.

3.6.3. Environmental Consequences for the Action Alternative

As a federal agency and in accordance with its adopted implementation procedures, TVA complies with EO 11988, Floodplain Management. The objective of EO 11988 is "to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative" (United States Water Resources Council 1978). The EO is not intended to prohibit floodplain development in all

cases, but rather to create a consistent government policy against such development under most circumstances. The EO directs agencies to avoid the 100-year floodplain unless there is no practicable alternative.

The proposed action involves the sale of approximately 74 acres of Tract No. XWR-633 for industrial development. The sale would only involve property located above the TVA Maximum Shoreline Contour, elevation 560.0. Although the Morgan County, Alabama Flood Insurance Rate Map (FIRM) shows that a portion of the property is within the 100-year floodplain, this map has not been updated to reflect the dredge and fill activities in the 1980s that increased the elevations on the site to range from 572 to 580 feet above msl . Therefore, all future development on the property would occur outside of the 100-year floodplain and above the TVA Flood Risk Profile elevation which would be consistent with Executive Order 11988. Future development of a water intake or wastewater discharge facility would be reviewed by TVA under Section 26a of the TVA Act prior to construction.

Because TVA owns this tract in fee, TVA currently has the right to control development and flood the entire tract. In an effort to be consistent with previous deed modifications for properties adjacent to this tract, TVA would retain the land below elevation 560.0 and would not retain any rights to flood the sale tract above elevation 560.0.

To ensure that development of this tract would not adversely impact floodplains and increase flood risk, the following conditions would be included in the transfer agreement.

1. Any future facilities or equipment subject to flood damage would be located above elevation 560.2 (TVA Flood Risk Profile elevation plus 2 vertical feet).
2. Any future development proposed within the limits of the 100-year floodplain, elevation 557.4, would be consistent with the requirements of Executive Order 11988.
3. All future development must be consistent with the requirements of TVA's Flood Control Storage Loss Guideline.
4. TVA retains the right to flood the area below elevation 560.0, and TVA would not be liable for damages resulting from flooding.

3.7. Aquatic Ecology

3.7.1. Affected Environment

3.7.1.1. General Aquatic Habitat and Fauna

Although wetlands are present on Tract No. XWR-633, no perennial streams currently exist. Historically, the property included a 20-acre embayment of Wheeler Reservoir, but this area was filled with dredge spoil by the USACE (USACE 1988). The spoil was derived from a navigation channel dredged parallel to the river frontage of the Mallard-Fox Creek Industrial Park. Numerous properties along the Tennessee River in this reach of Wheeler Reservoir have already been developed for commercial and industrial business, usually with facilities to load or offload products via barge. Wheeler Reservoir is an impoundment of the Tennessee River by Wheeler Dam at TRM 274.9. Wheeler Dam was completed in 1936 and is used for maintenance of a navigable waterway, flood control, recreation, and hydroelectric power production. The dam has two navigation locks and eleven hydroelectric generating units. Wheeler Reservoir's pool elevation is maintained at a normal low pool elevation of about 550.5 feet msl during the winter and a normal high pool elevation of about 555-556 feet msl during the summer. It has approximately 1,027 miles of shoreline and 67,070 acres of water surface. Wheeler Reservoir is bound upstream by

Guntersville Dam at TRM 349.0. Guntersville Dam has two navigational locks and four hydroelectric generating units, and it maintains a constant minimum flow of water through the dam to help maintain adequate dissolved oxygen levels downstream to support aquatic life.

TVA developed the Reservoir Ecological Health Monitoring Program (REHMP) to evaluate reservoir health as compared to other reservoirs in the TVA system, provide data for comparing future water quality conditions, and serve as a screening program for targeting more detailed studies if needed. The ecological health scoring system is based on five indicators: 1) dissolved oxygen; 2) chlorophyll, a measure of algal production in the water; 3) sediment contaminants – PCBs, pesticides, and metals; 4) benthic macroinvertebrates, and 5) fish assemblage. Each indicator is evaluated separately, and then individual ratings are combined into a single, composite score for each reservoir.

The ecological health of Wheeler Reservoir rated fair in 2009. Wheeler Reservoir has rated either good or fair in all previous years except 2007 when it rated poor (Figure 3-3). Generally, lower ecological health scores occur during years with lower flows when, typically, chlorophyll concentrations are higher and dissolved oxygen concentrations are lower. The lowest score occurred in 2007, which was the driest in 121 years of record.

TVA monitors four locations on Wheeler Reservoir—the deep, still water near the dam, called the forebay; the middle part of the reservoir; the Elk River embayment; and the river-like area at the extreme upper end of the reservoir, called the inflow—usually on a two-year cycle.

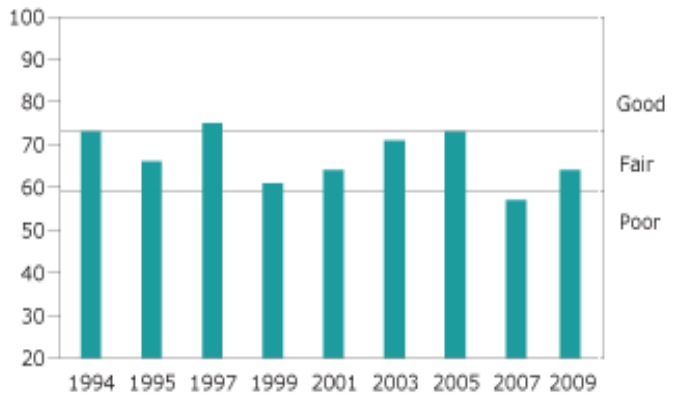

Figure 3-3. Wheeler Reservoir Ecological Health Ratings, 1994-2009

Table 3-7 shows the ratings for individual ecological health indicators at Wheeler in 2009. These ratings are briefly explained in the paragraphs that follow.

Table 3-7. Ecological Health Indicators at Wheeler Reservoir, 2009

Monitoring	Dissolved	Chlorophyll	Fish	Bottom	Sediment

locations	oxygen			life	
Forebay	Poor	Poor	Good	Poor	Good
Mid-	Good	Good	Fair	Good	Good
Elk River	Poor	Poor	Fair	Poor	Good
Inflow	__	__	Fair	Good	__

Dissolved oxygen

Dissolved oxygen rated good at the mid-reservoir location and poor at both the forebay and Elk River embayment due to low concentrations (less than two milligrams per liter of oxygen) in the lower water column during the summer. Dissolved oxygen has rated good at the mid-reservoir location in all previous years, but ratings have varied between good, fair and poor at the forebay and embayment locations, primarily in response to reservoir flows.

Chlorophyll

Chlorophyll rated good at the mid-reservoir location and poor at the forebay and Elk River embayment because concentrations were elevated in most of the samples collected. Chlorophyll typically rates poor at the forebay and Elk River embayment, but ratings have varied between good, fair, and poor at the mid-reservoir location.

Fish

The fish community rated good at the forebay and fair at the other three locations monitored. Ratings have fluctuated between good and fair at each location. The most recent year the fish community rated good at all locations was 2005.

Bottom life

The animal community, primarily macroinvertebrates, inhabiting the riverbed rated poor at the forebay and Elk River embayment and good at the mid-reservoir and inflow monitoring locations. The lower ratings were due to relatively sparse populations, predominantly composed of animals able to tolerate poor water quality, while good ratings are usually indicative of habitat with flow, variable substrate composition, adequate dissolved oxygen levels, and little to no pollutants.

Sediment

Sediment quality rated good at all locations monitored. No pesticides or PCBs were detected, and the concentrations of metals were within expected background levels. Sediment quality typically rates good, although it rated fair at the mid-reservoir location in 2003 due to the presence of low levels of chlordane (a pesticide previously used to control termites and crop pests).

Reservoir Ecological Health Monitoring is one of five components of TVA's overall river and reservoir monitoring effort, termed Vital Signs Monitoring (VSM). Other components of the VSM program include: (1) examination of ecological conditions in tributary streams to the Tennessee River; (2) monitoring of toxic contaminants in fish flesh to determine their suitability for consumption; (3) evaluating the number and size of important game fish species to help ensure their populations remain abundant and robust; and (4) sampling of bacteriological concentrations at recreational areas to evaluate their suitability for water contact recreation.

As part of the VSM program, the Sport Fishing Index (SFI) was developed to measure sport fishing quality for various species in Tennessee and Cumberland Valley Reservoirs. The SFI is based on the results of fish population sampling by TVA and state resources agencies and, when available, results of angler success as measured by state resource agencies (i.e., bass tournament results and creel surveys). SFI scores for Wheeler Reservoir were above the TVA regional average for black bass, channel catfish, largemouth bass, smallmouth bass, and white bass; Wheeler Reservoir scores were lower than the regional average for spotted bass and white crappie (Table 3-8).

Table 3-8. Sport Fishing Index Scores for Wheeler Reservoir and the Average Among TVA Reservoirs in 2008.

Fish Species	2008 Score	2008 Average Across the TVA Region
Black Bass	48	37
Channel Catfish	46	34
Largemouth Bass	38	35
Smallmouth Bass	32	31
Spotted Bass	26	33
White Bass	50	40
White Crappie	24	33

A survey for freshwater mussels was conducted in the Tennessee River immediately downstream of Tract No. XWR-633 (TRM 296.5) in 2005 (Shelton 2005). Shelton (2005) reported that habitat in the study area was marginal to unsuitable for mussels in general since the riverbed consisted of silty sand overlaying hardpan clay. Only three commonly occurring mussel species were collected: mapleleaf, pink heelsplitter, and threeridge, with only the pink heelsplitter represented by live individuals. An abundance of asian clams (*Corbicula fluminea*) and common aquatic viviparid and pleurocerid snails were incidentally noted as well. No evidence of zebra mussels (*Dreissena polymorpha*) was found (Shelton 2005).

3.7.1.2. Aquatic Threatened and Endangered Species

A review of the TVA Regional Natural Heritage Database (July 5, 2011) indicated that records of five aquatic species federally listed as endangered (and one species proposed for federal listing have occurred within ten miles of the project site (Table 3-9). Additionally, there are records from the same area of 12 other aquatic animals that have protected status or whose conservation status is tracked by the Alabama State Natural Heritage Program (Table 3-9).

Many of these federally and state-listed species occur in habitats outside the mainstem Tennessee River such as nearby tributaries, springs, and caves, including the two crayfish species, three fish species, and four snail species recorded within ten miles of the project (Table 3-9). Freshwater mussels tend to be found in areas with slow to moderate flow conditions and mixed substrate composition that provides stability but permits mussels to bury. Impoundment of the river by dams (e.g., Wheeler Dam) has dramatically modified riverine conditions and contributed to the widespread decline of mussels in the mainstem Tennessee River. However, some reservoir areas that still retain adequate flow and have not become burdened with heavy silt can still support significant mussel beds in the Tennessee River. Based on the mussel survey downstream of Tract No. XWR-633 (Shelton 2005), it appears that areas of the overbank (i.e., flooded areas outside the old river channel) in this reach of Wheeler Reservoir are marginal to unsuitable for most mussel species, including the federally listed and proposed species historically found in this reach. Additional input from the Alabama Department of Conservation and Natural Resources (ADCNR; Jeff Powell, personal communication, 2011) indicates that river habitat downstream of the railroad bridge at Decatur, Alabama, over four miles from the project site, supports relatively few mussels, particularly federally listed species. Therefore, it seems very unlikely that federal or state listed species inhabit the Tennessee River adjacent to Tract No. XWR-633.

Table 3-9. Records of Federal and State-listed Aquatic Animal Species within a Ten-mile Radius of the Mallard-Fox River Site.

Common Name	Scientific name	State Status[1] (Rank)[2]	Federal Status1
CRAYFISH			
A Troglobitic Crayfish	*Cambarus jonesi*	SPCO (S2)	-
A Troglobitic Crayfish	*Cambarus veitchorum*	TRKD (S1)	-
FISH			
Flame Chub	*Hemitremia flammea*	TRKD (S3)	-
Spring Pygmy Sunfish	*Elassoma alabamae*	PROT (S1)	-
Tuscumbia Darter	*Etheostoma Tuscumbia*	PROT (S2)	-
MUSSELS			
Ohio Pigtoe[3]	*Pleurobema cordatum*	TRKD (S2)	-
Pink Mucket	*Lampsilis abrupt*	PROT (S1)	END
Pink Papershell	*Potamilus ohiensis*	TRKD (S3)	-
Purple Lilliput	*Toxolasma lividus*	TRKD (S2)	-
Ring Pink[3]	*Obovaria retusa*	PROT (S1)	END
Rough Pigtoe	*Pleurobema plenum*	PROT (S1)	END

Table 3-9. Records of Federal and State-listed Aquatic Animal Species within a Ten-mile Radius of the Mallard-Fox River Site.

Common Name	Scientific name	State Status[1] (Rank)[2]	Federal Status1
Spectaclecase	*Cumberlandia monodonta*	PROT (S1)	PROP END
Tennessee Pigtoe[3]	*Fusconaia barnesiana*	TRKD (S1)	-
White Heelsplitter[3]	*Lasmigona complanata*	TRKD (S2S3)	-
SNAILS			
Armored Marstonia	*Pyrgulopsis pachyta*	PROT (S1)	END
Skirted Hornsnail	*Pleurocera pyrenella*	TRKD (S2)	-
Slender Campeloma	*Campeloma decampi*	PROT (S1)	END
Spiral Hornsnail	*Pleurocera brumbyi*	TRKD (S2)	-

Source: TVA Natural Heritage Database (Accessed July 5, 2011)
[1]Status Codes: END = Endangered; PROP END = Proposed Endangered; PROT = State Protected; SPCO = Special Concern; TRKD = Tracked by State Natural Heritage Program.
[2]State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; ? = Inexact or uncertain.
[3]Historical = record >25 years old

3.7.2. Environmental Consequences for the No Action Alternative

This alternative would result in no new development at the site; therefore, aquatic habitat conditions would remain unchanged as a result of this alternative. As there would be no changes, no federal or state-listed aquatic animal species would be affected at this property.

3.7.3. Environmental Consequences for the Action Alternative

3.7.3.1. General Aquatic Habitat and Fauna

TVA's disposal of this property to a private owner constitutes a federal action subject to NEPA and Section 7 of the Endangered Species Act (ESA). However, no specific actions that would directly affect aquatic ecology are proposed at this time. TVA would retain its jurisdiction to review and, if appropriate, approve requests for Section 26a permits for development actions that would impact the Tennessee River. Consequently, TVA would review environmental impacts to the aquatic environment in event the buyer submits a 26a Permit application in the future. A characterization of the potentially affected aquatic habitat is described above.

The possibility exists for indirect adverse impacts on the aquatic environment through sediment runoff, stormwater runoff, and accidental spills of harmful materials. This risk would be minimized by implementation of the regulatory controls and deed restrictions discussed previously in Section 3.4.3. With the implementation of standard erosion control measures and spill mitigation measures required under the deed restrictions, impacts to aquatic ecology would be minor and insignificant.

Since all future in-stream actions would require specific environmental review under TVA's 26a Permit jurisdiction, no additional commitments related to the aquatic environment need to be included with the proposed action.

3.7.3.2. Aquatic Threatened and Endangered Species

As described above (Section 3.7.1.2), several threatened and endangered species and other species in need of conservation have been reported occurred within ten miles of the project site. River habitat downstream of the Southern Railroad bridge at Tennessee River Mile 304.5, (Decatur, Alabama) supports relatively few mussels, particularly federally listed species. Therefore, it seems very unlikely that federal or state listed species inhabit the Tennessee River adjacent to Tract XWR-633, which is proposed for sale.

TVA's proposed sale of the property to a private owner constitutes a federal action subject to NEPA and Section 7 of the ESA. However, no specific actions that would directly affect listed aquatic species are proposed at this time. TVA would retain its jurisdiction to review and, if appropriate, approve requests for Section 26a Permits for development actions that could potentially affect federally or state-listed aquatic species. Consequently, TVA would review environmental impacts to the aquatic environment if and when the purchasers of the property submits a Section 26a Permit application. However, based on the review of federally and state-listed aquatic species known from the vicinity of the subject property, implementation of the Action Alternative would have no effect on federally or state-listed aquatic species.

3.8. Terrestrial Ecology - Plants and Animals

3.8.1. Affected Environment

The property is located on the southern bank of Wheeler Reservoir, near the upstream end of the reservoir. It is separated from Wheeler Reservoir by a berm that runs along the northern property boundary, although the property contains small wetlands that drain to the reservoir.

Vegetation

There are five distinct vegetation types on the property (Table 3-10). As can be seen in Figure 1-2, most of the site is fallow field. Riparian forest and wetlands occupy relatively small portions of the site. Fallow field, disturbed area and a parking lot account for over 93 percent of the property. The remaining area is comprised of forested and emergent wetlands.

Table 3-10. Vegetation Types and Percentage on Tract No. XWR-633

Vegetation/ Habitat Type	Area (Acres)	Percent
Riparian Forest	2.61	3.5
Forested Wetland –Total	1.75	2.4
Emergent Wetland -Total	0.61	0.8
Fallow Field	59.42	80.6
Disturbed Area	6.83	9.3
Developed Area	2.48	3.4
Total	**73.7**	**100**

Most of the site is covered by fallow field vegetation. This is a successional community, and although trees occur sporadically, herbaceous species dominate the fallow field community. The fallow field is the most diverse vegetative community on this property. Dominant species include clovers, rye grass , plantain, raspberry, chickweed, goldenrod, Carolina geranium, vetch, and Japanese honeysuckle.

A thin band of upland riparian forest occupies the shoreline of Wheeler Reservoir on the site (Figure 1-2). This community is less than 150 feet wide along most of the shoreline. The dominant vegetation in this community consists of eastern red cedar , black locust, red maple, and various pines.

A disturbed area consisting primarily of bare earth and numerous small gravel mounds occupies the southwest corner of the site (Figure 1-2). Vegetation is generally sparse in this area, but some vegetation occurs around the edges of the gravel mounds and in the spaces between the vehicular tracks. The limited vegetation in these areas consists of the same species that occur in the fallow field area. The parking lot at the southeastern corner is the only developed portion of the property and is unvegetated.

Wildlife Habitat

The vegetative communities on the property have some value as wildlife habitat, although their habitat value is limited by their size and geometry. The most valuable wildlife habitat is the riparian forest. The riparian forest buffers the aquatic habitats in the reservoir and the upland area in the interior of the site, moderating runoff and decreasing the potential impacts of sedimentation or contamination from upland sources on the reservoir. The riparian forest on the property is somewhat separated from human activity on adjacent parcels by the fallow field and its proximity to the reservoir. However, its small size and linear shape limits its value as habitat for disturbance-sensitive species.

The wetlands on the property likely provide some value as breeding habitat for common amphibian species, but their small size and proximity to the disturbed area renders them unlikely to support rare or sensitive species. The fallow field provides ample habitat for small mammals and whitetail deer and is large enough to support breeding populations of disturbance-tolerant grassland breeding birds. The fallow field is surrounded on three sides by developed areas and bisected by an intensely disturbed area, so disturbance-sensitive species are unlikely to occur there. The disturbed area provides habitat for only the most disturbance-adapted species such as cottontail rabbit and resident Canada geese.

Large populations of waterfowl, gulls, terns, and wading birds have used TVA reservoirs in north Alabama for overwintering habitat for several decades (TVA 1980). Wheeler Reservoir supports significant numbers of waterfowl and shorebirds during winter months, more than most reservoirs in the TVA system. Three large tracts of federal and state-owned land in the vicinity of the project site are also important wildlife habitat.

Wheeler National Wildlife Refuge (WNWR), approximately 10 miles east of the Tract No. XWR-633, was established in 1938 to provide habitat for wintering and migrating birds and bird conservation remains the primary focus of the refuge. Considered the easternmost Refuge in the Mississippi flyway, this 35,000-acre Refuge attracts thousands of wintering waterfowl each year and supports the southernmost and Alabama's only significant concentration of wintering Southern James Bay Canada geese. It also serves as winter

habitat for the state's largest duck population (WNWR, 2009). The upland habitats at WNWR also support numerous species of grassland breeding birds and several raptor species that prey on them. Although the habitat on XWR-633 is likely too small and disturbed to support breeding populations of rare or sensitive species, the site's proximity to the WNWR suggests that some of the migratory species that occur on the refuge may also occur as transients on the site.

Mallard-Fox Creek Wildlife Management Area (WMA) occupies 1,742 acres approximately one half mile west of the property. Swan Creek WMA is located on 8,870 acres approximately 2 miles northeast of the property on the northern shore of Wheeler Reservoir (ADCNR, 2008; NATA undated).

Terrestrial Threatened and Endangered Species

The United States Fish and Wildlife Service (USFWS) maintain lists of federally threatened and endangered species in Alabama. Federally-listed threatened and endangered species are protected from death, harm, or harassment under the U.S. Endangered Species Act (ESA) (16 U.S.C. 1536). Section 7(a)(2) of the ESA requires federal agencies to ensure that their actions are not likely to jeopardize listed species or result in the destruction or adverse modification of designated critical habitat.

Alabama does not have a state law equivalent to the ESA, and state-listed endangered or threatened species in Alabama do not have regulatory protection. Some species do receive regulatory protection from the state through the Alabama Regulations on Game Fish and Fur Bearing Animals, which are published annually. These are the primary regulations affording state protection for wildlife species in Alabama and are administered by the Alabama Department of Conservation and Natural Resources (ADCNR). Table 3-11 summarizes the terrestrial federally and state-listed terrestrial plant and animal species known to occur in Morgan County.

Based on a field survey conducted in March 2011 and the habitat requirements for the listed species known to occur in Morgan County, it is highly unlikely that federally or state-listed species regularly occur on Tract No. XWR-633. Occasional transient use could occur while enroute to preferred habitats. Historic information regarding listed species is included in TVA's 1980 EIS for development and use of the Mallard-Fox Creek Area, which includes this property (TVA 1980). This document concluded that listed species were unlikely to occur in the area.

Table 3-11. Terrestrial Federally and State-Listed Species Known to Occur in Morgan County, Alabama

Scientific Name	Common Name	State Rank	Federal Status	State Status	State Priority[1]
Birds					
Thryomanes bewickii	Bewick's Wren[2]	SHB,S1 N		SP	P1
Mammals					
Myotis grisescens	Gray Bat	S2	LE	SP	P1
Myotis sodalis	Indiana Bat	S2	LE	SP	
Vascular Plants					

Asplenium scolopendrium var. americanum	American Hart's Tongue Fern	S1	LT		
Dalea foliosa	Leafy Prairie Clover	S1	LE		
Leavenworthia crassa	Fleshy-fruit Glade Cress	S2	C		

Source: The Alabama Natural Heritage Program, Auburn University: http://www.alnhp.org/mapSearch/Morgan.php
[1]Priority as identified in the State Wildlife Action Plan and its list of Species of Greatest Conservation Concern (see http://www.outdooralabama.com/research-mgmt/cwcs/).
[2]Historic occurrence.
LE = Listed Endangered
LT = Listed Threatened
C = Candidate for federal listing as endangered or threatened.
SP = State Protected - Species protected by the Nongame Species Regulation (Section 220-2-.92, page 74-76 in the 2009-2010 Regulations) and the Invertebrate Species Regulation (Section 220-2-.98, pages 70-72 in the 2009-2010 Regulations).
SHB = Historically present during the breeding season (Possibly Extirpated) - Species occurred historically in Alabama but has not been documented in some time (up to 40 years) and there is some possibility that it may be rediscovered.
S1 = Critically imperiled in Alabama.
S2 = Imperiled in state because of rarity .
P1 = Taxa critically imperiled and at risk of extinction/extirpation. Immediate research and/or conservation action required.
N = Regularly occurring during migration or winter in Alabama.

3.8.2. Environmental Consequences for the No Action Alternative

The No Action Alternative would not have an effect on plant or animal communities or any federally or state-listed terrestrial species.

3.8.3. Environmental Consequences for the Action Alternative

The magnitude and significance of impacts on biological resources are influenced by several factors, including the importance of the affected resource, the proportion of the resource that would be affected, the sensitivity of the resource to proposed activities, and the duration of the ecological consequences. The description of impacts in this section is based on currently available information.

Terrestrial Biological Resources – Vegetation

For the purpose of evaluating environmental impacts, this EA assumes that sale of the property would result in complete elimination of natural vegetation on the entire 73.7-acre tract. Use of this assumption ensures appropriate evaluation of the worst possible environmental impacts on vegetation at the site. As discussed above, the tract is 80.6 percent fallow field, 9.3 percent disturbed (sparsely vegetated). As a result, approximately 90 percent, or about 66 acres, of the tract is relatively poor quality plant habitat. This botanical resource is not of regional or global importance, and destruction of it would be a minor and insignificant environmental impact. Impacts on the riparian forest would be

limited due to the value of this resource for erosion control. Mitigation for the wetlands would actually result in a slight gain in wetland plant communities on a regional basis.

Terrestrial habitats could be impacted by the introduction and spread of invasive species. EO 13112 defines an invasive species as any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem; and whose introduction does or is likely to cause economic or environmental harm or harm to human health (USDA 2011).

Information provided by the Center for Invasive Species and Ecosystem Health (2011) reports 101 non-native species as occurring in Morgan County, Alabama. Five of the top 10 of Alabama's worst invasive species can be found in the county. These include Chinese privet, Japanese honeysuckle, Japanese stiltgrass, Johnson grass, and mimosa. While no Federal Noxious weeds are known from Morgan County (USDA 2010), cogongrass has been reported from the adjoining counties of Culman, Lawrence, Madison, and Winston counties. This highly aggressive noxious weed disrupts ecosystem functions, reduces wildlife habitat and alters fire regimes and intensity (Evans et al. 2008). To prevent the spread or introduction of these invasive species, all equipment used on site should be cleaned prior to use to ensure they are free of invasive weed seeds or plant parts. Disturbed areas should be revegetated with native or non-native non-invasive plant species. In addition, clean and weed free rock should be used for bank stabilization. If the above conditions are followed, impacts to the terrestrial ecology from the introduction and spread of invasive non-native species would be minimal.

Terrestrial Biological Resources – Wildlife

The proposed action would have the potential to cause injury or death of less mobile species such as reptiles or small mammals that are within the footprint of the buildings in the fallow field areas and unable to move away from construction activities. The proposed action would displace more mobile species such as large mammals and grassland breeding birds. These species would likely re-settle on nearby available (i.e., not already at ecological carrying capacity) habitats. The abundance of similar habitats in the vicinity of XWR-633 suggests that displaced individuals would re-settle nearby; thus, impacts to terrestrial wildlife in the fallow field habitat are considered minor.

The proposed action's impacts on wetland-associated wildlife would be similar to impacts described above for fallow field habitat. Wetland-specialized wildlife species would lose habitat on the site, and as a result they would be injured or killed, or would relocate to other suitable habitats nearby. The impacts on wetland wildlife would be minor due to nearby wetlands created in the 1980s to mitigate loss of the wetlands on the property from the placement of the dredge spoil, (USACE 1988) and due to the proposed mitigation as discussed in Section 3.5 for the wetland losses that would result in a small gain in wetland habitat. Due to these mitigation measures, impacts on wetland terrestrial wildlife would be minor and insignificant.

Impacts on the riparian forest would be indirect in the sense that no physical change in the extent or structure of the forest would occur, but the capacity of the forest to support wildlife use would be somewhat diminished. Human activity would occur closer to the riparian forest than it does now, and this could cause some secretive or disturbance sensitive species to vacate the eastern end of the forested strip. Only transient individuals that occasionally use the eastern portion of the riparian forest would be affected, and other

larger tracts of riparian forest are available nearby (e.g., at WNWR or the two state WMAs) to accommodate displaced individuals. The proximity of human activity would primarily affect highly mobile species such as mammals and birds in the riparian forest; smaller more sedentary species such as reptiles and amphibians would be least impacted by the additional human presence and disturbance as a result of the project. Disturbance-sensitive species are expected to be rare on the property, so the effect to wildlife within the riparian forest would be minor and insignificant.

Threatened and Endangered Species

No federally or state-listed plant or wildlife species are known to occur on XWR-633. Gray bats routinely forage along the Tennessee River on Wheeler Reservoir. Given the abundance of foraging habitat in the vicinity and the nature of the project, adoption of the Action Alternative would not result in impacts to this species. Given the limited forest habitat along the margin of the site and the overall disturbance of the area, the project site is not suitable for Indiana bats. The proposed action would not result in direct, indirect or cumulative impacts to protected species.

3.9. Natural Areas

3.9.1. Affected Environment

A review of the TVA Natural Heritage database indicates that there are no natural areas crossed by or adjacent to the proposed project. Two natural areas, Mallard-Fox Creek State Wildlife Management Area (WMA) and Swan Creek State WMA, are within 3 miles of the proposed land parcel considered for sale. No Wild and Scenic Rivers or Nationwide Rivers Inventory streams are crossed by, adjacent to or within 3 miles of the proposed project site.

Mallard-Fox Creek State WMA, located 0.4 mile west of the proposed project in Lawrence and Morgan counties in Alabama, consists of approximately 1,696 acres on TVA land that is leased to Alabama Department of Conservation and Natural Resources (ADCNR) for management of small game and waterfowl hunting.

Swan Creek State WMA, located 2.0 miles northeast or the proposed project in Limestone County Alabama, consists of approximately 3,045 acres of land and 5,825 acres of water. This state wildlife management area on the Tennessee River is managed for waterfowl and small game by ADCNR. This area features wooded lands and grassy pastures and, along the river’s edge, features marshes and mudflats that provide opportunities to view a variety of wildlife. A section of the North Alabama Birding trail is also located within the WMA.

3.9.2. Environmental Consequences for the No Action Alternative

Under the No Action Alternative, TVA would not implement the proposed action. No direct, indirect or cumulative effect to natural areas would occur.

3.9.3. Environmental Consequences for the Action Alternative

Under the Action Alternative, TVA would implement the proposed action. Because both WMAs are located a sufficient distance away (0.4-2.0 miles) and would not be affected by the proposed action, no direct, indirect or cumulative effects to natural areas would be anticipated.

3.10. Recreation

3.10.1. Affected Environment

Proposed Sale Tract
Due to restricted public access, no outdoor recreation activities currently occur on the site. Some limited boating activity such as boat fishing may occur along the shoreline of the property.

General Vicinity of the Tract
There are several developed recreation areas in this general area of Wheeler Reservoir. Mallard Creek Public Recreation Area, which includes accommodations for camping, swimming, picnicking and boat launching, and Mallard Creek Fish Camp, which provides marina and camping facilities, are located about 3 miles downstream of the site in the Mallard Creek embayment.

Round Island Creek Public Recreation Area, which provides camping, boat launching, and day use facilities, is located across the reservoir and about 2 miles north of the proposed development site.

Developed recreation areas situated upstream of the site include facilities managed by Ascend Chemical and 3M for company employees (located about 0.5 and 1 mile upstream respectively), Jay's Landing Marina and Campground (approximately 4 miles upstream of the site), the Ingalls Harbor boat ramp managed by the City of Decatur (about 4.5 miles from site), and Brickyard Landing Marina located 4.8 miles from the site.

3.10.2. Environmental Consequences for the No Action Alternative

Under the No Action Alternative, the site would not be sold. No potential impacts on recreation would occur.

3.10.3. Environmental Consequences for the Action Alternative

Development of the site's shoreline could cause some minor shifts in recreational boating use of the waters immediately adjacent to the shoreline. However, the extent of any change in use patterns would be minor and insignificant.

Because of the distance between the site and developed recreation facilities in the general area, the proposed action would have no significant impact on the use of these recreation areas.

3.11. Cultural Resources

3.11.1. Affected Environment

Archaeological research indicates prehistoric human occupation in north-central Alabama has occurred from the Paleo-Indian to the Mississippian period. Archaeological periods are based on changing settlement and land use patterns and artifact styles. In Alabama, prehistoric chronology is divided into five broad time periods: Paleo-Indian, Archaic, Gulf Formational, Woodland, and Mississippian. Each of these broad periods is further broken down into sub-periods (generally Early, Middle, and Late), which are also based on artifact styles and settlement patterns. Smaller time periods, known as "Phases" are representative of distinctive sets of artifacts.

The Paleo-Indian period (12,000-8500 B.C.) represents the first human occupation of the area. The settlement and land use pattern of this period was dominated by highly mobile bands of hunter/gatherers. Following the Paleo-Indian period, the Archaic period (8500-1200 B.C) continued to represent a hunter/gatherer lifestyle. An increase in social complexity and the appearance of horticulture characterized the later part of the period. The settlement pattern during this period is characterized by spring and summer campsites situated along river ways that exploit riverine resources and dispersed fall and winter campsites in the adjacent uplands. Pottery first appeared in north central Alabama during the Gulf Formational Period (1200-400 B.C.). Increased social complexity, reliance on horticulture and agriculture, and the continuation and growth of ceramic technology characterize the Woodland Period (600 B.C.-A.D. 1000). The increased importance of horticulture is associated with a less mobile lifestyle as suggested by semi-permanent structures. Residential base camps were located on flood plains and alluvial terraces with specialized procurement sites in the adjoining uplands. The Mississippian Period (A.D. 900-1700), the last prehistoric period in north central Alabama, is associated with the pinnacle of social complexity in the Southeastern United States. This period is characterized by permanent settlements, maize agriculture and chiefdom-level societies.

The Historic Period is represented by the settlement of Europeans, Euro-Americans, and African-Americans in the region and the subsequent removal of Native American tribes. Morgan County was created by an act of the Alabama Territorial General Assembly on February 6, 1818, from land ceded from the Cherokee Indians by the 1818 Treaty of Turkeytown. The county seat was at Somerville from 1818 until 1891 when it was transferred to Decatur. The first settlers were generally subsistence farmers, although some established large-scale cotton plantations on the fertile alluvial terraces along Tennessee River. The first towns in present-day Morgan County grew up along the banks of the Cotaco and Flint creeks and their tributaries. During the Civil War, Morgan County was a hotly contested area due to railroad access (Siebenthaler 2011).

TVA determined the area of potential effects (APE) associated with the proposed action to be the approximately 74 acres of TVA land proposed to be sold. No structures, historic or otherwise, are on the property. Archaeological identification and evaluation surveys had been previously conducted in the late 1970s and early 1980s in this area associated with previous actions (Lafferty and Solis 1979; Alexander 1979; Lafferty 1978; Solis 1983), and three archaeological sites (1MG119, 1MG31, and 1MG114) were identified within the APE for the current proposed sale. The three sites were determined ineligible for the National Register of Historic Properties (NRHP). Staff from TVA's Cultural Compliance recently revisited this location and confirmed that the majority of the APE had been disturbed with the exception of a buried midden deposit (a layer of darker soil associated with past human activity) visible from the shoreline within the previously recorded boundaries of site 1MG31. TVA contracted with Panamerican Consultants, Inc. to delineate the extent of the buried midden deposit (Meredith 2011). Based on the results of the survey, TVA finds the portion of site 1MG31 that contains the midden deposits potentially eligible for listing in the NRHP.

In addition to the subsurface resources mentioned above, an above-ground cultural resource identified within one-half mile of the study area by research of Alabama Historical Commission records and NHRP listings is Burt Cemetery. The cemetery is located just outside and to the west of the southern boundary of the site.

3.11.2. Environmental Consequences for the No Action Alternative

There would be no project-related effects to historic or archaeological resources under this alternative. Likewise, no direct, indirect, or cumulative effects to these resources are expected.

3.11.3. Environmental Consequences for the Action Alternative

Historic and cultural resources, including archaeological resources, are protected under various federal laws, including: the Archaeological Resources Protection Act, the Native American Graves Protection and Repatriation Act, and the National Historic Preservation Act (NHPA). Section 106 of the NHPA requires federal agencies to consult with the respective State Historic Preservation Officer (SHPO) when proposed federal actions could affect these resources.

As described above, TVA finds the portion of site 1MG31 that contains the midden deposits is potentially eligible for listing in the NRHP. In order to avoid effects to site 1MG31, TVA would retain the potentially eligible portion of the site with a 50-foot buffer. The retained property would be marked with construction fencing to ensure that there would be no inadvertent disturbance during construction on the remainder of XWR-633. With these conditions in place, TVA finds that the proposed project would have no effect to historic properties.

Pursuant to regulations (36 CFR Part 800) implementing Section 106 of the *National Historic Preservation Act*, TVA consulted with the Alabama SHPO to assess potential to effect historic properties. In a letter dated July 27, 2011, the Alabama SHPO concurred with TVA's determination that the proposed undertaking would not adversely affect any historic properties that are potentially eligible or currently listed in the NRHP provided that TVA remove the 50-foot buffered site 1MG31 from the land transfer (Appendix B).

Pursuant to the regulations implementing the NHPA, TVA also consulted with federally recognized Indian tribes regarding properties within the proposed project's APE that may be of religious and cultural significance to them and eligible for the NRHP. TVA received one response from the Seminole Tribe of Florida's Tribal Historic Preservation Office stating that they have has no objection to TVA's findings at this time, assuming the 50-foot buffer is placed around the NRHP eligible portion of site 1MG31.

The cultural resource described as Burt's Cemetery, which is not within the sale property, would be avoided during construction, use, and maintenance of the Proposed Action.

3.12. Visual Resources

3.12.1. Affected Environment

The Proposed Action would occur entirely within the Mallard-Fox Creek Industrial Park, a visual environment characterized by the presence of large manufacturing and industrial buildings, set far back from the road. Tract XWR-633 itself is an open, sparsely vegetated area along Wheeler Reservoir, as shown in Figure 3-4, with electrical transmission lines crossing the western edge of the property. Industrial and manufacturing facilities surround the property, including the existing Hexcel facility to the east (shown in Figure 3-5).

The property is also visible from Wheeler Reservoir to the north. On the northern shore of Wheeler Reservoir, the closest observation point for the site is approximately two miles

away at the Round Island Creek Public Use Area. Figure 3-6 shows the view of Tract XWR-633 from that location.

The closest residences are located approximately 1.5 miles away to the southwest. Views of the site from these residences are blocked by other industrial facilities, trees, and topography. The Mallard-Fox Creek and Swan Creek WMAs are not visible from the site due to the presence of surrounding industrial facilities.

Figure 3-4. View of Wheeler Reservoir from Northwest Corner of Tract XWR-633

Figure 3-5. Hexcel's Existing Facility, East of Tract XWR-633

Figure 3-6. View of Tract XWR-633 (labeled River Site), Facing South from Wheeler Reservoir Northern Bank

3.12.2. Environmental Consequences for the No Action Alternative

Under the No Action Alternative, the property would not be sold at this time and would remain in its current visual state.

3.12.3. Environmental Consequences for the Action Alternative

The development that would result from the Proposed Action would be entirely within the Mallard-Fox Creek Industrial Park. During intermittent phases of construction, partially completed buildings, material lay down yards, cleared land, disturbed earth, and construction equipment would be visible. Temporary infrastructure would include construction access roads and parking, as well as temporary electrical facilities and utilities until new services are installed on the property.

The likely final constructed development would be similar to (and thus indistinguishable from) nearby industrial structures in visual appearance, scale, and height. The only viewers who would see the new construction at close range are individuals who drive to the facility or visit the Burt Cemetery, or boaters who would approach the site from the water. The cemetery is approximately 1,000 feet southeast of an existing industrial facility. Buildings and other facilities that might be built as a result of the Proposed Action would avoid disturbing the Burt Cemetery. As part of an industrial complex in an area zoned for heavy industry, the appearance of facilities constructed as a result of the Proposed Action would be consistent with its surroundings and the average viewer's expectations. This would be true for both the completed facility as well as the site during construction. The effects described above are local and minor in nature; therefore, the Proposed Action would have no significant impacts on visual resources.

3.13. Socioeconomics

3.13.1. Affected Environment

The proposed site is located in Morgan County, Alabama, Census Tract 51.01, Block Group 2. The total population of this block group in 2010 was 709, of which 24.3 percent are classified as minorities (http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml). The population in the area around the site and along the local roads to the site is small, estimated to be fewer than 50 persons. About half of these residents are minorities. Morgan County has a total population of 119,490, of which 22.5 percent are minorities, well below the state and national levels of 33.0 and 36.3 percent, respectively.

The poverty level in Morgan County, as of 2009, is estimated to be 15.9 percent. This is lower than the state average of 17.5 percent but higher than the national average of 14.3 percent. Recent poverty data for smaller areas is not available. However, the poverty level of the general area around the site was low, about 7.4 percent, in Census Tract 51.01 as of the 2000 Census of Population (http://factfinder.census.gov/home/saff/main.html?_lang=en).

Income levels in Morgan County are similar to the state level. Per capita personal income in 2009 was $33,065 in the county, 99 percent of the state level of $33,411, and 83 percent of the national level of $39,635. Manufacturing accounts for 18.6 percent of employment in the county, well above the state level of 10.1 percent and the national level of 7.1 percent.

Farming employment was 2.4 percent of the total, somewhat higher than the state level of 2.1 percent and the national level of 1.5 percent.

3.13.2. Environmental Consequences for the No Action Alternative

The No Action Alternative would have no effect on socioeconomics, infrastructure, or public services.

3.13.3. Environmental Consequences for the Action Alternative

The area around the site is largely industrial, and population in the general area is somewhat sparse and scattered. Under the action alternative, there would be little negative impact to local residents from changes in traffic, noise levels, or other conditions in the area. Any noticeable differences would occur largely within the industrial areas and would not significantly affect residential locations or recreation areas. Construction and operation of a new industrial facility would have positive economic impacts by increasing jobs and income in the area. No significant negative social, economic, or environmental justice impacts are likely under the action alternative.

3.14. Transportation

Traffic is defined as the movement of people or vehicles through a transportation system. The volume of people or vehicles moving through a transportation system has an effect on the amount of time spent traveling from one point to another. While the Proposed Action could have a minor incremental effect on traffic in the Huntsville-Decatur region, this review focuses on transportation and traffic conditions in the immediate vicinity (within approximately 2 miles) of Tract XWR-633.

3.14.1. Affected Environment

Road System

Major roads in Decatur include:

- Interstate 65 (I-65) runs through the center of Morgan County, east of Decatur. It is one of the Interstate Highway system's major routes, connecting the Gulf Coast and Alabama's major cities to the Great Lakes region near Chicago.

- U.S. Highway 31 (US 31), a four-lane, north-south highway, travels through Decatur and roughly parallels I-65 from the Gulf Coast to the Great Lakes region.

- U.S. Highway 72 (US 72, Joe Wheeler Highway) is part of a major east-west route between Memphis, Tennessee, and Chattanooga, Tennessee, through Decatur and Huntsville. In the vicinity of XWR-633, US 72 is a four-lane divided highway. US 72 meets I-65 at an interchange north of the Tennessee River, and travels through a portion of Decatur and past the Mallard-Fox Creek Industrial Park. This segment of US 72 is also designated as State Highway 20 (SH 20).

- State Highway 67 (SH 67, Beltline Road/Point Mallard Parkway) is a major arterial route that bypasses the center of Decatur, linking I-65 and US 31 with US 72 west of downtown Decatur.

Most deliveries of raw materials to the industrial park would follow I-65 to US 72/SH 20, Red Hat Road and Mallard-Fox Road. Table 3-12 shows the annual average daily traffic

(AADT) volumes for these major roads. Volumes for other major roads described above are also included for reference.

These traffic volumes are moderate for multi-lane freeways and divided highways. By comparison, in 2010 AADT on Interstate 65 in downtown Huntsville was nearly 81,000 vehicles per day, while AADT on Memorial Parkway (US 231) in Huntsville was more than 107,000 vehicles per day (ALDOT 2010).

Table 3-12. Annual Average Daily Traffic Volumes for Nearby Roadways

Road	Location	AADT (vehicles/day)	
		2004	2010
US 72	Landfill Drive	14,190	13,990
US 72	Red Hat Road	17,150	21,060
US 72	East of Finley Island Rd	19,800	23,010
US 72	Tennessee River Bridge	44,000	45,300
I-65	South of US 72/SR 20	35,740	35,410
US 31	North of SR67	30,220	28,220
SH 67	West of US 31	34,340	33,030
SH 67	South of US 72	25,070	14,610

Source: Alabama Department of Transportation. 2010. http://aldotgis.dot.state.al.us/atd/default.aspx

Rail

The Mallard-Fox Creek Industrial Park is served by railroad spurs connected to the Norfolk Southern Railroad. The Norfolk Southern system provides direct links from Huntsville and Decatur, Alabama to Memphis and Chattanooga, Tennessee, and other major cities across the eastern United States. A CSX railroad line also passes through Decatur, although there is no direct access to CSX from the Industrial Park.

The Huntsville International Intermodal Center, adjacent to Huntsville International Airport, is connected to the Norfolk Southern railroad, and allows transfer of containerized cargo amongst rail, truck, and airborne modes of travel (MCEDA, 2011).

Other Transportation Modes

The Mallard-Fox Creek Industrial Park has its own barge port, adjacent to the Applicant's facility at the end of Red Hat Road. This port, as well as the former Alabama State Docks in Decatur, is owned by the Decatur-Morgan County Port Authority. In addition, several other Industrial Park tenants have their own proprietary barge ports. Barges on the Tennessee River have access to much of the south-central United States, including the Gulf of Mexico (MCEDA, 2011).

3.14.2. Environmental Consequences for the No Action Alternative

Under the No Action Alternative, existing traffic patterns in and around Tract XWR-633 would continue unchanged. There would be no increase in traffic.

3.14.3. Environmental Consequences for the Action Alternative

Road Network

Forecasting construction and operational traffic associated with development of an industrial facility at the site is speculative since the property would be sold at auction and the entity that would develop the site is not known for certain at present. However, the following example describes potential construction and operations traffic if the Applicant, Hexcel, were to purchase the site. Construction workers and deliveries of construction materials and equipment, would reach XWR-633 via US 72/SH 20, Red Hat Road, and Mallard Fox Drive. Construction would occur during weekdays only, from approximately 6:00 a.m. to 4:00 p.m. No road closures or other access limitations would be required. The construction workforce would peak at about 500 workers for a short period of time. However, the magnitude of construction-related traffic would vary over the construction period; typical construction activity would result in 100 additional vehicle trips to and from the site per day. This represents a 0.5 percent of background (2010) traffic (see Table 3-12 in Section 3.14.1).

Potentially, up to 100 new employee trips to and from the site would occur each weekday when the facility became fully operational. These new workers would be likely be split into two 12-hour shifts (roughly 50 vehicles per shift), with nearly all new employee traffic occurring at shift change (approximately 7:00 a.m. and 7:00 p.m.). Nearly all workers would access the site via US 72/SH 20, Red Hat Road, and Mallard Fox Drive, although points of origin would be scattered throughout the Huntsville-Decatur region. This 50-vehicle increase in employee-related traffic per shift represents approximately 0.25 percent of 2010 traffic volumes.

In addition to employee traffic, operation of an industrial facility at the site would likely generate truck traffic associated with the delivery of raw materials and the shipping of finished products. Raw material deliveries would require approximately four truck trips per day, while shipments of finished products would require approximately one truck trip per day. These trucks would travel to and from the site via I-65, US 72/SH 20, Red Hat Road, and Mallard Fox Drive, and would constitute an insignificant change in existing traffic volumes.

Compared to the traffic patterns and volumes described in Section 3.14.1, the short-term (construction) and long-term (operations) increases in traffic on US 72/SH 20, Red Hat Road, and Mallard-Fox Drive from the Proposed Action are likely to be minor in scale. Furthermore, construction vehicles, tractor-trailer deliveries/shipments, and worker traffic are not out of the ordinary in an industrial park setting. Overall, the Proposed Action would have no significant impact on the road system in the vicinity of Tract XWR-633.

Rail Transportation

Tract No. XWR-633 is served by an existing railroad spur (connected to the Norfolk Southern rail system) near the existing Hexcel facility on the adjacent property. While railroad deliveries and shipments are not currently used, Hexcel, if it is the successful bidder, might opt to receive raw materials and ship finished products via rail.

If such an option were selected, Hexcel would require approximately 3 weekly rail car trips to and from the site to support existing operations and up to 8 rail car round-trips per week to support operations after completion of the Proposed Action. These rail traffic volumes would replace the truck trips described above. Because of the small volume of rail traffic involved, the option for rail delivery and shipment would have no significant impact on freight rail traffic in the Decatur region. Other potential buyers may or may not use rail transportation because the tract is not directly adjacent to a rail line.

Other Transportation Modes
Hexcel is not considering barge delivery of raw materials or transportation of finished products at this time. Should Hexcel or other buyer decide to pursue new port facilities, that action would be subject to additional permits and environmental review at that time. Similarly, the effects of any future water intake and wastewater outfall on navigation along Wheeler Reservoir are not assessed in this document and would also be reviewed when and if these facilities are pursued in the future. Accordingly, there would be no impact on water-based transportation along the Tennessee River.

3.15. Waste

3.15.1. Affected Environment

Tract XWR-633 presently generates no solid waste. Nearby industrial facilities, such as the one belonging to Hexcel, generate wastes that are managed, recycled and/or disposed in accordance with local and Federal laws, regulations and ordinances. Hexcel is classified as a Small Quantity Generator (SQG) of hazardous waste by EPA (ID# ALR000007948).

Hexcel currently generates the following materials for landfill disposal: trash/scrap product stored in a compactor and trash/pallets/municipal solid waste (MSW) stored in a dumpster. The City of Decatur/Morgan County Landfill is located approximately five miles from the Hexcel's existing facility. Its service area includes 19 Counties in northern Alabama and southern Tennessee. The landfill has a capacity of 700 tons per day and a projected life expectancy (beyond 2011) of 32-35 years.

Certain solid wastes generated by Hexcel are managed onsite and collected by a licensed third party waste hauler for incineration, recovery, or recycling. Solid wastes managed by incineration include: hazardous organic lab wastes; hazardous off-spec acrylonitrile; hazardous lab pack; and non-hazardous lab pack. Solid waste managed off-site by a fuels recycler includes hazardous paint-related waste. Used oil (not a solid waste) is also managed off-site by a used oil recycler. Solid wastes that are managed offsite by a recycler include universal waste (lamps and batteries); cardboard; paper; and aluminum.

3.15.2. Environmental Consequences for the No Action Alternative

The No Action Alternative would have no effect with regard to waste generation, management, and disposal.

3.15.3. Environmental Consequences for the Action Alternative

Development of XWR-633 following sale of the property by TVA would result in additional waste generation from construction and operations. Construction activities would result in the generation of solid wastes, including construction materials for buildings, concrete and asphalt rubble, and land-clearing debris. Management of construction debris would include recycling and reuse when possible.

The development activities would be on land that has been previously prepared for industrial development, which minimizes the need for land clearing and grading activities. Therefore, generation of soil and wood waste materials would be minimal. Other construction debris and excess materials may require disposal. The typical solid waste generation rate during non-residential construction activities in the United States is 3.89 pounds per square foot (lbs/ft^2) of debris (USEPA, 1998). Using this formula, the maximum estimated quantity of construction and demolition (C&D) waste generated from construction can be estimated to range between 1,348 tons and 6,693 tons depending on how much of

the acreage is involved in the construction. This estimate of construction debris is 0.5% to 2.6% of the annual capacity of the nearby landfill, an insignificant amount. Actual construction wastes would likely be much less, since the EPA estimating tool includes demolition to clear the site and the site is already free of existing structures.

The types and quantities of wastes that would be generated, stored, and disposed during operation of an industrial facility at the site could vary widely depending upon the type of industry. Table 3-13 provides data for existing waste generation and potential future waste generation in event that Hexcel developed the site. Again, the maximum potential increased use of the nearby landfill would only be about 1%, an insignificant increment. Hexcel would likely retain its status as a small quantity generator of hazardous waste, and the hazardous waste would be disposed by appropriately licensed and permit facilities. The remaining wastes would continue to be incinerated, recovered, or recycled using the same methods currently being used by Hexcel at its existing facility. The additional waste produced would have no significant impact on treatment and recycling facilities. Assuming comparable waste generation for other potential developers, the impacts of the sale and subsequent development of the site would have insignificant impacts on waste disposal facilities.

Table 3-13. Existing and Potential Future Annual Solid Waste Generation for Development of River Site by Hexcel

Description of Wastes	Hazardous/ Non-Hazardous	Storage Method	Disposition	Existing Waste Generation Total (ton/yr)	Potential Future Waste Generation Total (ton/yr)
Trash/ Scrap Product	Non-Hazardous	Compactor	Landfill	3,190	5,742
Trash/ Pallets/ etc	Non-Hazardous	Dumpster	Landfill	155	279
Organic Lab Waste	Hazardous	55 Gal Drum	Incineration	1.25	2.25
Acrylonitrile (Off-spec	Hazardous	55 Gal Drum	Incineration	2.5	4.5
Lab Pack	Hazardous	30 Gal Drum	Incineration	0.30	0.54
Paint Related Material	Hazardous	55 Gal Drum	Fuel Recovery	0.30	0.54
Lab Pack	Non-Hazardous	30 Gal Drum	Incineration	0.30	0.54
Universal Waste (lamps, batteries)	Non-Hazardous	Box or 5 Gal Pail	Recycle	0.30	0.54
Cardboard	Non-Hazardous	Bail	Recycle	6.5	11.7
Paper	Non-Hazardous	85 Gal Can	Recycle	1.25	2.25
Aluminum	Non-	20 Gal Can	Recycle	0.30	0.54

Table 3-13. Existing and Potential Future Annual Solid Waste Generation for Development of River Site by Hexcel

Description of Wastes	Hazardous/ Non-Hazardous	Storage Method	Disposition	Existing Waste Generation Total (ton/yr)	Potential Future Waste Generation Total (ton/yr)
Cans	Hazardous				
Used Oil	n/a	55 Gal Drum	Fuel Recovery	2.5	4.5

3.16. Cumulative Effects

3.16.1. Foreseeable Actions and Cumulative Impacts

Cumulative impacts are "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR § 1508.7). Cumulative impact analyses must define the scope of these other actions and their interrelationship with the Proposed Action, specifically considering geographic and temporal overlaps among the Proposed Actions and other actions. The cumulative impact analysis must also evaluate the nature of interactions among these actions (CEQ 1997).

Cumulative impacts are most likely to arise when a relationship or synergism exists between the Proposed Action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in proximity to the Proposed Action would be expected to have more potential for cumulative effects than those more geographically separated (CEQ 1997). The following should be considered in identifying cumulative impacts (CEQ 1997):

- Whether resources in question are especially vulnerable to incremental effects;
- Whether the Proposed Action is one of several similar actions in the same geographic area;
- Whether other activities in the area have similar effects on the resources in question;
- Whether past or ongoing effects of have been historically significant for particular resources; and
- Whether other analyses in the area have identified a cumulative effects concern.

The affected environment sections described in this document describe the present day condition of resources that could be affected by the Proposed Action, thereby accounting for past actions that have a nexus with the Proposed Action. This cumulative effects analysis therefore focuses primarily on concurrent and future actions.

TVA's proposed action is to sell Tract No. XWR-633 at public auction for industrial development. The proposed action in and of itself has negligible environmental impacts, but the subsequent industrial development at the site could potentially have greater

impacts. The geographical scope of the potential impacts associated with industrial development of the property as a consequence of the Proposed Action is primarily within the boundaries of the tract, except for short term impacts on traffic and emissions that could affect areas outside of these boundaries. Accordingly, information on other projects that may be planned in the vicinity of the Mallard-Fox Creek Industrial Park was collected.

3.16.2. Recent, Ongoing, and Reasonably Foreseeable Actions

Potential expansions at the Applicant's existing facility or other neighboring facilities are the only actions identified for assessment of cumulative impacts in the vicinity of Tract XWR-633. Any expansions would be constructed at locations that have already been prepared for development. Thus, the construction and operation of neighboring industrial expansions and development of the proposed site would not have any cumulative effects on geological, biological, cultural, and visual resources. In addition, cumulative impacts associated with socioeconomics and floodplains are not assessed because the development of this site would not result in adverse effects to those resources. Operations-related air emissions, noise, stormwater, traffic, and waste associated with industrial expansions in the area would be governed by environmental permitting systems aimed at preventing deterioration or adverse impacts on these resources, and do not warrant further assessment of cumulative effects.

Resources that are potentially affected by concurrent development at the site and potential expansions at neighboring facilities would include short term increases in construction-related air emissions, noise, traffic, and solid waste in addition to potential increased sediment in stormwater. If the Applicant purchases the property, expansion on the Applicant's existing property would be staggered so that outdoor construction activities on both sites do not overlap or only overlap for a brief period of 6 months or less. If other neighboring facilities expand at the same time, the construction air permitting and stormwater permitting process would tend to minimize the impacts associated with construction-related air emissions, noise, and traffic. Construction waste impacts from development of the site would be insignificant due to the lack of need to clear trees from most of the site. Construction-related impacts from development of the site or adjoining sites would be temporary and therefore insignificant. Therefore, the Proposed Action of the sale of the property and subsequent industrial development would result in no significant cumulative impacts to any resources.

3.16.3. Irreversible and Irretrievable Commitment of Natural and Depletable Resources

NEPA requires that environmental analysis include identification of "any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented" (42 USC § 4332(2)(C)(v)). Irreversible and irretrievable resource commitments are related to the use of non-renewable resources and the effects that the uses of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy or minerals) that cannot be replaced within a reasonable timeframe. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., the disturbance of a historic property).

Development of XWR-633 would result in use of fuels by ground-based vehicles, particularly during construction; the direct and indirect use of some fossil fuels for electricity and natural gas; and the materials used in construction. The nonrenewable resources used

during this period would be irretrievably lost or depleted. To the degree that the proposed facility would be a permanent structure, it would also result in the irreversible and irretrievable loss of approximately 74 acres of habitat, including some wetlands (which would be mitigated so that there is a small net gain in wetlands). All other impacts associated with the Proposed Action would be temporary in nature.

3.16.4. Relationship Between Local Short-Term Use of the Environment and Long-Term Productivity

NEPA requires an analysis of the relationship between a project's short-term impacts on the environment and the effects that these impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment (42 USC § 4332(2)(C)(iv)). Impacts that narrow the range of beneficial uses of the environment are of particular concern. This refers to the possibility that choosing one development option reduces future flexibility in pursuing other options, or that giving over a parcel of land or other resource to a certain use eliminates the possibility of other uses being performed at the site.

No unique habitat or ecosystems would be lost due to the Proposed Action. Tract XWR-633 is an undeveloped lot in an industrial park. The property is specifically intended for uses that require water access, as would occur during installation of future water intake and wastewater discharge outfall and/or use for barging facilities. Implementation of the Action Alternative or the No Action Alternative would not result in any impacts that would reduce environmental productivity, permanently narrow the range of beneficial uses of the environment, or pose long-term risks to health, safety, or the general welfare of the public. The wetlands lost would be mitigated at a ratio that would result in a net gain in regional wetland habitat.

CHAPTER 4

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CHAPTER 5

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CHAPTER 6

6.0 LITERATURE CITED

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