Construction and Operation of a Proposed Cellulosic Ethanol Facility, Coskata Inc. Greene County, Alabama

Prepared by
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Table of Contents

Tables (in Text)

Appendices

Figures (attached or within text)

I. Proposal Description and Need

The United States Department of Agriculture, Rural Business Cooperative Service (USDA RBCS) proposes to provide a Loan Note Guarantee to Silicon Valley Bank for Coskata Inc. for the "Flagship" Cellulosic Ethanol Facility. Coskata proposes to construct a Cellulosic Ethanol Facility with anticipated annual production reaching approximately 55 million gallons from the conversion of wood biomass to ethanol. The Flagship cellulosic ethanol facility ("Facility") is proposed for construction in Boligee, Greene County, Alabama, on a 151-acre parcel (Figure 1).

This Facility is to be one of the first commercial ethanol facilities to utilize a biotech-based syngas-to-ethanol production process utilizing a fully integrated three-step process, including biomass gasification, syngas biofermentation, and ethanol separation. The facility will consist of the following general areas:

- Materials Handling/Chipping/Drying Area
- Gasifier
- Fermentor
- Distillation
- Associated Infrastructure (Utilities, Storage etc.)

The facility is proposed within 151-acres within the 1,390-acre Crossroads of America Industrial Port and Park ("Crossroads") owned and managed by the Greene County Industrial Development Board (GCIDB). GCIDB is committed to certain infrastructure upgrades to existing road, rail, electric service, and water and sewer services within the industrial park for purchasers of industrial park land. For purposes of this Environmental Assessment (EA) this proposal includes the construction of the cellulosic ethanol Facility within the 151-acre proposal area, proposed construction of approximately 45 acres of compensatory wetland mitigation within an adjacent 84-acre parcel, a 8,192-foot long surface trench and pipe for process wastewater effluent discharge to the Tombigbee River, and road upgrades consisting of resurfacing of 6,000 linear feet (LF) of County Road-89 and 3,890 LF of the Truck Entrance from County Road 89. All other infrastructure components, including any proposed upgrades to roadway intersections, port/barge system, railways, offsite and onsite electric service, offsite water and sewer systems, and offsite and onsite natural gas lines are the responsibility of the GCIDB and utility providers, and are not considered connected actions for the purpose of this EA because the facility either does not rely on them for construction or operation or they are infrastructure upgrades that will service additional markets.

Facility construction would begin in Spring 2011, and be complete in 2013; operations would commence in Fall 2013, and last until 2033, approximately.

II. Primary Beneficiaries and Related Activities

The primary beneficiary of the Proposal will be the applicant, Coskata Inc., as owner of the Flagship facility. Ancillary beneficiaries of the Proposal are expected to include local logging companies, land owners and trucking companies within the 75-mile radius feedstock source area that will supply the facility with wood biomass. In addition, businesses are anticipated to be opened in the vicinity of Boligee/Tuscaloosa to serve the employees of the Facility, including restaurants, gas stations, and other such enterprises.

The Proposal will serve several purposes, and represents the first, full commercial scale-up of the proprietary renewable fuel technology platform developed by Coskata. The Proposal when completed and operational is expected to:

- Contribute meaningfully to the volume of cellulosic biofuel mandated by the current Renewable Fuel Standard for 2014, the Facility's first year of full operation,;
- Provide the basis for technology licensing, such that the production capacity for cellulosic ethanol can be expanded in the marketplace as rapidly as possible; and
- Validate a commercial-scale process for producing renewable transportation fuel that is environmentally sustainable and superior to gasoline and alternative approaches to ethanol, that reduces lifecycle greenhouse gas emissions, and that limits the requirements for scarce resources such as water.

The Facility is expected to be commissioned and fully operational by the second quarter of 2013.

III. Description of the Proposal Area

The planned location of the Proposal is an industrial park in Greene County in west central Alabama within the metropolitan area of Tuscaloosa, Alabama. Specifically, the identified 151-acre site is within the 1,390 acre Crossroads of America Port and Park ("Crossroads") which is located southwest of Exit 32 along Interstate 20/59 in Boligee and is bordered by the Tombigbee River along the west and Greene County Road 92 along the north. An adjacent, off-site stream identified as Brush Creek flows diagonally through Crossroads and empties into the Tombigbee River in the southwest corner. Alabama and Gulf Coast Railroad generally borders Crossroads to the east.

The 151-acre site is bordered by County Road 89 to the south, agricultural land to the west and east, a small cemetery to the northwest, and a rail spur and County Road 89 to the north. A map of the proposed site location, showing the planned site layout as well as current adjacent land use in the industrial park is located in Figure 2. Additional maps and graphics of the proposed site are provided as follows:

- Figure 3 contains a Planned Site Layout of the Facility
- Figures 4a, b, &c contains a FEMA FIRM floodplain maps of the industrial park
- Figure 5 contains site photos

Coskata has entered into a Site Purchase Agreement with the current owner of the site, the Greene County Industrial Development Board (GCIDB), with an expected final purchase date in February 2011.

The choice of Greene County as the proposed site was driven by its access to nearby feedstock (plentiful supply of wood biomass), its existing utilities, and the availability of all major logistical infrastructure on site. The proposed site is situated on a relatively flat parcel of land which was cleared of trees in 1980 and graded in the 1990s for industrial development.

The proposed 151-acre area was used for timber and agricultural crop productions dating back to the 1800's. In this locale, the farming operations would normally consist of varying size fields that were surrounded by timber areas. During the mid 1960's and early 1970's, soil and gravel

borrow pits were developed along the western and northern areas of the 151-acre property. The construction of Interstate Highway 20/59 during this timeframe required large amounts of select soil material to build embankments for bridge approaches and overpasses, and onsite borrow material was used.

In the early 1980's, the Industrial Board of Greene County purchased several large tracts of land (including the 151-acre proposed site) along the interstate and adjacent to the Tombigbee River to develop an industrial park that would attract industry to Greene County, Alabama. After acquiring the land for the industrial park, the remaining timber within the 151-acre proposed site was harvested and the area cleared to form a large open field. Drainage ditches were installed at that time in order to facilitate farming operations. The Industrial Board has leased the open fields within the 151-acre site to agricultural production since around 1985. Presently, about 100 acres of hay or grain crops are grown annually within the Flagship site. The quality of this farm land from an agricultural perspective has declined because the drainage ditch system has silted in to a point that surface runoff water is trapped over portions of the site.

IV. Environmental Impacts

1. Air Quality

The proposed facility emissions will not result in significant adverse environmental impacts to air quality because the proposed emissions from the facility are in keeping with ADEM air quality permit requirements and as such are not expected to have significant adverse effects. Only a minor adverse effect is expected to result from the emissions of pollutants from the facility, since without the facility there would be no increase in emissions in the area.

The Clean Air Act, which was last amended in 1990, requires EPA to set National Ambient Air Quality Standards (40 CFR part 50) for pollutants considered harmful to public health and the environment. The Clean Air Act established two types of national air quality standards. ***Primary standards*** set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. ***Secondary standards*** set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

The EPA Office of Air Quality Planning and Standards (OAQPS) has set National Ambient Air Quality Standards (NAAQS) for six principal pollutants, which are called "criteria" pollutants. They are listed below. Units of measure for the standards are parts per million (ppm) by volume, parts per billion (ppb - 1 part in 1,000,000,000) by volume, milligrams per cubic meter of air (mg/m^3), and micrograms per cubic meter of air ($\mu g/m^3$).

Table 1. National Ambient Air Quality Standards

	Primary Standards		Secondary Standards	
Pollutant	**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 $\mu g/m^3$	Rolling 3-Month Average	Same as Primary	
	1.5 $\mu g/m^3$	Quarterly Average	Same as Primary	
Nitrogen Dioxide (NO_2)	53 ppb	Annual (Arithmetic Average)	Same as Primary	
	100 ppb	1-hour	None	
Particulate Matter (PM_{10})	150 $\mu g/m^3$	24-hour	Same as Primary	
Particulate Matter ($PM_{2.5}$)	15.0 $\mu g/m^3$	Annual (Arithmetic Average)	Same as Primary	
	35 $\mu g/m^3$	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	

http://www.epa.gov/air/criteria.html

Areas of the country where air pollution levels persistently exceed the national ambient air quality standards may be designated "nonattainment" and have lower allowable thresholds of the criteria pollutants. The Proposed site, as well as Greene County, is located within a United States Environmental Protection Agency (USEPA) attainment zone. The nearest air quality monitoring station to the site is in neighboring Sumter County, Alabama. This station includes a continuous PM 2.5 monitor and an ozone monitor. These monitors show average daily values of greater than 85 percent of, but not exceeding, NAAQS (National Ambient Air Quality Standards) for ozone, and are less than 85 percent of NAAQS for PM 2.5. Thus, this data indicates that air quality data in the neighboring area of Sumpter County is consistent with a USEPA attainment zone.

For the Proposed Facility, major sources of air emissions will result from the combustion of fermentor tailgases used to dry feedstock, fugitive gases from bins, material handling, ethanol distillation and feedstock piles, and intermittent operation of back-up generators and off-gas flares. Engineering estimates of actual emissions from the facility's operation are as set forth in Table 2 below.

Table 2: Facility Estimated Air Emissions

Pollutant	Annual Emissions Tons per year (Tpy)	ADEM Threshold for Minor Synthetic Permit (Tpy)
NOX	40	100
PM10	47	100
PM 2.5	26	
SOx	18	100
CO	94	100
VOC	78	100
HAPs	<10.00	100

These emission estimates are consistent with USEPA and Alabama Department of Environmental Management (ADEM) classification of a synthetic minor source emitter (Table 2). The synthetic minor source emitter permit to be obtained from ADEM will require that the Facility emissions are below the NAAQS levels (listed in Table 1 above). Volatile Organic Compounds (VOCs), Nitrogen Dioxide (NO_2) and Sulfur Dioxide (SO_x or SO_2) are primarily produced in the feedstock dryer and are controlled using typical wet precipitators and thermal oxidizers. Most Carbon Monoxide (CO) results from the incomplete combustion of off spec gases during start-up and shutdown modes and emissions will fall as operations stabilize. Particulate emissions, mostly in the form of PM 2.5 (a constituent of PM 10), come from feedstock, ash and bio-char handling.

Hazardous Air Pollutants (HAPs) are not uncommon in corn-to-ethanol facilities, but are not in significant quantity (less than 10 tpy) due to the proprietary fermentation process that does not create HAPs. Other minor or fugitive sources of emissions, including cooling tower particulates represent less than 20 percent of the totals above.

With respect to the remaining two USEPA criteria pollutants Ozone (O_3) and Lead (Pb), Ozone is not emitted, but is created in the atmosphere from NO_x and VOCs, and therefore regulated by NO_x and VOC emissions. Lead (Pb) is not a component in the cellulosic ethanol facility and therefore is not expected to be present in the facility. A synthetic minor source operating permit application for the site was submitted to ADEM in August 2010 and is currently under review.

Greenhouse Gases

Greenhouse gases (GHG), found in trace quantities in the atmosphere, absorb infrared energy and prevent it from leaving the atmosphere. Increasing levels of greenhouse gases in the atmosphere may contribute to an increase in average global temperatures, resulting in adverse climate change. Many gases exhibit these “greenhouse” properties. Some of them occur in nature (water vapor, carbon dioxide, methane, and nitrous oxide), while others are exclusively human-made (like industrial fluorinated gases such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride).

Concentrations of several important greenhouse gases have increased by about 33 percent since large-scale industrialization began around 150 years ago. Currently, about 75 percent of human-made carbon dioxide emissions are from burning fossil fuels. This rapid increase in greenhouse gas concentrations within the lower levels of the atmosphere traps infrared radiation that would otherwise escape into space, and subsequent re-radiation of some of the energy back to the Earth maintains higher surface temperatures than would occur if the gases were absent.

Assessments generally suggest that the Earth's climate has warmed over the past century and that human activity affecting the atmosphere is very likely an important driving factor. The global average surface temperature has risen by about 1.0 to 1.7 degrees Fahrenheit over the past century. Rising temperatures may produce changes in weather, sea levels, and land use patterns, commonly referred to as "climate change."

The categories of GHG recognized by the USEPA for monitoring and regulatory purposes are: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride, Hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs). PFCs, and HFCs are not individual gases, but groups of gases.

The USEPA regulations require monitoring and reporting of those GHG for those facilities with emissions greater than 250,000 tons of CO_2 equivalent/year. USEPA is also promulgating regulations for permitting and emission controls for GHG but has not yet finalized the regulatory threshold and requirements for control technologies for facilities.

Based on current processes for production of ethanol, it is estimated the facility will generate a maximum of approximately 612,000 metric ton per year of CO_2 (and CO_2 equivalent); of this, 582,000 metric ton per year is from biogenic sources and 30,000 is from a non-biogenic source (combustion of natural gas). The majority of the remaining GHG emissions are from processes used to convert wood mass to syngas and from syngas to ethanol.

Total U.S. greenhouse gas emissions in 2008 were approximately 7,052 million metric tons CO_2 equivalent, which were 2.2 percent below the 2007 total of 7,209 million metric tons CO_2 equivalent. U.S. emissions of GHG were 6,187 million metric tons CO_2 equivalent in 1990. The U.S. is responsible for approximately 20-30 percent of global GHG emissions. (USDOE - Documentation for Emissions of Greenhouse Gases in the United States 2006 October 2008 http://www.eia.doe.gov/oiaf/1605/ggrpt/documentation/pdf/0638(2006).pdf).

The electric power sector is the largest source, accounting for 40.6 percent of all energy-related CO_2 emissions. Direct fuel use in the residential and commercial sectors (mainly, for heating) and the use of fuels to produce process heat in the industrial sector account for 26.3 percent of total emissions. The transportation sector is the second-largest source, at 33.1 percent of the total. Those emissions are principally from the combustion of motor gasoline, diesel fuel, and jet fuel. The ethanol produced by the proposed facility would replace petroleum based transportation fuels and would reduced GHG emissions of such fuels by approximately 80 percent of the value of the annual produced amount of ethanol.

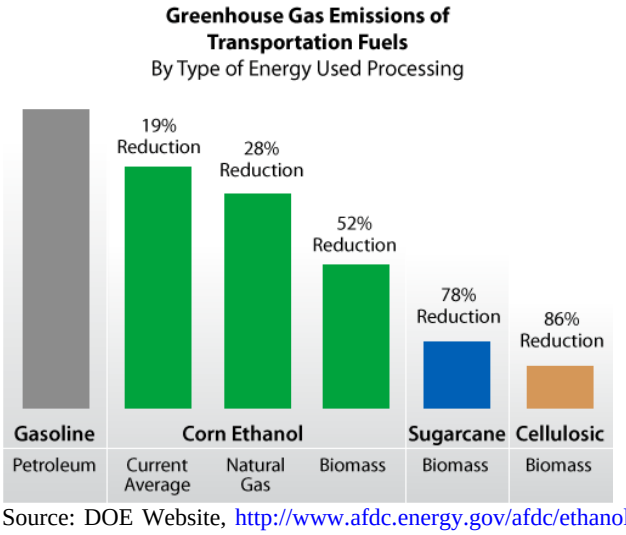
The carbon found in biofuels is the result of the natural process of atmospheric uptake of carbon dioxide by plants. During the combustion of biofuels and the biogenic components of municipal solid waste, there is an immediate release of the carbon in the form of carbon dioxide. Biofuels are assumed to be produced as renewable resources, and the carbon released through burning is assumed to be reabsorbed over time as part of the natural carbon cycle. Emissions from biofuel combustion produce no net change in the overall carbon budget; therefore, the GHG emissions for this facility are not significant at the local, regional, or global level.

Reduced lifecycle greenhouse gas emissions

All other factors equal, the use of cellulosic feedstock in ethanol production would reduce lifecycle emissions of greenhouse gases compared to both petroleum-based gasoline and corn-based ethanol. Ethanol is playing a central role in reducing the lifecycle emissions from transportation fuels. However, the actual greenhouse gas benefits may vary significantly based on a number of factors, such as feedstock type and the source of energy for the ethanol plant. Currently, most ethanol is produced from first generation feedstocks such as corn and sugar. Use of corn based feedstocks also limits the potential greenhouse gas savings of ethanol due to the energy intensity of inputs for corn farming, such as fertilizers and pesticides. Use of non-food based cellulosic feedstocks, such as wood, agricultural and forestry residues, and energy crops have the potential to significantly improve the lifecycle greenhouse gas savings of ethanol as an alternative to gasoline.

Argonne GREET lifecycle analyses commissioned by the DOE Biomass Program show that compared to gasoline, the use of corn-based ethanol can reduce emissions of greenhouse gases by 19 percent to 52 percent, depending on what type of energy is used by the corn-based ethanol plant; use of sugarcane-based ethanol can reduce emissions by 78 percent; and use of cellulosic ethanol can reduce emissions by 86 percent (See Figure 6 below). The technology proposed for use at the Facility falls into this latter and most beneficial category of greenhouse gas reduction benefits.

Figure 6 – Greenhouse Gas Emissions of Transportation Fuels



Source: DOE Website, http://www.afdc.energy.gov/afdc/ethanol/emissions.html; based on Wang, Michael, May Wu and Hong Huo, "Life-cycle energy and greenhouse gas emission impacts of different corn ethanol plant types," Center for Transportation Research, Argonne National Laboratory, Environ. Res. Lett. 2 (2007) 024001 (13pp).

According to a GREET analysis commissioned by Coskata and completed by Argonne National Labs in April 2008 see Appendix 1, the Coskata process is comparable to alternative technologies for cellulosic ethanol production, and has the potential to reduce greenhouse gases by up to 96 percent over conventional gasoline. This compares very favorably with the greenhouse gas reduction potential of corn ethanol, which as mentioned above is between 19-52 percent. The Facility is expected to fall within the range of the GREET estimates for the Coskata process, which represents a substantial improvement in greenhouse gas emissions over both gasoline and current ethanol production technologies.

2. Water Quality and Hydrology

The proposed facility will not result in significant adverse impacts to water quality because the proposed discharge of process wastewater from the facility to the Tombigbee River, discharge of stormwater from the facility to tributaries of Brush Creek, and sewage treatment discharge to the City of Eutaw, are in keeping with ADEM discharge requirements and as such is not expected to have significant adverse effects. Only a minor adverse effect is expected to result from the discharge of pollutants from the facility, since without the facility there would be no increase in pollutants to local waterways.

The proposed facility will not result in adverse impacts to water quantity because 1) all process water will be obtained from groundwater from the non-surficial aquifer, and sufficient water resources exist to accommodate wells capable of supplying both process and non-process water; and 2) all potable water will be obtained from the City of Eutaw which has adequate supply capacity for the facility.

Source(s) and rates of water consumption and adequacy of water supply sources: The City of Eutaw currently supplies potable water for the larger Crossroads Industrial Park. The water system is composed of a series of wells located within Eutaw and can adequately supply water to all of Eutaw Water System customers. The raw water source servicing Crossroads comes from well numbers 4 and 5 located off of Lower Gainesville Road. These wells have an 864,000 gallon per day (gpd) capacity. According to the Eutaw Water Supervisor, the existing system has the capacity to handle the demands of future industries as Crossroads continues to grow. There is a 600,000 gallon water storage tank on Tishabee Road in Boligee dedicated to serving the site. The well water is treated approximately 10 miles from Crossroads and is transported through a 16-inch cast iron line that runs through the property primarily following the alignment of County Road 89. Fire hydrants are located approximately every 1,500 feet predominately along the east side of County Road 89. Currently, the average use of treated water is 4,080 gallons per day with the peak use being 8,000 gallons per day. Calculated available capacity of the Eutaw Water System is 856,000 gallons per day (864,000 gpd less 8,000 peak gpd).

The facility proposes the use of new onsite wells which will supply the non-potable process water for the facility. Available water table studies (Appendix 2) indicate sufficient water resources exist to accommodate wells capable of supplying both process and non-process water. The Alabama Geological Survey publications regarding the geology and water resources of Greene County, Alabama provide information about the characteristics of the three principal aquifers that were identified to be accessible to the site. The three geologic formations with aquifers from which a properly constructed well might yield up to 700,000 gallons per day (gpd)

are the Eutaw, Gordo, and Coker Formations. A letter report summarizing of the lithologic and water-availability characteristics of these formations is included in Appendix 2.

The major aquifer of the about 300-foot thick Gordo Formation is within the lower 150 to 200 feet of the Formation. The major aquifer of the Gordo Formation could readily supply a properly constructed well with 700,000 GPD without impact on any other users of the aquifer. Water in the Gordo Formation in the area of the site has been rated by the Alabama Geological Survey as "good to fair" because of chloride (250-500 mg/L) and total dissolved solids (TDS) (500-1000 mg/L). The entire thickness of the Gordo Formation will be tested to determine the most productive sediments that could yield water with the lowest concentrations of chloride and TDS. Withdrawal from these aquifers is not expected to cause any adverse effect to any other current user of the aquifer.

According to the EPA website http://www.epa.gov/region04/water/groundwater/r4ssa.html there are no known sole source aquifers located in the state of Alabama, therefore no known sole source aquifer's will be affected by the proposal.

Wastewater

A sanitary sewer system is currently in service and is sufficient to handle substantial sanitary sewer growth within Crossroads. The City of Eutaw installed and maintains the 8-inch sewer line that runs through Crossroads, and has the capacity to meet future industrial needs. There are two pumping stations and the system is comprised of both gravity fed lines and force mains. Depending on location, sewage can be gravity fed or pumped in areas where elevations are not conducive to gravity flow. The wastewater treatment plant is located approximately 10 miles from the site and though the Eutaw POTW theoretically has an average capacity of 640,000 gallons per day (gpd), which could accommodate the process water from the facility. However, Coskata will construct its own waste water treatment facility located onsite (as shown on site plan 200 x 350- foot area) for 100 percent of its wastewater treatment and has submitted a direct discharge permit from the Alabama Department of Environmental Management (ADEM) to the Tombigbee River for all wastewater discharge created by the facility. The Facility will only utilize the existing sanitary sewer system run by the City of Eutaw for sanitary water needs associated with the 130 FTE employees on site.

The connection to the existing water line on the industrial park will supply the potable water needs for the 130 FTE employees on site and provide a backup water source for the fire water system. It will not include any process water supply. The work described above involves connecting the site with the existing water line within the Industrial Park as shown in Figure 10b. This area between the Facility and the industrial park utilities has been included in the SHPO and T&E reviews, however when the final designs for the work are completed, this work will go through separate reviews for SHPO, T&E and wetlands impact, in line with the requirements of the state incentive programs that would fund this work.

Coskata's process water treatment and discharge system is designed to be highly water efficient. Based on information supplied with the NPDES permit application submitted in May 2010, slightly over 560,000 gpd will be drawn as non-potable water from new onsite wells and approximately 100,000 gpd comes into the process from the green wood (at 50 percent moisture

content). Approximately 440,000 gpd will be returned to the Tombigbee River in the form of treated discharge and approximately 230,000 gpd will be lost to the atmosphere in the form of cooling tower evaporation. This results in a net Facility usage of 1.4 gallon water/gallon ethanol produced. Figure 7 shows the locations of the three proposed stormwater discharge locations to local waterways. Outfalls 1, 2 and 3 will be draining into tributaries to the Brush Creek, which is a tributary to the Tombigbee River. Figure 8 shows the location of the process waste water/ethanol Facility discharge outfall directly into the Tombigbee River.

An NPDES permit issued by ADEM will be required for discharge of treated process water and collected stormwater to surface waters. The permit application (EPA Forms 1, 187 and 2D) was submitted in mid-May 2010. The permit application includes the details of how process water is collected, treated and discharged to the Tombigbee River. Concurrent with the process water NPDES application, Coskata has requested ADEM (EPA Form 455) provide a model of the mixing zone in the process water discharge area of the Tombigbee River. The model provides necessary data to solicit a Section 10, River Structure Permit from the Army Corp of Engineers (USACE). Additionally, Coskata has applied for a NPDES Stormwater Discharge permit for Industrial Facilities (EPA Form 2F). The storm water is captured, managed and discharged to tributaries to Brush Creek. A draft permit was published by ADEM on August 18, 2010 for public comment. ADEM has proposed a monitoring program for the Facility's discharge which will report whether discharge is below the Alabama In-Stream Standards for Fish and Wildlife Designation thresholds for BOD, Dissolved O_2, COD, and TSS (Appendix 3, Table 1) and below the Alabama In-Stream Criteria for Toxic Pollutants and Estimated Discharge Limits (Appendix 3, Table 3). Since ADEM has not established threshold limits for this portion of the river, they have proposed a monitoring program for the Facility's discharge which should ensure water quality standards are met. Application approval is expected in the third quarter of 2010. The permit application highlights anticipated water discharge volumes as shown in Table 3 (Also in Appendix 3, Table 4).

Table 3. Estimated Mass Discharge Quantities of Toxic Pollutants from Process Waste Water

	Daily Max.	**Monthly Average**
Pollutant	**Kg/day**	**Kg/day**
Nickel	0.0095	0.0077
Zinc	0.11	0.090
SeO_4	0.034	0.029
BOD	10.4	8.6
COD	205	172
TSS	0	0

The Coskata process has no back-end solid waste to dry and handle like enzymatic approaches, and water and wastewater treatment requirements are low due to significant water recycle and energy conservation. The Coskata process will use less than two gallons of process water per gallon of ethanol produced. As discussed above, Coskata is applying for an NPDES permit to allow discharge of wastewater into the Tombigbee River. Please refer to Section VIII. Compliance with the Endangered Species Act for further detail on Endangered Species related to the issuance of the NPDES Permits.

3. Solid Waste Management and Hazardous Materials

Solid Waste Treatment:

The Facility will generate approximately 240 tons per day of solid waste. This waste will include waste suitable for both Construction and Demolition (C&D) and Municipal Solid Waste (MSW) landfills. The proposed facility will not generate hazardous wastes. As can be seen in Table 4 below, for both categories of waste generated, there is ample available landfill space within a 1.5 hour drive of the facility, therefore there is no expected adverse impact foreseeable from the generation of solid wastes at the facility.

Table 4 – Summary of waste generation and landfill availability by type for Facility

Waste type	Daily volume generated	Available daily landfill volume within 1.5 hours	Available daily landfill volume within 5 hours
C&D	167	3,750	9,730
MSW	75	600	600
Total	**242**	**4,350**	**10,330**

The Facility is expected to generate several different solid waste streams. These streams and their expected disposition are discussed below:

- Solids streams 01 and 02, consisting of rocks, gravel, grit and biomass screening rejects total approximately 67 tons per day. They will be either be landfilled in local Construction and Demolition (C&D) landfills located in the Boligee area or retained on site. The nearest landfill, the Greene County Inert C&D Landfill, has a current excess capacity of approximately 100 tons/day, which is ample to handle these waste streams.
- Streams 03-04 will generate approximately 100 tons per day biochar and bottom ash from the gasifier that are suitable for landfill and will be evaluated during detail design for sale as a low cost soil amendment. If sale of these materials is not possible, the landfills within a 1.5 hour drive of the facility have ample space to handle these
- The remaining 75 tons per day of wet digester sludge (approximately 50 percent solids) is being tested for suitability for land application. If this sludge is not suitable for land application, the MSW facilities in the area have ample space to accommodate this waste stream.

Hazardous Materials

The proposed facility will not generate hazardous wastes. An ASTM Phase I Environmental Site Assessment was completed on the proposed site location on August 13, 2009. The results of the Phase I ESA indicated no hazardous materials present within the 151 acre facility site (Appendix 4). In addition, based upon a regulatory records review pertaining to Crossroads and the

surrounding area, Crossroads did not appear on any of the identified EPA Lists for hazardous materials.

4. Land Use

The proposed facility will not result in adverse impacts upon land use since the site is designated for industrial purposes and the facility will not change any other surrounding land uses. The choice of Greene County as the proposed site for the facility was driven by its access to feedstock, its existing utilities, the availability of all major logistical infrastructure on-site, and its co-location opportunities. The nearby land uses are conducive to the proposal. The surrounding uses along County Road 92 that bounds the Crossroads property to the north, includes several residential houses, some forestland and pastureland (Figure 2b and Appendix 7, Figure 4). To the east of the property are a baseball field, additional forestland and pastureland, the Boligee Truck Stop (BP Service Station), 3B's Wrecker and Tire Service, and a Chevron Service Station. Adjoining the property to the south is pastureland, forestland, ponds, a Colonial Pipeline pumping station, and a few residences. The T&WA Building is located south of Interstate 20/59 and is within Crossroads' boundaries. Also, along the southernmost boundary of Crossroads is the Greene County Speculative Building. To the west is the newly constructed TEPPCO fuel distribution terminal and blending facility.

Various landscape types are encountered in the Crossroads property including grass fields, swamps, ponds resulting from former borrow and gravel pit operations, and forests of hardwood and pine. The southern portion of the property, where the Flagship facility will be located, is comprised of flat open fields with ponds, while the northern portion of the site is timber forest. Recreational hunting is the predominant current use of the Crossroads property. A house on the property has been converted into a hunting lodge and several camp trailers are also located nearby. A former dairy farm operation is located adjacent to the hunting camp. None of these structures are currently occupied. According to persons familiar with the property, Crossroads has historically been used for farming, hunting, and timberland prior to being purchased by the Greene County Industrial Board in 1982.

Geomorphology, Geology, and Soils

Crossroads Industrial Park:

The proposed site is located within the Black Belt Region of Alabama. Greene County is located within Alabama's Piedmont and upper coastal regions which serve as the transition from the state's mountains region to its grasslands. The topography of the 1,390 acre Crossroads Industrial Park, in which the 151-acre Facility is to be located, is relatively flat with a minimum elevation of 73 feet and a maximum elevation of 125 feet with the exception of the Brush Creek and Tombigbee riverbanks. Along the northeastern boundary of the Crossroads property, two branches of a perennial stream flow southward, converge into Brush Creek and ultimately deposit into the Tombigbee River. These streams average 50 to 80 feet wide with banks of 20 to 40 feet in height. Brush Creek and its tributaries have large vegetative buffers adjacent to them of mixed hardwood forests with a mixed understory of small trees and shrubs. According to the Natural Resources and Conservation Service published county soil data for Greene County, 24 different types of soil units are found within the Crossroads property (Figure 9). All soils are listed as potentially hydric for Greene County.

Crossroads is comprised of various landscape types located in the northern portion of the Gulf Coastal Plain Geologic Province in Alabama. Within Crossroads alluvial and terrace deposits are underlain by the Selma Chalk Group. Specifically, the characteristics of the chalk encountered during subsurface exploration within Crossroads indicate the Demopolis Chalk Formation. The alluvial and terrace deposits along this portion of the Tombigbee River consist largely of unconsolidated sands, clays and gravels. The chalk formation is generally light to medium-gray brittle chalk overlain by fossilferous chalky marl, very clayey chalk, and calcareous clay. Ground water depths vary from near surface to 15 feet below existing surface. Most areas within Crossroads contain approximately 1 foot of organic topsoil with surficial soils comprised of clayey sands and sandy clays to depths of 3 to 10 feet below existing ground surface. The clay is generally underlain by hard to very hard chalk located 19 to 33 feet below existing ground surface. The structural characteristics of the soils within the Crossroads boundary vary from moderate to good structural foundation qualities. Some areas with poor drainage and soft soils will require undercutting and replacement of material with satisfactory, compacted structural fill.

5. Transportation

The proposed action will not result in adverse effects upon the existing transportation system because the improvements and level of service to the roadways will be adequate to meet the estimated truck traffic increase of 150 trucks per day. No significant adverse effects from rail line upgrades are anticipated since these improvements are proposed within existing railways. Minor adverse effects may result to local flora and fauna during the construction process; however these would be expected to be isolated and minimal.

Roadways

Truck is expected to be the primary means of transport of feedstock within a 75-mile radius, into the facility as well as shipment of ethanol out of the facility. The local ethanol market is defined as a 250 mile radius around Boligee that can be serviced by trucks. The facility is located within a rural area at the intersection of Interstate Highways 20/59, at exit 32, with direct access to federal highway 43, providing for easy truck access. The site will have its own road entrance from County Highway 89 through the Industrial park and its own truck loading rack located within the 151-acre site. The closest, largest terminal market for ethanol distribution is Birmingham, located 89 miles away. The State of Alabama has committed grant funds for infrastructure improvements to upgrade and repave the existing roads in order to allow for the sustained flow of 150 trucks per day. Crossroads has an existing county road network within its boundaries. The Crossroads roadway network consists of approximately 20,500 linear feet of two lane improved roadways. Established interstate, federal, state and county roadways exist in and around Crossroads. The site is immediately adjacent to Interstate 20/59 at exit 32, with direct access to federal highway 43.

Interstate 20/59 runs through the center of the county and federal highway US-11 generally follows the interstate alignment. Interstate 20/59 offers an easy route from Atlanta through Birmingham to Greene County and on to Meridian and Jackson, MS. Interstate 59 splits in Meridian and travels south to New Orleans. US-43 intersects with US 11 in Eutaw and travels south through Forkland and Demopolis toward Mobile. Other improved state and county routes provide an adequate network of roadways within and surrounding Greene County. Commercial air services are offered in Meridian, MS at Key Field Airport and in Birmingham, AL at

Birmingham International Airport. This airport is a 60 mile drive from Crossroads and offers a runway length of 10,003 feet with 6 daily flights by Atlantic Southeast. General aviation service is available at the Eutaw Municipal Airport with 3,600 feet of lighted runway and tiedowns. Greene County and Crossroads are centrally located in perspective to large southeastern cities. Please refer to Table 5 below for driving distances.

Table 5: Facility Distance Chart

Distance from Eutaw to:

Atlanta, Georgia	231 miles
Birmingham, Alabama	89 miles
Huntsville, Alabama	184 miles
Jacksonville, Florida	496 miles
Memphis, Tennessee	262 miles
Mobile, Alabama	169 miles
Montgomery, Alabama	137 miles
Nashville, Tennessee	278 miles
New Orleans, Louisiana	249 miles
Savannah, Georgia	479 miles

GCIDB has committed to upgrading selected access roads within the 1,390-acre industrial park and those leading toward the industrial park for the purposes of accommodating the expected 150 trucks per day to the ethanol Facility as well as to accommodate access to the industrial park as a whole. All of the proposed road improvements impact existing roads and are not expected to incur additional disturbance outside of existing road rights-of-way. The following improvements are included:

- Industrial Park Interstate Access Road (600 linear feet, indicated in red in the Figure 10a - Infrastructure Improvements)– This is an existing intersection. The work would improve the turning radius of the access road through realignment. While GCIDB has committed to making this improvement, this commitment is contingent on obtaining funding from the Alabama Department of Transportation in order to make the improvement. This improvement is furthermore desirable as it would improve the potential traffic flow to the industrial park, however if GCIDB is unable to obtain funding for it, it is not required for the Facility to move forward, therefore this is not a connected action for the purposes of this EA.
- Structural Pavement for CR-89 (6,000 linear feet, indicated in blue in Figure 10a)– This is an existing road. The work would involve improving the road bed and resurfacing in order to accommodate additional traffic to the Facility. Therefore this work is considered a connected action for the purpose of this EA. Since the work is not proposed to impact any non-disturbed areas, there are no impacts associated with these upgrades, beyond short term emissions of fugitive dust and localized hydrocarbon emissions from asphalt.
- Structural Pavement for Truck Entrance from CR-89 (3,850 linear feet, indicated in green in Figure 10a) – This is an existing road. The work would involve improving the road bed and resurfacing in order to accommodate additional traffic to the Facility. Therefore this work is considered a connected action for the purpose of this EA. Since the work is not proposed to impact any non-disturbed areas, there are no impacts

associated with these upgrades, beyond short term emissions of fugitive dust and localized hydrocarbon emissions from asphalt.

Rail Access and Siding

Since the majority of the feedstock will be sourced from within a 75 mile radius of the Facility, Coskata plans to rely on trucking for the majority of its feedstock supply. Coskata does not anticipate the Facility will ship significant quantities (less than 50 percent) of ethanol by rail given its logistical advantage in serving large truck markets locally. The railway upgrades are the responsibility of the GCIDB and may service the larger industrial park. For these reasons, the upgrades to the railway are not considered connected actions, and therefore potential associated impacts with upgrades to the railway are not evaluated as part of this EA.

Alabama and Gulf Coast Railway owns the short line that serves Crossroads providing access to the following rail lines, each located within five miles of Crossroads: Burlington Northern Santa Fe, Canadian National, CSX, Kansas City Southern, and Norfolk Southern. The GCIDB has secured funding through an appropriation in 2009 to complete certain rail upgrades and to complete the rail loop around the site. This loop is expected to be capable of unit train shipments, which could be utilized for either ethanol or feedstock shipments in the future.

Crossroads currently has a railroad spur with little or no traffic along the approximately 10,600 feet of in-place track. When Crossroads was first developed the spur was constructed of 9,895 track feet with a side track of 823 feet. Recently, in conjunction with the TEPPCO development, a 117 foot portion of the track was removed. The rail consists of 39 foot long, 100 lb RA rail with bolted connections. Three #8 switches are provided along the track footage, as well as several grade crossings: four asphalt and one gravel. The Greene County Industrial Development Board owns the spur that runs through the central portion of the property.

A large straight line spur should suffice for any necessary additional feedstock input that may need to come in by rail. The proposed site was evaluated for adequacy with respect to rail access and the amount of rail siding required for receiving feedstock and shipping the Facility's ethanol to market. An analysis of the ethanol rail shipments for the proposal is in Table 6. To determine the amount of rail siding required, the evaluation assumed that all of the ethanol may ship by rail and that fifteen days would be a typical round trip time for loaded cars to be emptied and returned.

Table 6 - Ethanol Rail Shipment Analysis (55-mmgy Facility)

ETHANOL RAIL SHIPMENTS	
Annual ethanol production, gal	**55,000,000**
Production days per year	**350**
Daily ethanol production, gal	**157,143**
Rail car capacity, gal	**30,000**
Rail cars filled per day	**5.2**
Days of production stored in rail cars	**15**
Rail cars needed to ship product	**78**
# of rail cars recommended to purchase	**98**
Total rail car siding space recommended	**5,170 ft.**

At 55-mmgy, the ethanol Facility will produce approximately 157,143 gallons of denatured ethanol daily. An ethanol rail car holds about 30,000 gallons, filling an average of 5.2 rail tankers each day. Therefore, fifteen days of production will fit into 78 rail tankers. Larger deliveries may be more economical if there is adequate ethanol storage. This analysis looks at the minimum requirements. Coskata is planning to utilize the services of truck service whenever possible, and is only planning to use rail for long deliveries, and estimates only 50 percent or less of shipments will be transported by rail. This would require approximately 39 rail cars.

Each car is approximately 65 feet long, so this siding would need to be 5,070 feet, plus 100 feet added to clear the switch. There is adequate land to install a 5,170 foot rail siding. The actual rail siding layout is the responsibility of the plant design firm, the railroad, and the rail-yard design company. Coskata has hired a subcontractor to handle the logistics for ethanol delivery and the company agrees that rail will be a small component of volume (well under 50 percent). Coskata will have a rail loop however it does not intend to lease rail cars.

Ports

While the use of barge for shipment of feedstock or ethanol is not currently proposed given the site truck and rail access economics, if those methods of shipment were to change, it may be feasible in the future. However, port improvements would be necessary to meet the infrastructure needs of the industrial park, and is not a requirement for operation of this facility, therefore port improvements are not considered connected action for the purposes of this EA. Barge transportation is available for reaching additional markets through the adjacent TEPPCO fuel terminal given the location of the site on the Tombigbee River.

Alabama has one of the longest inland navigable waterways in the country. The system contains over 1,400 miles of navigable inland and intracoastal waterways along six corridors. One such corridor is the Tennessee-Tombigbee Waterway, which connects to other waterways and ports in 23 states. All of the waterways and their associated locks and dams, are operated by the U.S. Army Corps of Engineers.

Greene County is fortunate to have such a valuable resource in the Tennessee-Tombigbee Waterway bordering the Crossroads property. One dock is currently operational and serves the TEPPCO development. The dock is located 259.5 miles from the Port of Mobile along the eastern bank of the river. It is used solely by the TEPPCO fuel distribution facility, which sources refined petroleum products from the neighboring Colonial Pipeline and barges them to local markets up river. This facility includes a truck blending rack for ethanol and barge loading capabilities for loading liquids on the port.

Lastly, there is a refined products and ethanol terminal on the site at TEPPCO which could be used should an agreement with TEPPCO be reached. Such utilization is not expected to have any adverse environmental impacts, should this option be feasible in the future.

6. Natural Environment

a. Biological Resources

The proposed facility will not significantly adversely affect biological resources within the 151

acre site, or in the surrounding areas. There may be a minor adverse effect to the wildlife, such as deer, birds, amphibians, snakes, and other species common to the Black Belt Region, within the 151-acre site that utilize the wetland/farmed areas, however, these effects are not expected to have a significant adverse effect.

The proposed 151-acre site consists of cleared cropland, low quality (farmed) wetland, open ponds remaining from sand and gravel mining, and a fringe of forested areas. The adjacent forested areas within the industrial park consist of hardwood forest composed predominantly of sweetgum, red maple, and various oaks and hickories. The proposed pipe discharge footprint consists of either existing farmland, or forest within existing rights-of-way.

The state of Alabama contains many aquatic and terrestrial habitats, and has a large amount of biodiversity of vertebrates, freshwater mussels, and snails that could occur on or surrounding the proposed site. The proposal is located within the Black Belt Region of Alabama which is known for its hunting of white-tailed deer, wild boar, wild turkey, and duck. A myriad of grassland birds, including Eastern Meadowlarks, American Kestrels, and several species of sparrow occur in this area. Wood Storks, Mississippi Kites and Swallow-tailed Kites are frequent visitors to this area during the summer months as well (http://www.fatbirder.com/links_geo/america_united_states/alabama.html). The common snakes for this area are the rat snake, black racer, and ring-necked snake (http://www.outdooralabama.com/watchable-wildlife/what/reptiles/snakes/). There is an abundance of amphibians that occur in this area (http://www.outdooralabama.com/watchable-wildlife/what/amphibians/frogs/). However, the proposed 151-acre site has been previously cleared and graded and has been in near continuous farm operations for 25 years. Therefore, no significant adverse effect to the existing biological resources in the area are expected.

Please refer to the "Section VIII. Compliance with the Endangered Species Act." for discussion of federally listed species including the presence of the Inflated heelsplitter mussel (Potamilus inflatus) within the Tombigbee River.

b. Use of Modified Microorganisms

The use of Modified Microorganisms in the fermentation process in the proposed facility is not expected to adversely affect biological resources within the 151 acre site, or in the surrounding areas. The microorganisms intended for use for this proposal are within the Clostridium genus and are bacterial acetogenic organisms. These are microorganisms that generate acetate as a product of anaerobic respiration. The acetogenic bacteria are well known in the field to be Biosafety Level 1 organisms. They are classified as "well-characterized agents not known to consistently cause disease in healthy adult humans, and of minimal potential hazard to laboratory personnel and the environment" according to the Center for Disease Control's Office of Health and Safety and the National Institutes of Health.

The microorganisms intended for use are not defined as genetically modified microorganisms (GMOs) according to Section 5 under the Toxic Substances Control Act (TSCA). They are also not defined as intergeneric (defined by EPA as "those microorganisms formed by combining genetic material from organisms in different genera") and therefore do not have precommercial notice and permitting requirements under the Section 5 of the Toxic Substances Control Act (TSCA). As long as USDA RBCS guarantees this loan, if the microorganisms intended for use

at the facility change from those submitted for review during this EA, Coskata must notify USDA RBCS and submit an adequate microbial risk assessment encompassing potential release of this/these organisms to the environment so that USDA RBCS (PSS) can complete another review of these microorganisms.

The Biotechnology Regulatory Services (BRS) program of the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) regulates the safe introduction (environmental release, interstate movement, and importation) of genetically engineered (GE) organisms, defined as the genetic modification of organisms by recombinant DNA techniques. Coskata's microorganisms are mutagenized but not modified by recombinant DNA techniques, therefore they are not regulated by the BRS.

As unregulated microorganisms, this EA assessed the information provided by the applicant on the origin of the microorganism, its survivability, the mutagenesis process utilized, and the affected attributes of the microorganism (Communication with Coskata dated August 11, 2010), and determined that there is not likely to be an adverse effect to the environment if released. Furthermore, the waste water treatment process is specifically designed to kill excess microorganisms from the waste water discharge. It is not expected that the microorganism could be released into receiving waters, however should a release occur they are unlikely to be transferred to adjacent water bodies (or areas), or to proliferate if transferred. If microorganisms were to be released, the proposal would not be introducing a genotype into the environment that is uncharacterized and therefore it would not be expected to be able to outcompete native microbial communities. The microorganisms proposed for use represent a very low hazard if potentially released into the environment.

7. Human Population: Socioeconomic Factors

The proposal is not anticipated to have a disproportionate adverse effect on any minority or low-income populations (Appendix 9 -Rural Development Form 2006-38). To the contrary the proposal is expected to have several beneficial effects to the communities.

As seen in aerial photograph Figure 2, Crossroads is located in a relatively undeveloped portion of Greene County and the proposed Facility location is more than a mile from the closest population center of Boligee (population 370 ca. 2000 Census). The facility site is located in the Crossroads Industrial Park and is zoned for Industrial Use and is not expected to create local impacts that would displace or impact any populations.

Near-by populations (including minority and low-income):

The proposed site location is located within Alabama's Black Belt. Alabama's Black Belt includes some of the poorest counties in the U.S. Along with high rates of poverty, the area is typified by declining populations, a primarily agricultural landscape with low-density settlement, high unemployment, poor access to education and medical care, substandard housing and high rates of crime (http://en.wikipedia.org/wiki/Black_Belt_(region_of_Alabama). With a comparatively small population relative to other counties throughout Alabama, Greene County presents a particularly significant advantage for industrial and commercial development. There is an average of 15.44 people per square mile with a total land area of 645.87 square miles. This translates into a potential for increased use of land and space in attracting, retaining, and growing industrial and commercial development throughout the county and specifically in Crossroads.

According to the 2000 census, the total population of this 645 square mile county is 9,974. Of the total population, 46.9 percent or 4,681 are male and 53.1 percent or 5,293 are female. Of the 9,974 people living in Greene County, 8,013 (80.3 percent) are African American, 1,904 (19.1 percent) are Caucasian, 58 (0.6 percent) are Hispanic or Latino, 12 (0.1 percent) are Native American, 8 (0.1 percent) Asian, and the remaining 37 (0.4 percent) are other races or multiracial. The average household size in Greene County is 2.45. The median household income for the county is $19,819 with per capita income being $13,686 in 2000. Income expectations of the surrounding available workforce could easily be met by a potential industry requiring unskilled to moderately skilled employees.

According to 2000 census data, 88.6 percent of Greene County residents remained in the county when compared to 1995 census data. Although the influx of residents to Greene County was relatively small (6.8 percent) in comparison with state and national residence movement, the county's current economic climate cannot support large population increases. The potential tax base of a new industry would help the county improve infrastructure from additional revenue generated and thus support the associated new employee population. An unemployment rate of 19 percent for Greene County as of July 2010 proves new available employment opportunities are needed in the area.

Table 7 - Unemployment Rates, July 2010

Civilian Labor Force	Rate
United States—actual	9.5
Alabama—statewide	9.7
Greene County	19.0

Source: Alabama Dept. of Industrial Relations and U.S. Bureau of Labor Statistics

Workforce

The Facility is expected to be staffed with approximately 80 Flagship Ethanol employees for plant operations and an additional 50 personnel employed by the wood yard operator. Jobs created by the Facility will primarily be technical jobs requiring a high degree of technical training. A labor pool analysis conducted by Greene County shows that adequate labor may be drawn from the West Alabama area to meet the staffing needs of the Facility (Labor Profile: Greene and Surrounding Counties," Center for Business and Economic Research, The University of Alabama, May 2005). Coskata is currently in discussions with Alabama Industrial Development and Training (AIDT) regarding workforce development needs. Coskata also expects to contract with a third party provider for long-term plant operations and maintenance.

The Facility is expected to contribute over 700 direct and indirect jobs and over $27 million in new local earnings. The direct jobs created by the Facility will primarily consist of high quality positions with compensation levels averaging over $60,000 per worker. In addition, on average, 215 people are expected to be employed during the 18 month facility construction period, further adding to the near term impacts on the community.

Labor Availability
Greene County and the surrounding area appear to have requisite skill sets (neighboring Tuscaloosa County is very industrialized with employers ranging from refineries to auto plants) and given the great support available from the state for training and recruitment, there are no expectations of problems in staffing the Facility. Qualified labor is available locally, but is currently in short supply. Because of the large workforce in the industry, local colleges provide specialized training. The Shelton State Community College in Tuscaloosa, AL provides degree programs for process technical careers in business and industrial technologies.

The exact number of employees varies depending on the Facility design and operating plan. It is usually preferable for the Facility to obtain the majority of its workforce locally. However, the specialty positions such as the facility manager and microbiologist may require recruiting from greater distances. Greene County, AL has a college graduate rate of 10.5 percent. Estimated median household income in 2009 was $22,230 (https://edis.commerce.state.nc.us/docs/countyProfile/AL/01063.pdf). However, the Tuscaloosa area has a population of 88,722 and it is expected that these communities can provide sufficient labor for the proposed facility.

8. Construction
The proposed facility will not result in significant adverse impacts to the environment due to construction because the proposed facility will be observing federal and state best management practices and as such is not expected to have significant adverse effects. The Facility will be built from standard materials of construction for each substantive unit operation of the ethanol production process, as described below:

- *Materials Handling/Chipping/Drying*. The materials of construction will be consistent with commercially proven applications, consisting primarily of carbon steel and low alloy steels.

- *Gasifier*. The materials of construction will be consistent with those used in currently operating gasification facilities. Carbon steel with a conventional refractory lining will be used to withstand the high temperatures within the gasifier.

- *Fermentor*. The bioreactor design will utilize carbon steel, glass-lined, bolted steel tanks.

- *Distillation*. Stainless steel will be utilized for the column, piping and associated equipment.

Remaining equipment will be constructed out of materials selected based on a number of considerations, including cost, corrosion resistance and pressure containing capabilities as appropriate for the process environment. Material testing via corrosion coupons, commonly used corrosion measurement devices, and non-destructive engineering testing will be performed on select pieces of equipment.

Extent of necessary site clearing and excavation
The Proposed 151-acre site for the Facility is relatively flat, and was rough graded for industrial purposes in the 1980's. It has been in agricultural production of hay and grain crops for the past 25 years. It is expected that minimal cut and fill to obtain a level site will be necessary. In areas where construction will occur, the site will be cleared and grubbed and the structurally unsuitable layer of topsoil will be stripped. There are little or no pre-existing improvements to be demolished. The final subgrade foundation elevation may be obtained through excavation in the higher elevations and filling in the lower areas with the excavated material. Some structures will be lightly to moderately loaded requiring only conventional shallow foundation systems. Other equipment foundations such as the gasifier and the taller tanks will likely require deep foundations.

Construction will not have temporary or long term significant adverse effect to the environment, or to adjacent communities. Minor adverse effects may result from dust from vehicular traffic during clearing/grubbing and grading for the facility and associated connected action infrastructure. Local Best Management Practices (BMPs), as well as those BMPs required for work within and adjacent to wetlands, as specified by the USACE permit, will be utilized to minimize construction related soil erosion and discharge into adjacent water bodies.

9. Energy Impacts

The proposed facility will not result in adverse impacts to the environment due to energy infrastructure because the proposed energy supplies will be in keeping with federal and state requirements and as such is not expected to have adverse effects.

Electrical Service: Crossroads' electrical needs are currently being met by Black Warrior Electric Membership Corporation ("Black Warrior"). There is a distribution line within Crossroads, and a main transmission line is located within 2 miles. Up to 2.5 MW of power from Black Warrior will be used during construction to support site activities. Coskata has determined that the Facilities operating electrical needs will exceed the available 3 phase 13.2 kV service available from Black Warrior and has received a commitment from Alabama Power that it can supply adequate power to the site within 132 weeks of contracting by Coskata. Coskata expected electric consumption level is well within the current capabilities of Alabama Power without requiring new sources or reconductoring of existing lines. The service extension to the Crossroads site will require Alabama Power to accelerate a planned connection between Boligee and Epes substations as well as securing access from the connector line to the site. Alabama Power will provide all operations and maintenance for the new conductors, HV switchgear, and primary transformers. This electric service is not considered to be a connected action to this proposal since the GCIDB is providing this service to the industrial park as a whole, and is not solely servicing the Ethanol Facility.

Natural gas service
The Crossroads site does not currently have access to natural gas. Preliminary negotiations have begun to install an eight-inch diameter dedicated natural gas service from Livingston Gas Co. located 30 miles away. The proposed natural gas route (Figure 11) is proposed within existing rights-of-way, predominantly adjacent to existing roads. This natural gas service is not considered to be a connected action to this proposal since Livingston Gas Co. is a private

company whose additional 30 mile natural gas connection may service the industrial park as a whole as well as adjacent industries, and is not solely servicing the Ethanol Facility.

10. Noise, Vibrations, Seismic Conditions, Fire-Prone locations, radiation, aesthetic considerations.

The proposed facility will not result in adverse impacts to the environment due to noise, vibrations, Seismic conditions, Fire-Prone locations, radiation, or aesthetic considerations because the facility will not induce or produce these conditions in excess. The Crossroads site is governed by a series of covenants and restrictions that determine the suitability of tenants. The covenants address issues such as noise, vibration, noise, dust and aesthetic considerations and it states that no site shall be used for any purpose which is considered dangerous or unsafe to human life or harmful to the environment by reason of odor, dust, fumes, smoke, noise, vibration, refuse produced, or glare in the surrounding area. In purchasing the property, Coskata has agreed to abide by these covenants as well as any and all zoning and land use requirements. The Crossroads site is not located in an area prone to brush or forest fires. Coskata does not procure, produce, or utilize any radioactive elements in the operations of its facility, so no radiation risk will be present. The site is not located over any major or minor fault lines. The preliminary seismic zone classification for the facility has been assumed to be "D" based on typical soil characteristics in the Boligee area. Seismic Class D indicates a "stiff soil profile." The seismic zone classification will be updated based on the final geotechnical survey during the detailed design phase and is likely to be upgraded to a Class C after the site specific soils evaluation. The ultimate seismic classification will determine the standard to which the Facility structures will be designed, and as such will be designed in order to protect the facility from potential environmental hazards should the facility experience a seismic event.

11. Safety and Occupational Health

Site safety will be managed by strict adherence to US OSHA requirements as well as the more stringent Coskata safety policy. The site boundary is fenced and will be closed 24 hrs a day and accessible only by authorized personnel with approval from Coskata. Any personnel entering the site must adhere to Coskata Safety policy.

12. Utility Infrastructure

See Section IV. 9. Energy Impacts for information pertaining to Electric and Natural Gas.

The proposed facility will not result in significant adverse impacts to the environment because the proposed utility upgrades are in keeping with federal and state requirements and as such is not expected to have significant adverse effects. Minor adverse effects to the flora and fauna may result from the localized construction of utility upgrades, but these effects are expected to be minimal. For purposes of this Environmental Assessment (EA) this proposal includes the construction of the cellulosic ethanol Facility within the 151-acre proposal area, proposed construction of approximately 45 acres of compensatory wetland mitigation within an adjacent 84-acre parcel, a 8,192-foot long surface trench and pipe for wastewater effluent discharge to the Tombigbee River, and road upgrades consisting of resurfacing of 6,000 linear feet (LF) of County Road-89 and 3,890 LF of the Truck Entrance from County Road 89. All other infrastructure components, including any proposed upgrades to roadway intersections, port/barge

system, railways, offsite and onsite electric service, offsite water and sewer systems, and offsite and onsite natural gas lines are the responsibility of the GCIDB and utility providers and are thus far not designed, and are not considered connected actions for the purpose of this EA.

The site currently has sufficient water and waste water resources and electric power can be upgraded to accommodate the needs of the Facility. Table 8 below details the current status of the site's available utilities:

Table 8 – Facility Infrastructure Overview

Water	• Public water system on-site capable of supplying base load needs; the water table is expected to accommodate wells capable of supplying both process and non-process water. • Final determination of water supply source is pending completion of the Front End Engineering Design
Waste Water Treatment	• Sewer on-site with capacity sufficient to accommodate the Facilities needs. • Coskata is also installing its own waste water treatment equipment
Power	• Alabama Power Company can provide sufficient on-site power
Gas	• Natural gas is available through a local gas company. A new gas line is being installed and will entail 30 miles of trenching within existing road rights-of-way.

Infrastructure improvements to the railway and barge systems for delivery of the feedstock would be available to the facility in the future with some investment in equipment and site infrastructure, however these transportation venues, while taken into consideration for the feasibility of this proposal, are not projected for the near future (reasonably foreseeable at this time) and are therefore not included as a connected action in this EA.

Infrastructure

Alabama Gulf Coast Rail, a subsidiary of RailAmerica, serves the rail needs of the site. Access to BNSF and Norfolk Southern is within five rail miles. The site is immediately adjacent to Interstate 20/59 at exit 32, with direct access to federal highway 43. Existing roadways have proven capable of handling the amount of truck volume anticipated by the Facility (150 trucks per day); however, these roadways have suffered from lack of maintenance. Greene County has committed to upgrading these roads. The site is bordered by the Tennessee-Tombigbee Waterway at river mile 259.5, and has an existing port with plans to build a second port. Adjacent to the site is a TEPPCO fuel distribution facility that sources refined petroleum products from the neighboring Colonial Pipeline and barges them to local markets up river. This facility includes a truck blending rack for ethanol and barge loading capabilities for loading liquids on the port.

Greene County Infrastructure Improvement Commitments

The Greene County Industrial Development Board has indicated that infrastructure improvements required to access the Facility will be the responsibility of Greene County. Greene County, the Alabama Department of Economic and Community Affairs (the "ADECA") and the Alabama Development Office (the "ADO") have committed to making infrastructure improvements to the Crossroads site, as follows:

- Road upgrades to existing road access to ensure traffic capacity of 150 trucks per day. These upgrades will include Industrial Park Interstate Access improvements involving realignment of 600 linear feet of County Road 89 and intersection improvements of County Road 89 and County Road 20, and resurfacing and patching approximately 6,300 linear feet of County Road 89 and two entrances to the Flagship site (Figure 10a).

- Engineering and construction costs to upgrade the rail spur to the site (Figure 10a). This upgrade includes repair of 3,000 linear feet of rail spur from the mainline west along the northern border of the Flagship site. Repairs consist of replacement of every other cross tie in tangent sections and replacement of every cross tie in curved, severely deteriorated sections, installation of anchors, installation of a bow handled switch, grading and installation of new ballast and spraying for vegetation.

- Water system upgrades (Figure 10b). This upgrade includes installation of 165 linear feet of 12" Ductile Iron Pipe, Pressure Class 350, and all fittings and plugs, a 16" by 12" tapping sleeve and valve, 12" gate valve and box, and 100 linear feet of 20" steel casing for line under proposed rail crossing. Upgrades begin at tap on 16" mainline along County Road 89 and extends to proposed Flagship site boundary.

- Sewer system upgrades (Figure 10b). This upgrade includes installation of approximately 825 linear feet of 4" HDPE, DR 11, Pc 160 Force Main, and all fittings and plugs; a Sanitary Sewer Pump Station and all valves, control panels, electrical connections, and fencing; 100 linear feet of 12" steel casing and bore under rail spur; and tie to existing 6" Force Main. Upgrades begin at northern boundary of Facility site and extends to 6" Force Main to the north of the existing rail spur.

Funding for these improvements has been secured via a Community Block Development Grant from ADECA which will be used as matching funds for a Federal Economic Development Administration grant.

13. Feedstock Availability and Proximity

The proposed facility will not result in adverse impacts to the surrounding environment from the harvesting of the feedstock because the proposed feedstock sourcing area within the 75-mile radius is 1) to be conducted in keeping with existing paper products industries harvesting methods which are currently in surplus for the desired feedstock source, and 2) represents less than 5 percent of annual woody biomass supply/consumption in the area, and as such is not expected to have adverse effects.

The Facility will require 560,000 dry tons (1.1 million green tons) of biomass per year (~1,500 dry tons/3,000 green tons per day). This amount of biomass represents about 45 percent of total production costs. Coskata commissioned several independent studies by recognized experts in the forestry industry and academia (one of which is included in Appendix 5) to accurately assess and forecast feedstock availability and pricing dynamics. These studies have found that the source area around the site has an available annual supply of 11.5 million dry tons of woody biomass which, at a projected consumption rate of 560,000 dry tons per year, represents nearly 23 times the Facility's requirement.

The studies concluded that there is sufficient cellulosic fiber present within a 75 mile radius of Coskata's proposed Boligee, AL Facility site to adequately satisfy the 1.1MM green ton annual consumption of the Facility. Fiber is prevalent and available in varied quantities from multiple sources. These include softwood and hardwood from traditional tree length roundwood pulpwood, wood product plant residuals (i.e., residual chips, bark, sawdust and shavings), roundwood chips from both in-woods and chipmill sources including some minimal volumes of forest residuals (currently limited in volume and subject to concerns of cost and quality) and both ground material and chipped materials from landfill reclamation efforts and waste residual concentration yard sites. Although a wide variety of wood biomass is technically suitable for the Coskata Process, economics are expected to dictate that facilities feedstock will be made up of pulpwood (small diameter roundwood), mill residuals (by-products from wood processing facilities such as saw mills) and forestry residuals (low grade material left over from logging operations).

Pulpwood refers to trees which have a diameter of approximately 4 to 8 inches, measured at 1.4 meters above ground and is most commonly used to make wood pulp, which is used for a variety of paper products such as cardboard, writing paper, wood chips, mulch, and eventually fuel pellets. Pulpwood is expected to come predominantly from (yellow) Southern Pine, due to the significant inventory surplus in softwood pulpwood in the area, within an approximately 75- mile radius of the facility (feedstock source area). Coskata expects the facility's feedstock will consist predominantly of softwood pulpwood with an expectation on sourcing of forest residuals that grows over time as that market further develops. The expected life of the ethanol facility is a minimum of 20 years. It is expected that, due to the excess in growth vs. removals of softwood pulpwood, and due to the significant volumes of untapped forest residuals, the forest industry within a 75 mile radius will be able to sustain the Facility indefinitely. Additionally, the forest industry is capable of responding to increasing demand with increasing growth rates, via advances in timberland management practices, predicting such increases and the impacts of those is remote and speculative.

Coskata has negotiated an agreement, with a leading supplier of feedstock to the forestry and pulp and paper industries, to procure feedstock for the Facility.

Feedstock Pretreatment, Transportation and Storage

Before entering the gasifier, all feed will be dried to an average moisture content of approximately 20 percent. As the facility will be prepared to dry all incoming biomass from approximately 45 percent moisture to approximately 20 percent moisture using recoverable heat from the syngas cooling process, the procured feedstock will be required to have a moisture content of approximately 50 percent on average, assuming a slight drop in moisture content to 45 percent during inventory storage on site. While some materials may come in at slightly more than 50 percent moisture (for example, hog fuel), the majority of material is expected to come in below 50 percent, with manufacturing residues capable of coming in as low as 10 percent moisture.

The Boligee, AL proposed Facility site is located in western Alabama along I-20 between Tuscaloosa, AL and Meridian, MS. This part of Alabama is rural in nature, extremely well

timbered and dominated by an active and large forest product economy. The feedstock "market" is a 75-mile drain radius around Boligee. The drain area takes in a considerable portion of 11 counties in Mississippi, as well as approximately 18 counties in Alabama.

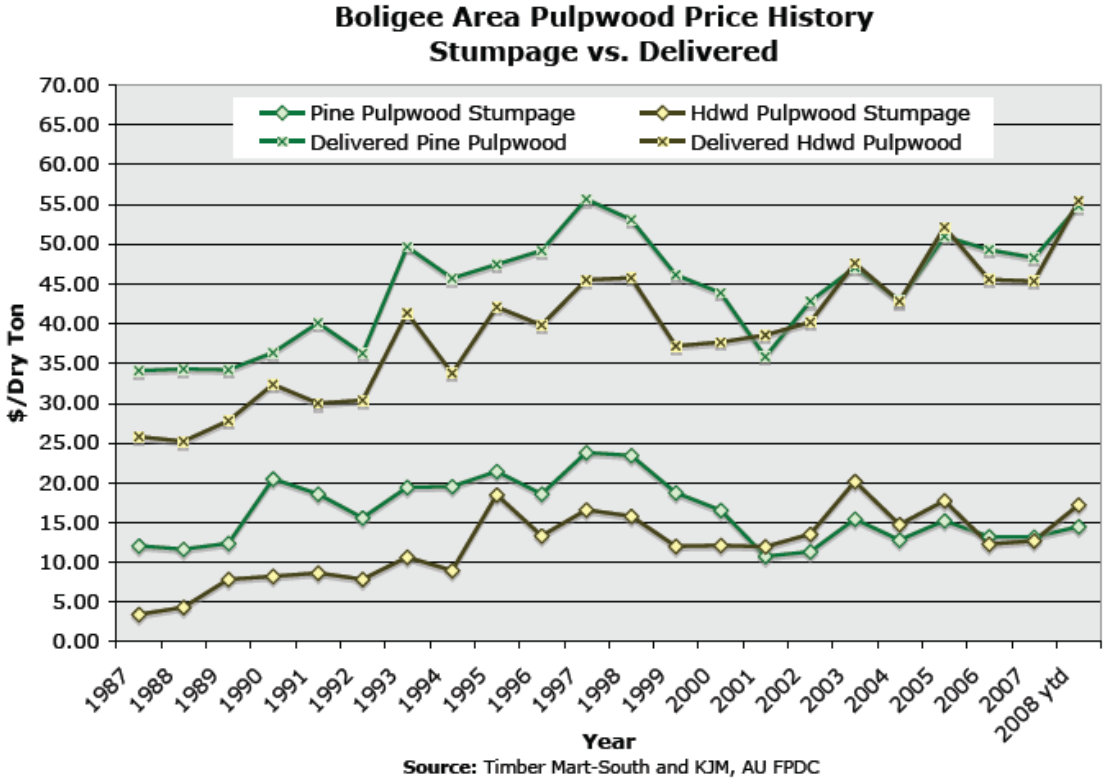
Estimates of Feedstock Volumes and Costs

Coskata will require 1.1 million green tons in feedstock per year. Coskata has forecasted biomass costs over the expected 20 year life of the facility. These forecasts are based on MP SRTS supply and demand elasticity modeling, correlations of harvest and transportation costs with diesel fuel costs, analysis of volumes available by type (pulpwood vs. residuals) as well as expected procurement and processing costs.

Woody biomass costs are driven by the stumpage price (the price received by the forest land owner), the cost of harvesting and transporting the woody biomass to the Facility (the "cut and haul costs") and the cost of chipping and procurement. Of these components, the cut & haul represents the most sizable portion of the cost, representing 50-60 percent of the total delivered pulpwood price.

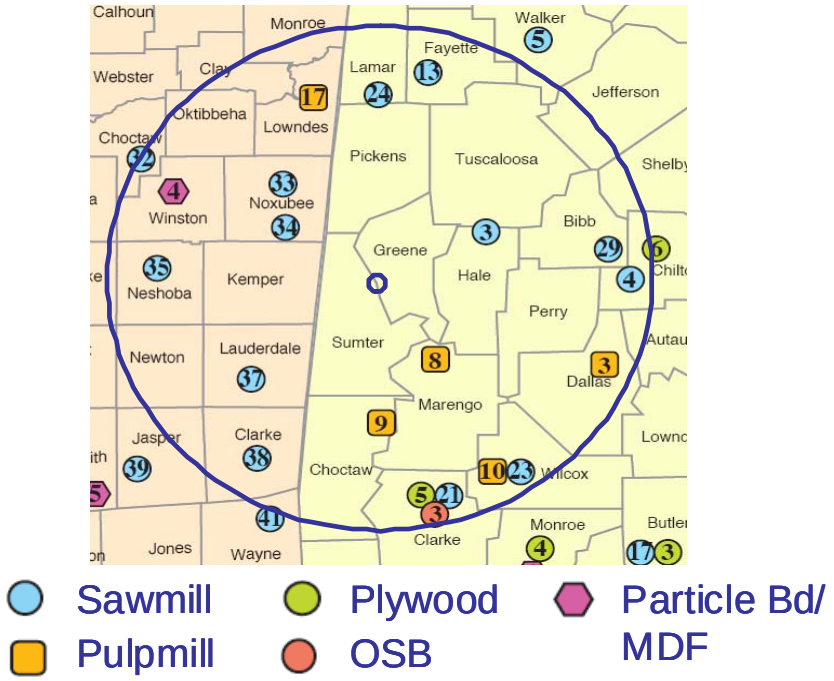
It is useful to note the historical behavior of delivered pulpwood prices in the Boligee drain area. As can be seen in Figure 12 below, in the last 10 years, delivered pulpwood prices have fluctuated between $35-55/dry tons in this area.

Figure 12 – Boligee Area Pulpwood Price History



The Boligee, AL wood drain area contains a diverse mix of competitor companies and operations, exerting demand on fiber from all facets of the forest and residual markets. Pulp and Paper, pine and hardwood lumber, mulch, fuel pellets, OSB, plywood and specialty markets all exert some level of influence on the area. The major competitors that will be procuring the same type of fiber as the Facility will involve the pulp/paper plants and accompanying chip mills, mulch and eventually fuel pellet businesses. Figure 13 below shows the known forest product plants in the procurement radius. In addition to these, a fuel pellet plant has been announced in Selma, Alabama.

Figure 13 - Feedstock Procurement Radius



Source: Auburn University Forest Products Development Center

In Figure 13, sawmills represent sources of feedstock supply in the form of mill residuals, while other facilities represent feedstock demand centers. A large volume of consumption in the Boligee drain by the pulp and paper mills as well as the supporting chip mills is hardwood. This bodes well for supply for the Facility, as there appears to be a surplus of softwood pulpwood throughout the area currently not consumed and therefore available to the Facility for use.

Although local market competition for feedstock exists, the Facility is expected to exert limited pricing pressures due to the significant supply basin and excess biomass growth above demand. The Facilities consumption represents less than 5 percent of annual woody biomass supply in the drain area. Available information also suggests limited competition for feedstock until the outer rim of the procurement radius, indicating a transportation cost advantage for materials within a significant portion of the procurement radius.
Due to the low percentage of annual woody biomass consumption in the area, the Facility is not expected to have significant impacts to the surrounding environment from the harvesting of the

feedstock, with respect to organic carbon sequestration, soil erosion, fire prevention, pest eradication, or any potential impact to threatened and endangered species in the areas of harvest.

V. Coastal Zone Management Act

No coastal zone resources are present in Greene County.

VI. Compliance with Advisory Council on Historic Preservation's Regulations

The proposed facility will not result in adverse impacts to historic resources because there are no historic resources located within the proposed facility, wetland mitigation area, or within the area of the proposed connected infrastructure upgrades. As stated previously, for purposes of this EA this proposal includes the construction of the cellulosic ethanol Facility within the 151-acre proposal area, proposed construction of approximately 45 acres of compensatory wetland mitigation within an adjacent 84-acre parcel, a 8,192-foot long surface trench and pipe for wastewater effluent discharge to the Tombigbee River, and road upgrades consisting of resurfacing of 6,000 linear feet (LF) of County Road-89 and 3,890 LF of the Truck Entrance from County Road 89. All other infrastructure components, including any proposed upgrades to roadway intersections, port/barge system, railways, offsite and onsite electric service, offsite water and sewer systems, and offsite and onsite natural gas lines are the responsibility of the GCIDB and utility providers, and are not considered connected actions for the purpose of this EA.

In a letter dated July 8, 2010, SHPO concurred that the proposed activities within the industrial park, outlined and submitted by the GCIDB, would have no effect on historic resources eligible for or listed on the National Register of Historic Places (Appendix 9). USDA RBCS determined that the proposed Facility and associated outfall pipe to Tombigbee River and road resurfacing would have no effect on historic properties. In a letter dated July 27, 2010, USDA RBCS contacted the State Historic Preservation Office (SHPO) or Alabama Historic Commission (AHC) for their concurrence on this determination and requested a response within the 30-day review period or the agency would assume SHPO concurred with this decision (Appendix 9). No response has been received to date, although in a verbal discussion with the Greg Rhinehart, he indicated that the SHPO's July 8, 2010 letter could be used as SHPO's response that there are no historic resources of concern within the proposal's activity boundaries.

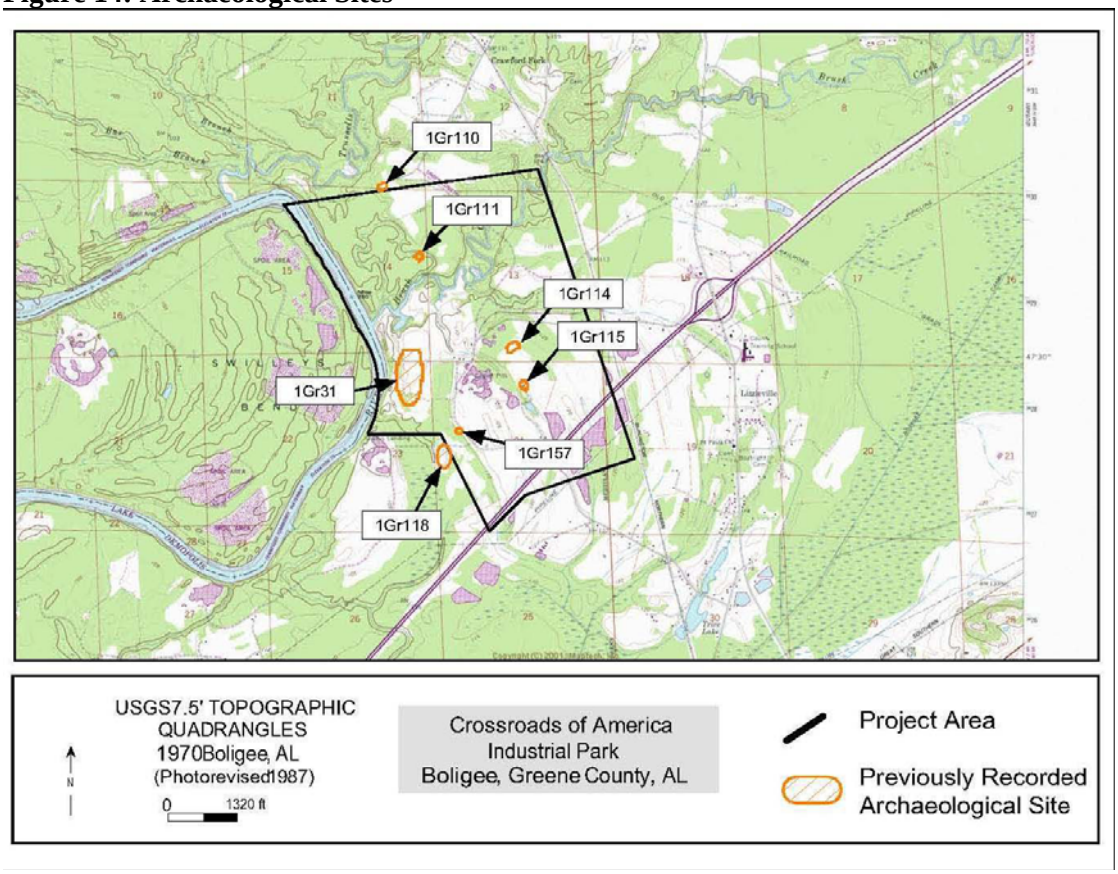
With respect to infrastructure upgrades associated with the industrial park which are not considered connected actions for this EA, please see the following paragraph. SHPO issued a concurrence letter dated September 10, 2009 regarding a water and sewer line extension upgrade that would enhance service of these utilities to the site (Appendix 9). The proposed water and sewer line extension would occur within the 1,390 acre industrial park. The September 10, 2009 letter indicates that SHPO concurs with the water and sewer upgrades on the park provided all construction activities will occur within either the highway right-of-way or in previously disturbed areas. It is the responsibility of the GCIPB to comply with these requirements.

USDA RBCS contacted the Poarch Band of Creek Indian's Tribal Historic Preservation Officer in Alabama and the Muscogee Creek Nation Chief in Oklahoma to request if either tribe had attached religious or cultural significance with the land area proposed for construction and

operation of the Ethanol Facility (Appendix 9). No response was received from either of these tribes, therefore USDA RBCS concluded that coordination with these Federally recognized tribes is complete.

An archeological, historical, and cultural baseline assessment, involving a document review, was completed in April/May 2010 for the 1,390-acre Crossroads Industrial Park (Appendix 6). The location of Crossroads along the Tombigbee River at Swilley's Bend indicates a high probability that prehistoric sites may exist. The assessment included the review of documents and literature for the Crossroads property including the Alabama State Site File ("ASSF"), which is a database of previously recorded archeological sites in the state. Also included in the assessment was information that shows which properties within the state have been subject to a Phase I archaeological survey. This research aids in the identification of any known cultural resources within the 151-acre site and related wastewater discharge footprint, as well as recognition of the potential for such resources. The various sources referenced for the baseline assessment are as follows: the Alabama Online Cultural Resource Database ("AOCR"), Alabama Phase I Surveys, the National Register of Historic Places ("NRHP"), the National Historic Landmarks ("NHL"), the Alabama Register of Landmarks and Heritage ("ARLH"), and historic maps maintained by the University of Alabama Cartographic Research Laboratory.

Figure 14: Archaeological Sites



Seven archeological sites are known to exist along the flood plains and terraces of the Tombigbee River in and around the Crossroads property (Figure 14. These recorded sites include: 1Gr31, 1GR110-111, 1GR114-115, 1Gr118, and 1Gr157. For purposes of this report, only the 1GR114-115 sites will be discussed because these are the only recorded sites located within the boundaries of the Proposed Facility and related infrastructure.

Most of the proposed Facility area has been subject to a previous archeological survey by an archeologist at the University of Alabama. These surveys were conducted in the early 1980's and were responsible for the recordings of Sites 1Gr110-111, and 1Gr114-115.

Site 1Gr114 is located at the western edge of a broad upper terrace in a cultivated field. It has a small scatter of artifact and is confined to a highly disturbed plowzone. The site was recorded originally; however, this site is not considered significant due to the lack of cultural material present and is considered ineligible for the NRHP.

Site 1Gr115 consists of a large scatter of lithic material in a cultivated field. This site is on a broad upper terrace 300 meters south of 1Gr114 and is bordered to the west by an abandoned gravel pit. Few artifacts and no midden deposits were found through subsurface testing. The lack of significant amounts of cultural material present causes the site to be deemed ineligible for the NRHP.

In summary, there are no NRHP, NHL, or ARLH properties listed within the Crossroads property. The two sites located within the proposed 151-acre Facility site are not deemed eligible for the National Register of Historic Places due to disturbance. Agricultural practices have continued on site since the 1980s cultural survey. No portion of the proposed facility or associated infrastructure is listed on the National Registry of Natural Landmarks.

USDA RBCS and SHPO provide the following recommendation should artifacts or archaeological features be encountered during any proposal activities, work shall cease and the USDA RBCS and SHPO shall be consulted immediately. Artifacts are objects made, used or modified by humans. These include but are not limited to arrowheads, broken pieces of pottery or glass, stone implements, metal fasteners or tools, etc. Archaeological features are stains in the soil that indicate disturbance by human activity. Some examples are post holes, building foundations, trash pits and human remains. This stipulation shall be placed on the construction plans to ensure contractors are aware of it.

This EA was completed utilizing an Area of Potential Effect (APE), as identified in the EA attachments, located entirely within areas that were previously disturbed and in which USDA RBCS received SHPO concurrence of no effect to historic properties. If any proposed construction activities associated with the proposed NPDES discharge pipe is to occur outside of the delineated APE, Coskata must notify USDA RBCS and SHPO, as these activities will require a cultural resource assessment by a professional archaeologist if not previously disturbed and if not an area that was previously included in the archeological surveys completed on the site, and will require concurrence by both the USDA RBCS (PSS) and SHPO prior to issuance of the Loan Note Guarantee.

VII. Compliance with the Wild and Scenic Rivers Act

No Wild and Scenic Rivers are present in Greene County. The proposal is located in proximity to the Tennessee-Tombigbee Waterway, which is not listed as a resource governed by the Wild and Scenic River.

VIII. Compliance with Endangered Species Act

Federally Listed Species Analysis

The proposed facility will not result in adverse impacts to threatened or endangered species because the proposed facility and connected infrastructure will be observing NPDES Discharge Permit required mitigative measures for the one federally listed species present, the heelsplitter mussel, and as such is not expected to have adverse effects. USDA RBCS determined that the proposed Facility and connected actions would have no effect on any known federally listed species and would not likely affect the Inflated heelsplitter mussel (Potamilus inflatus), a listed species. In a letter dated July 27, 2010, USDA RBCS contacted the U.S. Fish and Wildlife Service (USFWS) for their concurrence on this determination and requested a response within the 30-day review period (Appendix 9). In a letter dated, August 25, 2010, USFWS concurred with this determination provided mitigation measures outlined in the ADEM NPDES Permit requirement, including discharge monitoring, are performed(Appendix 9).

Survey Results

A threatened and endangered species survey report was completed on June 16, 2008 on the 150-acre property as well as the surrounding industrial park encompassing a 1-mile radius (Appendix 8). This survey included the area of the proposed effluent discharge pipe footprint. A document review of the federally-listed endangered species for the proposal area in Greene County Alabama indicated the potential presence of nine species including the Wood Stork (Mycteria Americana), Mitchell's satyr butterfly (Neonympha mitchellii mitchelli), Orange-nacre mucket mussel (Lampsilis perovalis), Alabama moccasinshell mussel (Me dionidus acutissimus), Southern clubshell mussel (Pleurobema decisum), Ovate clubshell mussel (Pleurobema perovatum), Heavy pigtoe mussel (Pleurobema taitianum), Inflated heelsplitter mussel (Potamilus inflatus), and Stirrup shell mussel (Quadrula stapes). Site investigations were performed for observation of favorable habitats of the above species. Stream banks and beds were observed for the indication of the presence of mussels; however, an underwater survey was not conducted for this survey. No suitable habitats were observed within the proposal's boundaries or within a one-mile radius of the proposal's boundaries for the Wood Stork. No suitable habitats were observed for the Mitchell's satyr butterfly. No freshwater mussels (living or relic) were observed within the proposal's boundaries or adjacent to the proposal's boundaries.

An aquatic survey report was completed in June 2010 on reaches of the Tombigbee River and Bush Creek (Appendix 8), near River Mile 260 of the Tombigbee, which are the water courses potentially affected by the proposal including the wastewater discharge pipe and diffuser within the Tombigbee River. The report concluded the following:

- The stable gravelly portions of the Tombigbee River could potentially provide suitable habitat for the Alabama moccasinshell, Southern clubshell, Ovate clubshell, Heavy pigtoe and the Stirrup shell mussel; however given the scarcity of common mussel species

observed during the survey, inhabitation by these rare species is possible but unlikely in the stable gravelly patches present on site.

- No protected species were observed on the eastern side of Tombigbee River.
- No protected species were observed within the diffuser pipe construction footprint or directly downstream.
- Potentially suitable habitat for the Orangenacre Mucket, Alabama moccasinshell, Southern clubshell and Ovate clubshell is present in the upper reach of Brush Creek; however the entire stream was examined for mussels between area A-8 and area A-11 and only two common species were collected. No observations of protected species were made during the Brush Creek portion of the aquatic survey.
- Inflated Heelsplitters are present in the Tombigbee River directly across from the proposed diffuser location but are likely restricted to the inner bank and possibly other protected submerged slopes in the proposal's vicinity. The aquatic survey concluded that if diffuser discharge is in compliance with the ADEM water quality standards, the consultant did not expect indirect adverse effects to wildlife species including protected species associated with the proposed discharge.

USDA- RD contacted Chris Johnson of ADEM on July 27, 2010 and requested information surrounding the issuance of ADEM NPDES wastewater discharge permits. According to Mr. Johnson, the waste load allocation (WLA) and mixing zone (MZ) modeling conducted in support of the NPDES Permit limits takes into account the existing conditions of the river for determination of instream waste concentrations and discharge rates/concentrations. The subject modeling assesses the assimilative capacity of the river including worst case conditions, other NPDES outfalls, water intakes etc. Therefore, the modeling considers cumulative impacts under worst case conditions (low flow, high temperature, etc.). These modeling protocols are conducted according to applicable ADEM regulations, policies and procedures and are considered protective of all aquatic life, including federally listed threatened and endangered species. Therefore, based on the conclusions of the aquatic species survey and the above contact with ADEM USDA RBCS has concluded that the proposal is not likely to have an adverse effect on the Inflated heelsplitter mussel (Potamilus inflatus).

The National Marine Fisheries Service requires the evaluation of impacts to Essential Fish Habitat (EFH) of estuarine species. The proposal will not impact EFH.

IX. Compliance with Farmland Protection Policy Act (FPPA), NRCS's Implementation Rule, and Departmental Regulation 9500-3 Land Use Policy

The proposed facility will not result in adverse impacts to important farmland because the prime farmland soils located within the proposed facility which are to be converted are considered already committed to urban development and therefore will not result in unwarranted conversion of important farmland. None of the aforementioned proposed connected actions will result in adverse impacts to important farmland. Approximately 45- acres of the adjacent 84-acre parcel will be utilized as the location of the proposed compensatory wetland mitigation area, and will be placed within a permanent conservation easement/deed restriction, however this process is not considered conversion according to the FPPA.

According to the NRCS Form AD-1006, the 151-acre Facility site contains 89 acres of Prime Farmland (Appendix 9). Prime Farmland contains the best physical and chemical soil properties for arable crops and requires minimal input for Crop Production. According to the FPPA and DR 9500-3 requirements, if a site scores 160 or less out of 260 points on the Form AD-1006 it is considered already committed to urban development and USDA is not required to consider alternatives. The proposed site scored 151 out of 260 total points. Therefore, USDA RBCS has determined that the proposed conversion of 89 acres of prime farmland is consistent with the FPPA and Departmental Regulation 9500-3 Land Use Policy.

X. Compliance with Executive Order 11988, Floodplain Management, and Executive Order 11990, Protection of Wetlands

Floodplain

The proposed facility will not result in adverse impacts to floodplains because there is no placement of fill in the 100-year floodplain and filling within the 500-year floodplain is not regulated by the Greene County Engineer serving Greene County as its FEMA Representative in the approval role of Flood Plan Administrator, and as such is not expected to have adverse effects. There are no FEMA identified 100-year floodplains located within the 151-acre proposed parcel. However a portion of the 500-year floodplain is located within the lower portion of the 151-acre parcel (Figure 4a, b, c). USDA RBCS implementing regulations for NEPA (RD Instruction §1940 Subpart G) require that no critical facilities be located within the 500-year floodplain. Since none of the critical facilities are located within the 500-year location, an alternatives analysis for locating the facility outside of the 500-year floodplain is not required.

Wetlands

The proposed facility will not result in significant adverse impact to wetlands or waterways. The facility proposes to fill 10.2 acres of wetlands and ephemeral drainageways and to dredge 12.4 acres of wetlands, to reactivate a former gravel/borrow pit, for construction and operation of the cellulosic ethanol facility and it proposes to construct one 8,192 LF discharge pipe to the Tombigbee River, in association with the construction of the discharge effluent from the facility. While this impact to wetland and waterways poses a moderate adverse effect to local flora, fauna, and water quality, these losses of functionality can be mitigated by the use of functional assessments and compensatory mitigation.

Summary of onsite wetlands/waterways

A Waters of the United States Determination and Delineation survey was conducted on the Crossroads 1,390-acre property in June 2008. Delineated wetlands within the 1,390-acre Crossroads property consist of approximately 387 acres. Seventy acres of ponds and 29,652 linear feet of stream were also delineated (Figure 15 below and attached). A total of 73 acres wetlands and waterways were delineated within a 235-acre site, which encompases the 151-acre ethanol facility site and the adjacent 84-acre mitigation area (Appendix 7, Figure 5). The mapped wetlands are Palustrine (non-tidal) wetlands that are comprised mostly of forested wetlands but also have scrub/shrub and persistent emergent wetlands.

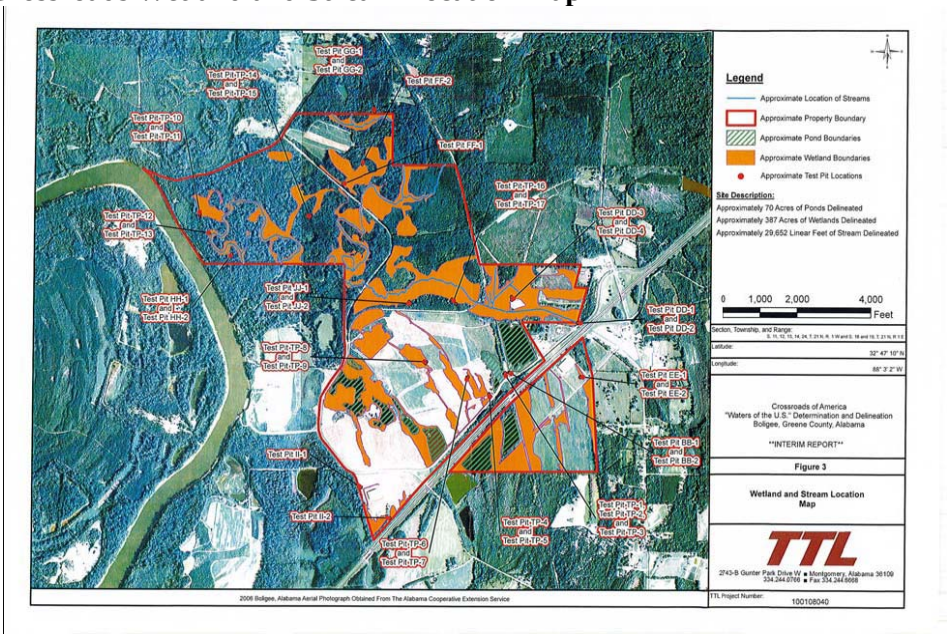
The land was observed for U.S. Army Corps of Engineers (USACE) regulated “Waters of the United States,” of which rivers, streams, lakes, ponds, and wetlands are all subsets. Responsibility of the regulation of impacts to Traditional Navigable Waters (“TNW”) and their

adjacent tributaries and wetlands belongs to the USACE under Section 404 of the Clean Water Act. In addition, any surface water that demonstrates a significant nexus to a TNW, tributary, or wetland is also regulated under Section 404 of the Clean Water Act. Such a significant nexus occurs if the tributary, in combination with adjacent wetlands, has more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a TNW.

The Crossroads property was traversed by vehicle and on foot within the property boundary. The 1987 USACE Manual was utilized to determine the presence of wetlands. This methodology requires the observation of three wetland parameters including hydrology, hydric soils and hydrophytic vegetation. By observing these practices, a detailed map was created illustrating the delineated "Waters of the United States" boundary as shown on Figure 15 below and attached. For the ethanol Facility site, all wetlands boundaries and stream lengths and widths were flagged and recorded using a GPS and verified by the USACE during a site meeting with USACE, the applicant GCIDB and its consultant, TTL, occurred in mid May 2010 (Appendix 7, Figure 5).
Two perennial stream branches enter the northeastern corner of the Crossroads property and flow south and eventually converge into Brush Creek. Brush Creek continues to flow southward toward the southwest corner of the property and ultimately flows to the Tombigbee River. The stream beds of these streams are silty and average 50 to 80 feet wide by 20 to 40 feet high. Brush Creek has been impacted by illegal dumping from the Greene County Road 89 bridge. The Creek is buffered by dense vegetation and adjacent hardwood forests with a mixed understory of other small trees and shrubs. Brush Creek is roughly 500 ft. north of the proposed ethanol Facility.

The northern portion of the 1,390-acre Crossroads site contains mostly forested wetlands dominated by sweetgum, red maple, and various oaks and hickories. Other vegetation is mainly broome sedge, cattails, soft rush, smartweed and other seasonal grasses. The central and southern portions of Crossroads (including the 151-acre ethanol Facility) contains the scrub/shrub and persistent emergent wetlands, and wetland areas that are farmed and/or drained.

Figure 15: Crossroads Wetland and Stream Location Map



The wetlands within the proposed 235-acre site consist of a total of 73 acres, 57 acres of which occurs within the 151-acre ethanol Facility site. The Flagship site has been under agricultural practices for more than 25 years. As such, the wetlands have been impacted by man and continue to be degraded by the seasonal tilling of the site.

The Industrial Development Board of Greene County submitted an application to the USACE for a proposal to fill 10.2 acres of wetlands and ephemeral drainageways and to dredge 12.4 acres of wetlands to "reactivate" a former borrow/gravel pit in association with the construction of the ethanol facility**.** Additionally, the applicant intends to seek separate verification under Nationwide Permit 7, *Outfall Structures and Associated Intake Structures*, for a diffuser that will be located in the Tombigbee River, located 8,192 LF away, which will convey treated process water (wastewater) from the Facility's onsite wastewater treatment plant to this discharge point on the Tombigbee River.

The joint public notice for the individual USACE permit application for fill/dredging is available for public comment and posted to the USACE website at http://www.sam.usace.army.mil/rd/reg/PN/currentPNs/SAM-2010-00672-CHE.pdf and Appendix 7.

Off-site Alternatives Analysis

Site selection for Coskata's Facility was contingent, first and foremost, upon the site being located in an area that contained a plentiful supply of wood biomass. In 2008, Coskata sponsored a high level scan of the United States for regions with a plentiful supply of wood biomass and determined that the Southeast United States was the region with the highest potential. Additionally, the site needed to be located near a major transportation artery and have access to plentiful water for the ethanol production process. Alternate transportation venues (rail and water), though not a current site requirement, could be a future advantage for receiving feedstock and/or shipping of finished product.

Coskata then narrowed down the search within certain counties within those states which held promising forest resources. Next, Coskata contacted the following state development offices in order to search for viable sites for the ethanol Facility within a 50-mile radius of the regions with the highest wood biomass potential:

- Alabama Development Office
- Enterprise Florida and the Florida Department of Agriculture and Consumer Services
- South Carolina Department of Commerce
- Georgia Department of Economic Development
- Louisiana Economic Development
- Mississippi Economic Development Council

Through these state development offices, and other resources, Coskata contacted the owners of a minimum of five alternative sites located in Florida, Georgia, and Alabama. None of these sites, except for the proposed site in Alabama, provided viable site conditions due to various discrepancies with infrastructure upgrades and purchase agreements. This is proprietary information and is contained within the administrative record of this EA.

Among the Southeastern states, Alabama was the most promising because it contained five separate areas with high wood biomass potential within the Traditional Counties of the Alabama Black Belt (Figure 16 below). The potential locations within Alabama included the areas around Boligee/Tuscaloosa, Childersburg, Scottsboro, Ft. Payne, and Troy. Alabama also stood out because of the resources and support provided by Auburn University and the Alabama Development Office. The Boligee/Tuscaloosa area was identified as having the most potential of the five locations because of the potential feedstock located within each county and the plentiful feedstock located in adjacent counties.

Figure 16 – Traditional Counties of the Alabama Black Belt

Source: http://cber.cba.ua.edu/edata/maps/blackbelt.jpg

The Alabama Development Office identified and presented Coskata with three potential sites in the Boligee/Tuscaloosa area that matched their initial site selection criteria. Two sites were located in Tuscaloosa County and one site was located in the Crossroads of America Industrial Park in Boligee. Representatives from Coskata visited each of the sites in August 2008. One of the sites in Tuscaloosa was immediately eliminated from consideration because of the small size and site layout. The remaining two sites were screened and rated by Coskata using their site selection criteria, which included availability of utility and logistics infrastructure, and land features (size, layout, preparation needed, environmental risk, and price). While both sites ranked high, the Tuscaloosa site was eliminated because the owner was not willing to sell; therefore, the focus of Coskata commercial development efforts became the Crossroads of America Industrial Park in Boligee which meet all of their site selection criteria. The Crossroads of America Industrial Park also had features that would be appreciated if future expansion became desirable.

On-site Alternatives Analysis

Representatives of the Crossroads of America Industrial Park presented Coskata with four possible parcels located within the park that were thought suitable for site location. Appendix 7, Figure 3 depicts the Flagship parcel of land (Site 3 – Preferred Alternative) and the three other parcels considered during alternatives analysis of near-vicinity property. It was determined that Crossroads Flagship Site 1 and Site 2 were too small in acreage to allow adequate placement of the proposed facility. Therefore, Coskata was left with two remaining parcels greater than 200 acres situated within the park for assessment. The sites are referred to as Flagship Site 4 "Northwest" and Flagship Site 3 "South" offered different park infrastructure advantages to Coskata.

Site 4 Alternative

The northwest site is situated close to the Tombigbee River and adjacent to a proposed future second port facility in the park (Appendix 7, Figure 3). There are existing water and sewer lines, and a frontage road along the eastern border of the northwest site. Three major areas of concern became apparent for the northwest site that included the following:

1. Rail access would require extending the existing railroad spur about ½ mile to the northwest that also would cross Brush Creek, creating both additional wetland/waterway impact and large construction costs.
2. The initial layout of the facility determined that more than 50 percent of the area proposed for permanent structures lay below the 100-year flood elevation.
3. The existing frontage road to the northwest site would have to be upgraded substantially to support anticipated truck traffic.

Alternative Site 4 consisted of an approximately 200 acre land parcel which contained a total of 48.8 acres of delineated wetlands/waters of the U.S. Alternative Site 4 proposed approximately 30.4 acres of on-site wetland impact and an additional 12.4-acres of impact to the off-site borrow pit, for a total of 42.8 acres of wetland/waterway impact. Please find a map of Alternative Site 4 showing a total impact of 42.8 acres of wetlands (Figure 17).

Site 3 – Preferred Alternative

The evaluation of Flagship Site 3 "South" demonstrated very strong advantages over the northwest site (Appendix 7, Figure 3). The parcel boundaries of Site 3 "South" would allow the facility layout of structures and processes to operate more efficiently and safely. A north access road to accommodate the 150 daily truck loads of wood would be totally separated from the employee and product traffic along the south frontage road. The existing rail spur borders the entire north boundary of this site. The majority of the site is relatively flat, open fields that currently contain agricultural crops. All elevation contours of the proposed areas for permanent structures are above the 100-year flood elevation. The existing topography would reduce the site grading requirements considerably as compared to the northwest parcel.

Alternative Site 3 consisted of a 151-acre land parcel which contains a total of 57 acres of delineated wetlands/waters of the U.S. The facility proposes to impact 22.6 acres of these 57 acres (10.2 acres of emergent wetlands and ephemeral drainageways for fill and to 12.4 acres of palustrine open water wetland impact for dredging for gravel). Alternative Site 3, the proposed location, does not contain mature forest surrounding tributaries, such as is present at Site 4. Site

4 contains a larger amount of aquatic resources which have not been impacted as severely by historical mining or agricultural use, and are of much higher quality. The proposed location has been utilized for sand/gravel mining and agriculture for more than 50 years. The site does have remnants of emergent wetlands but the wetlands have been mostly impacted by farming. The wetlands within the Coskata site are low quality as hydrology, soil, and vegetation have all been impacted by historical use. Therefore, the wetland acres that would be avoided by selecting Alternative 3 compared to Alternative 4 would be 20.2 acres.

Avoidance/Minimization
The site plan was redesigned to avoid/minimize as much of the wetlands/waterways as practical. The current proposal is to impact 22.6 acres of wetlands/waterways (fill 10.2 acres and dredge of 12.4 acres of wetlands/waterways) for construction and operation of the cellulosic ethanol facility. At present the wetlands/waterways have already been adversely impacted through the seasonal tilling, and prior ditching/draining activities.

Proposed Compensatory Mitigation
On-site, in-kind compensatory wetland mitigation is currently proposed and under review at USACE for the proposed impacts to wetland and waterway resources associated with the Facility (Appendix 7, Figure 7-10). The conceptual mitigation plan involves restoration and enhancement of approximately 45 acres of wetlands that have been degraded through past land use and landscape modification. The mitigation parcel is located adjacent to the eastern side of the proposed site on an 84-acre parcel of land also within the GCIDB Crossroads Park. The final compensatory mitigation plan will include a design based upon reference ecosystem and stream reference reach data, and specify vegetation requirements, monitoring and performance criteria. The final compensatory mitigation plan must be approved by the USACE prior to issuance of the permit and prior to the start of construction at the facility.

The USACE anticipates that any impacts from installing the pipe from the Facility to the Diffuser would be eligible for verification under Nationwide 12. The applicant is required to obtain authorization from the USACE, in the form of Nationwide Permit 12 or other appropriate permit or approved jurisdictional determination, for impacts proposed within the Facility's proposed 8,192 LF process waste water discharge footprint.

USDA RBCS made a determination of no significant adverse effect to wetland and waterway resources for this proposal based on the jurisdictional determination and individual permit application submitted to the USACE and information submitted to the USDA RBCS, for the proposed construction within the 235-acre Facility site, adjacent mitigation area, and associated process wastewater discharge outfall to the Tombigbee River. However, since the wetland functional assessment(s) and mitigation plans for the facility are not completed at the time of this publication, USDA RBCS has requested to be included in the review of the compensatory mitigation plan for the Facility, in order to conclude that the proposal will pose no significant adverse effect to wetland and waterway resources. Coskata must submit to USDA RBCS all supporting materials submitted to USACE concurrent with the submission to USACE, for the individual permit for proposed impact within the 151-acre proposal site, including all plans for compensatory mitigation, prior to issuance of the Loan Note Guarantee.

XI. Compliance with Coastal Barrier Resources Act

There are no resources subject to regulation under the Coastal Barrier Resources Act.

XII. State Environmental Policy Act

The proposal is not subject to a State Environmental Policy Act, as Alabama does not have such a program or state regulatory requirement.

XIII. Consultation Requirements of Executive Order 12372, Intergovernmental Review of Federal Programs

The state of Alabama is not a participant of the intergovernmental review process of Federal Programs as outlined in Executive Order 12372. Therefore, the state of Alabama does not have a State Point of Contact (SPOC) for this E.O. According to RD Instruction 1940-G, USDA RBCS is required to coordinate directly with the local municipality planning board/department. For this Facility located within Greene County, Alabama, the Greene County Commission was contacted and provided a response letter located in Appendix 11. The Green County Commission letter states that the Commission supports the proposed facility, and that the plans are in line with the planning goals of the commission for the county and offer a very welcome opportunity for economic development and job growth.

XIV. Environmental Analysis of Participating Federal Agency

There are no formal participating Federal Agency's for this Environmental Assessment (EA). However, as documented in Section X. Compliance with the Executive Order 11988, the USACE is completing a separate EA in conjunction with its wetlands/waterway individual permit for which USDA RBCS has requested to be a cooperating agency.

XV. Reaction to the Proposal

A Preliminary Public Notice of USDA RBCS's review of the Ethanol Facility for funding, to solicit comments from the public, was published in the two local papers, which serve the proposal area, on July 7th and 14th, 2010, in the "The Greene County Democrat" and on July 14th and 21st, 2010, in the "Greene County Independent" (Appendix 10). The 30-day preliminary notice period ended August 14th, 2010. During this time USDA RBCS received three individual requests from the public to review materials related to the proposal.

Local support for the proposal appears to be strong, as evidenced by the support letter from the Greene County Commission (Appendix 11). Appendix 11 contains additional letters of support from the governor of Alabama, representatives from universities, congress and the senate. One public meeting was held in November of 2008 in Eutaw, AL, at the GCIDB offices. Although the public meeting was held during the site selection process of the proposal, the public expressed tremendous support for the proposal at this meeting. To our knowledge there have been no negative comments or public views expressed about this proposal.

XVI. Cumulative Impacts

Cumulative impacts to the natural environment, including forest resources, threatened and endangered species, wetlands, waterways, air quality, historic resources, are not expected due to the small amount of forest resources proposed for use, municipal solid wastes disposal methods,

and the wastewater discharge quality and air quality requirements that are enforced through ADEM permitting.

Land use within the surrounding 75-mile radius feedstock source area is not expected to change significantly from this proposal due to the small percentage (less than 5 percent of annual woody biomass supply in the area) of forest resources that are proposed for use over the life of the Facility.

The planned facility has a positive environmental impact stemming from its contribution toward lowering lifecycle greenhouse gas emissions from transportation fuels. As a renewable, biomass-based fuel, the cellulosic ethanol produced by the Facility will have a minimum of 60 percent lower lifecycle greenhouse gas emissions than conventional gasoline. Coskata expects that the 55 million gallon output of this facility will directly displace 55 million gallons of gasoline, thereby contributing to the overall reduction of CO_2 in the U.S.

As a large-scale organics processing facility, this proposal has the potential for fire or release of chemicals to the environment. This potential is significantly mitigated by engineering controls that will be designed into the facility and the types of materials handled. The engineering controls will be designed to all applicable codes to ensure that robust protections are present to reduce the risk and severity of fire or chemical release. The biomass feedstock for the facility does not represent a significant health risk and ethanol product has limited acute or chronic health impacts.

Lower Water Use

One benefit of the proprietary technology proposed for use for this Facility for producing cellulosic ethanol is that it provides for lower water use than both gasoline and corn-based ethanol. Problems of water scarcity, potability and access rights are projected to increase as global population grows, and pollution and global warming continue. The inefficient water usage of many industries further exacerbates the problem. In the case of corn-based ethanol, estimates of water use are in the 4-5 gallon range, per gallon of ethanol produced (http://www.agobservatory.org/library.cfm?refid=89449). Estimates for water usage in gasoline refining are in the 2-3 gallon range (Energy Demands on Water Resources, Report to Congress on the Interdependency of Energy and Water, U.S. Department of Energy, December 2006).

Coskata's process is designed to be highly water efficient. This efficiency is accomplished by recycling water from the feedstock and using it as make-up water for the cooling towers, which is the major source of water use for the facility. With this approach, the Facility is expected to require less than 2 gallons of net water per gallon of ethanol produced, which is less than the requirement for gasoline refining and quarter the needs of conventional corn-based ethanol.

XVII. Adverse Impact

As previously discussed, this proposal includes the construction of the cellulosic ethanol Facility within the 151-acre proposal area, proposed construction of approximately 45 acres of compensatory wetland mitigation within an adjacent 84-acre parcel, a 8,192-foot long surface trench and pipe for process wastewater effluent discharge to the Tombigbee River, and road upgrades consisting of resurfacing of 6,000 linear feet (LF) of County Road-89 and 3,890 LF of

the Truck Entrance from County Road 89. All other infrastructure components, including any proposed upgrades to roadway intersections, port/barge system, railways, offsite and onsite electric service, offsite water and sewer systems, and offsite and onsite natural gas lines are the responsibility of the GCIDB and utility providers, and are not considered connected actions for the purpose of this EA because the facility either does not rely on them for construction or operation or they are infrastructure upgrades that will service additional markets.

The facility proposes to fill 10.2 acres of wetlands and ephemeral drainageways, to dredge 12.4 acres of wetlands to reactivate a former gravel/borrow pit, and to construct an 8,192 LF discharge pipe to the Tombigbee River. While this impact to wetland and waterways poses a moderate adverse effect to local flora, fauna, and water quality due to the loss of wetland/waterway functionality, these losses can be mitigated by the use of functional assessments and compensatory mitigation. This proposal would have moderate, adverse effects to wetlands/waterways, and minor adverse effects to air quality, water quality, and local wildlife, however, it does not pose significant adverse effects to the natural or human environment.

XVIII. Alternatives

1. No Action Alternative

For the No Action Alternative, there would be no Facility construction and no feedstock would be consumed for this proposal. While utility upgrades may be provided to other entities within the industrial park, no utility upgrades would be administered for the proposed site. As a result there would be no ethanol production and no contribution to the Renewable Fuel Standards established in the Energy Independence and Security Act of 2007. Should another entity not purchase the property, there would be no immediate modification to the existing wetlands and waterways.

2. Alternatives Considered but Dismissed by Coskata

Initially, a potential proposal site located on a 200-acre parcel in a rural area 7.5 miles south of Tuscaloosa, Alabama, was considered for the Facility. The site was accessible via Alabama Highway 69 and the Warrior River was located approximately 500 yards northwest of the site. A paper mill operated by International Paper Co. had occupied the site until December 2002. At that time, the manufacturing operation was shut down and mill equipment was subsequently dismantled and moved to other International Paper facilities. This site was ultimately not selected, and is no longer being considered as the location for the Facility because of failure to come to terms with the seller of the property. Refer to the Section X. Compliance with Executive Order 11988 for further off-site alternatives discussion.

XIX. Mitigation Measures

The following mitigation measures must be made part of the letter of conditions to the applicant for the Loan Note Guarantee.

Mitigation # 1 – If any proposed construction activities associated with the proposed NPDES discharge pipe is to occur outside of the delineated Area of Potential Effect (APE), Coskata must notify USDA RBCS (Program Support Staff [PSS]) and SHPO. A cultural resource assessment by a professional archaeologist will be required on any areas not previously disturbed and

concurrence from the USDA RBCS (PSS) and SHPO will be required prior to issuance of the Loan Note Guarantee.

Mitigation # 2 – Coskata must submit to USDA RBCS (PSS) all supporting materials submitted to USACE concurrent with the submission to USACE, for the individual permit for proposed impact within the 151-acre proposal site, including all plans for compensatory mitigation, prior to issuance of the Loan Note Guarantee.

Mitigation # 3 - As long as USDA RBCS guarantees this loan, if the microorganisms intended for use at the facility change from those submitted for review during this EA, Coskata must notify USDA RBCS and submit an adequate microbial risk assessment encompassing potential release of this/these organisms to the environment so that USDA RBCS (PSS) can complete another review of these microorganisms.

Mitigation # 4 - As long as USDA RBCS guarantees this loan, should artifacts or archaeological features be encountered during any proposal activities, work shall cease and Coskata must consult with the USDA RBCS and SHPO immediately. Artifacts are objects made, used or modified by humans. These include but are not limited to arrowheads, broken pieces of pottery or glass, stone implements, metal fasteners or tools, etc. Archaeological features are stains in the soil that indicate disturbance by human activity. Some examples are post holes, building foundations, trash pits and human remains. This stipulation shall be placed on the construction plans to ensure contractors are aware of it.

The following conditions must be made part of the letter of conditions to the applicant for the Loan Note Guarantee.

Condition # 1 – Coskata must provide a copy of all pending pre-construction permits including the individual USACE permit, air quality permits from ADEM, and NPDES discharge permit from ADEM prior to the issuance of the Loan Note Guarantee. However, the following pre-operation permits 1) Nationwide Permit 7, *Outfall Structures and Associated Intake Structures* for the proposed diffuser to be located in the Tombigbee River and 2) Potential Nationwide Permit 12 for any potential impacts to wetlands/waterways located within the 8,192 LF footprint of the wastewater discharge pipe are not expected to be obtained by Coskata until after issuance of the Loan Note Guarantee, and are therefore not required as a condition.

XX. Consistency With Rural Development Environmental Policies

There are no inconsistencies between the Federal and State policies.

XXI. Environmental Determinations

The following recommendations shall be completed:

A. Based on an examination and review of the foregoing information and such supplemental information attached hereto, I recommend that the approving official determine that this proposal will have ( ) a significant effect on the quality of the human environment and an Environmental

Impact Statement must be prepared; will not have (X) a significant effect on the quality of the human environment.

B. I recommend that the approving official make the following compliance determinations for the below-listed environmental requirements.

Not in compliance		**In compliance**		
			X	Clean Air Act.
			X	Federal Water Pollution Control Act.
			X	Safe Drinking Water Act—Section 1424(e).
			X	Endangered Species Act.
			X	Coastal Barrier Resources Act.
			X	Coastal Zone Management Act—Section 307(c) (1) and (2).
			X	Wild and Scenic Rivers Act.
			X	National Historic Preservation Act.
			X	Archeological and Historic Preservation Act.
			X	Subpart B, Highly Erodible Land Conservation
			X	Subpart C, Wetland Conservation, of the Food Security Act.
			X	Executive Order 11988, Floodplain Management.
			X	Executive Order 11990, Protection of Wetlands.
			X	Farmland Protection Policy Act.
			X	Departmental Regulation 9500–3, Land Use Policy.
			X	State Office Natural Resource Management Guide.

C. I have reviewed and considered the types and degrees of adverse environmental impacts identified by this assessment. I have also analyzed the proposal for its consistency with FmHA or its successor agency under Public Law 103–354 environmental policies, particularly those related to important farmland protection, and have considered the potential benefits of the proposal. Based upon a consideration and balancing of these factors, I recommend from an environmental standpoint that the proposal

_X_ be approved.

____ not be approved because of the attached reasons.

Prepared by: Juliet C. Bochicchio September 8, 2010

JULIET C. BOCHICCHIO Date
Environmental Protection Specialist
Program Support Staff

Recommended: William C. Smith 12/7/10

WILLIAM C. SMITH Date
Director, Energy Division
Rural Business-Cooperative Service

Approved: Judith A. Canales 12/7/10

JUDITH A. CANALES Date
Administrator
Rural Business-Cooperative Service

[49 FR 3727, Jan. 30, 1984, as amended at 53 FR 36266, Sept. 19, 1988]